The EC Regional Structural Funds impact in Sweden 1995-1999

A quantitative analysis

Abridged version of A2004:009

itps SWEDISH INSTITUTE
FOR GROWTH POLICY
STUDIES

The EC Regional Structural Funds Impact in Sweden 1995–1999

A quantitative analysis

Commissioned by the ITPS to:
Oxford Research
Eurofutures
University of Umeå, Departement of Geography

itps INSTITUTET FÖR
TILLVÄXTPOLITISKA
STUDIER

Foreword

ITPS has given a consortium, led by Oxford Research AS, the assignment of evaluating the overall effects in Sweden of the geographical programmes under the EC's structural funds during the period 1995–1999, The consortium has also included EuroFutures AB and Umeå University. The background to the assignment is that many earlier evaluations have focused on one programme at a time. None have approached the subject of the contributions to regional development made by the programmes. Another part of the background is that most of the earlier evaluations of the structural funds have been based on reports on results made by the owners of the projects – i.e. the recipients of the support. In this project the aim has been to try and identify changes in regional development and to link these changes to contributions from the structural fund programmes. The consortium report is published originally in Swedish as ITPS report A2004:009 whereas the English version being an abridged version of the Swedish one (http://www.itps.se/pdf/A2004:009.pdf).

The report is mainly a statistical analysis. The primary aim is to stimulate a discussion on the ways in which the structural funds' investments make an impression on the economy of the regions. It is reasonable to examine whether this impression can be found at the levels given in the programme documents. It is also reasonable to proceed from simple to more sophisticated quantitative methods in the search for these impressions. The methods used have been conventional in the sense that they are examples of approaches that have been tried and tested earlier and are often quoted in the literature.

When making comparisons between regions and countries it is common to use a method that has the aim of discerning whether the regions are approaching each other in respect of income levels or other interesting variables. Convergence analyses of this type mainly differ in the number of dimensions (explanatory variables) included in the analysis. In this report use has only been made of income levels at an earlier point in time to explain changes in income. This can be regarded as one point of departure but it should be supplemented with more sophisticated models in the future.

Two approaches have been used in the search for impressions. The first is a comparison between the group of municipalities that have been recipients of structural fund projects with the group of municipalities that have not received structural funds. The classic problem with comparisons of this type is that the estimated "effect" can be biased, over or understated, due to "self-selection". This means that underestimates or overestimates are made since no consideration is given to the fact that the groups being compared are not "identical" in fundamental respects. Since the very idea behind the structural funds is to remedy structural problems in certain regions, it can be maintained that these are chosen, selected, for negative reasons with the effect that it is reasonable to assume that, in a simple comparison, an underestimate is made of the effect that the structural funds may have achieved.

In this report an approach is used which makes corrections for this in one respect. The approach is implemented in a simple and a more advanced version but the main result is the same.

The other approach is a so-called "before and after" analysis, made only of municipalities that have had structural fund projects. If, for various reasons – for example access to data – it is felt that municipalities that have not received structural funds are not suitable for use for comparison purposes, a comparison can be made between the development of participating municipalities during the structural fund period with development in the period before the structural funds. The problem with this approach is that the economic situation can differ in different periods of time, which was the case in Sweden. The early 1990s were characterised by high levels of unemployment and a decline in industrial production. The second half of the 1990s was characterised by a strong export-led economic boom in which private consumption lagged behind. Once again the solution to this problem is to allow the analysis to focus on change or differences. This second analysis can be said to examine whether there is any difference in development over time *within* these municipalities. Since the same regions received different types of regional support prior to 1995, this is more a test of the relative importance of the various regional support programmes.

ITPS is of the opinion that this report gives, in essentials, a correct and true and fair picture of the impression made by the structural funds – or perhaps, to put it better, a lack of impression – on the Swedish regional development map. ITPS is therefore of the opinion that the report should be interpreted as a serious warning signal that at least the work done in the initial years with the structural fund programmes in Sweden has not had any definite effects on the structural conditions the policy was intended to influence. ITPS thus shares the main assessments and conclusions presented in the report that the explanation for this can be sought partly in undeveloped programme logic in the implementation of the structural funds and partly in undeveloped tools to capture aggregated regional effects. In other reports ITPS contributes to the discussion of the development of both these factors[1].

Stockholm November 2004

Sture Öberg

General Director

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[1] *For example ITPS A2004:011 about a comprehensive impact of Swedish regional policy, and ITPS A2004:02X about indicators for regional growth (forthcoming)*

Contents

1   Summary and conclusions

The regional development policy has been a central theme in Sweden for decades. With Sweden's membership of the EC, new opportunities arose to support development in the weakest regions of the country. Through the EC's geographical programmes Objective 2, Objective 5b and Objective 6, investments totalling SEK 17.8 billion were made during the period 1995–1999. Each one of the EC's geographical objective programmes has been evaluated and has been praised and criticised, but these evaluations have had their primary focus on the implementation of the EC's programmes and on their immediate results. One of the central questions that remains to be answered is whether the EC's geographical programmes have also contributed to strengthening regional economic development in the weakest regions and thereby helped make to make growth and prosperity possible in these regions.

At a somewhat higher level, it is therefore vital to pose the question of whether the geographical programmes have also contributed to promote overall regional development in Sweden. In concrete terms the question refers to the degree to which the support provided by the programmes has actually contributed to fulfil the overall objectives of the programmes and the national/regional objectives for regional development.

Accordingly, **the objective** of this evaluation is to assess and analyse the overall effects of the EC's geographical programmes on regional development throughout Sweden. It is also important to emphasise that one objective of the project has been to examine possible methods – and their reliability – to make quantitative studies of the effects of the EC's geographical programmes. For this purpose it is essential to have access to data on the regions and on the purposes to which the investments have referred. A major part of the work of this study has been to examine whether the available data is of sufficiently good quality.

The **main conclusion** of the evaluation is that it is not possible to trace any effects of the EC's geographical programmes on overall regional development. During the period the programmes were studied, the regional differences have tended to intensify rather than be levelled out.

This does not prevent individual projects in individual municipalities from being successful but nevertheless it is surprising that we are unable to trace any effect on overall regional development. The evaluation immediately raises the question of whether the municipalities that received support would not have coped equally as well if they had not received support from the EC's geographical programmes. An impact analysis not putting forward this question has erred in the first stance. However to obtain an answer to this question is always demanding. Albeit the present study applies methods commonly used while analyzing a contra-factual, more sophisticated implementations of these are left for the future. The results must all the same be considered as serious indications to be acted upon.

What can be the reasons for the lack of effects on overall regional development and would an alternative use of the EC's support have provided greater effects on regional development? This is briefly discussed in this summary after a presentation of the analytical methods used in the evaluation. A review is also provided of the other results of the evaluation. In order to reach this main conclusion a number of **statistical and qualitative analyses** have been made:

- We have tested for convergence/divergence in order to show whether regional differences decreased during the programme period 1995–1999, which could be an indication of the effect of the EC's geographical programmes on overall regional development.

- We have tested for the effects of the structural fund programmes on regional development in two ways:

  1. Is there a relationship between the total investments – the total amount of support provided by the programmes – and trends in a number of goal indicators? The goal indicators are taken as an expression of whether the EC's geographical programmes have an effect in line with their overriding objectives. We have tested for a relationship between the EC's geographical programmes and population trends, trends in per capita income, and employment trends.

  2. Is there a relationship between the total investments – the total amount of support provided by the programmes – and trends in a number of effect indicators? All in all, 15 effect indicators were selected to capture the direct results of the implemented programmes/projects. The following effect indicators are included in the analysis:

     - Indicators of effects relating to development of industry and enterprises:

       o Proportion of the population between 25 and 65 years who are dependent on social security

       o Employment in the private sector

       o New enterprises

       o Number of workplaces with more than 5 employees

       o Employees in the business service sector

     - Indicators of effects relating to skills, education and human resource development:

       o Employees with a university education in the private sector

       o Number of formally qualified teachers

       o Wage earnings per employee in the private sector

       o Mobility on the labour market

       o Unemployment

- Indicators of effects related to external developments
  - Gross commuting
  - Gross movement into regions
  - Number of persons in families with 2 adults
  - Registered tourist nights
  - Number of employees in culture and sport

Finally we have made two case studies in order to find possible qualitative explanations why it was not possible to find any decisive effects of the programmes on overall regional development.

Below a discussion follows of the evaluation's main conclusion based on the **results of the analyses made.**

Firstly, we tested whether there was any convergence or divergence in overall regional development. This was measured first and foremost with the central key economic indicator "per capita income". This analysis shows that trends in Swedish municipalities did not converge during the period of the programme 1995 – 1999. On the contrary, the trend is towards greater differences (divergence) between the Swedish municipalities. However, this trend is weak.

We have also studied whether the municipalities that received support were more successful during the period 1995–1999 than during the period 1990–1995 in comparison with the municipalities that did not receive support. This was measured with the overall goal indicators for regional development. The result is that the municipalities in receipt of support have not succeeded so well since per capita income trends, population trends and employment trends have been weaker in municipalities in receipt of support. Therefore, the EC's geographical programmes do not appear to have contributed to convergence between municipalities in receipt of support and municipalities not in receipt of support.

Secondly, we were unable to establish any relationship between the total investments made through the EC's geographical programmes and trends in the 15 indicators of effects in trade and industry and the development of enterprises, education and human resource development and external developments. Neither is it possible to establish any relationship between the total investments and trends in the indicators such as "per capita income", "employment" and population between the ages 15–64 years". In other words the EC's regional structural funds programmes have not had a significant effect on trends of indicators of effects or indicators of goals.

In the analysis we also tested to ascertain whether there is a relationship between the goal indicators and the effect indicators. The result was that there is an anticipated relationship for the vast majority of the indicators and that the relationship is most often significant. In other words this provides an indication that the evaluation has been based on a number of effect indicators that actually play an important role for overall regional development. Consequently we can maintain that, if the EC's

geographical programmes had been able to create positive trends in the effect indicators, the EC's geographical programmes should also, in all probability, have had an effect on trends in the goals indicators.

Why is the study unable to see any effects of the EC's geographical programmes on overall regional development in Sweden?

An investment of SEK 17.8 billion is, after all, a considerable investment. Since it is not possible to see any effects of this investment on overall regional development, it is naturally relevant to reflect on possible explanations of this state of affairs. Consideration is given below to two main explanations of the lack of the effects of the EC's geographical programmes on overall regional development.

Firstly, SEK 17.8 billion[2] can appear to be rather a lot of money but if this amount is compared with total investments in fixed and intangible assets, the total financial budget of the EC's geographical programmes is less than one per cent of the total investments made in Sweden during the entire programme period. Compared with the total income assessed for taxation purposes in the areas receiving support during the programme period, the figure is somewhat higher, but still only slightly more than two per cent. In the light of this one should be cautious in having too high expectations that development in the entire country should be changed to a significant extent as a consequence of these programmes alone. Should then the total budget for support to regional development be increased? We are extremely sceptical about this as can be seen from the discussion below.

Secondly, it must be stated that all studies of this type encounter serious methodological problems. In particular we would point out that there have been considerable problems in finding relevant data for the quantitative analyses. Breaking down investments by municipality in the regions receiving support has been a difficult task since a large proportion of the funds have been distributed with the aid of standard amounts. In this respect the data available on geographical distribution at the structural fund agencies has been far too incomplete and this has reduced the precision of our estimates. The results of the study must thus be interpreted with a certain degree of caution. Data on the geography of the investments during the present period (2000–2006) are also associated with the same shortcomings. Accordingly, there are still methodological problems in this respect for the structural fund projects that are currently being implemented. There is thus considerable potential for improvement and the agencies responsible should try to take appropriate action as soon as possible.

This evaluation is based on the methodological assumption that in general the projects that have been implemented will exert an influence on a number of relevant effect indicators. However, this has proved not to be the case, which can be possibly be explained as follows:

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[2] *Approximately €2 billion.*

- The total investment in completely new activities is less that the SEK 17.8 billion in the programme budget. The reason for this is that some of the projects would probably have been implemented completely or partly in any case, or that the projects have tended to serve the purpose of employing participants in the projects rather than of contributing to change in regional development.

- The specific strategy and implementation of individual programmes or projects in municipalities entitled to receive support cannot be considered to have been sufficiently effective or goal-oriented for the creation of both short and long-term effects.

Consequently, when it is not possible to see any immediate effects from the EC's geographical programmes on overall regional development, this is a result of the situation that the linkages between the investments and the effects have been far too weak. The question is whether the focus of the projects has been correct and whether the projects have been able to attract the interest of local investors who can further promote regional development in a long-term perspective. The large scope (number) of projects in individual municipalities indicates that this has probably not been the case. To measure the effects of the EC's geographical programmes on a number of effect indicators we are also of the opinion that the focus of the projects receiving support should be such that, in combination, they could promote overall regional development – perhaps not for the entire regional economy, but for segments of the regional economy – for example in certain regional clusters.

The case studies show that the interest and organisational preparedness of enterprises appear to be critical for the success of projects – and not least for the influence exerted by the total project portfolio on trends in a number of effect indicators. Behind successes of this type there is also a focus on project activities that are relevant for a small group of investors, not least private enterprises. The success of the EC's geographical programmes at the regional level therefore appears to be dependent on whether they have functioned as a catalyst for starting up innovative regional development activities. This affects the attitudes and behaviour of regional stakeholders as well as their knowledge of regional development and not least their own role in this context. Knowledge of how one can be a component in regional development can therefore be of greater value that short-term financial results.

With the experience gained from the first two programme periods, the question is whether the planning process for forthcoming structural fund periods should have a stricter focus. In addition, the basic analysis that precedes a programme period should also contain a discussion on alternative uses of the funds in relation to the common types of projects during the first two periods.

2   Introduction

2.1   Background and purpose of the evaluation

For several decades there has been a political focus on regional development with the objective of giving people living all regions the opportunity to achieve economic growth, employment and good living conditions. During the last decade the regional policy has had the aim of creating good opportunities for development and growth. However, this does not mean that all regions need to be similar, but rather that each region should be able to develop its own strong sides and potential in order to create satisfactory economic and social conditions. It is thus not desirable that certain regions have an inferior economic or social status compared to other regions.

After joining the EU Sweden has had access to the EC's structural fund programmes whose aims include promoting regional development. The EC's geographical programmes Objective 1, Objective 2, Objective 5b and Objective 6 have each made funds available for regional development initiatives.

Evaluations have been made before, during and after implementation of all programmes. These evaluations have contributed to shedding light on the implementation of the EC's geographical programmes and the immediate effects they have achieved.

From the overall perspective it is also vital to pose the question of whether the EC's geographical programmes have also contributed to promoting regional development at the overall level in Sweden. In concrete terms the question refers to the degree to which the support provided by the programmes has contributed to promoting the programmes' overall objectives and the national/regional objectives for regional development.

The objective of this evaluation is consequently:

- To assess and analyse the overall effects of the EC's geographical programmes on regional development in all of Sweden

- The development of possible methods to perform this task has also been a task for the evaluation.

2.2   Points of departure for the construction of an analytical model

The evaluation thus tries to make an assessment of the overall long-term effects of the regional structural fund programmes for the entire country. The evaluation focuses on assessing whether the EC's geographical programmes contribute to fulfilling the programmes' overall objective.

In order to do this an analytical model has been created that accommodates the regular adjustments and changes that take place over time in the priorities of the EC geographical programmes while the overall objective of promoting regional development remains in place. To enable the analytical model to cope with changes of this type it has been based on recent regional economic theory and other recent theories on regional development.

In the first place, the model has been inspired by recent regional economic theory. In traditional growth models, production arises through a combination of labour and capital with a predetermined technology that is assumed to be given exogenously.[3] In more recent regional economic theory, human capital and technology are considered to constitute endogenous growth factors:

- Human capital is thus of decisive importance since production has become more advanced, knowledge has grown in importance, and developments are taking place increasingly rapidly. It is therefore important that the right human capital exists in the region.

- Technological development, innovations, is another extremely important factor for understanding regional development. In the traditional growth models, technology was an endogenous factor. Research and development, which is a measure of technological development, is not the only way to innovations. At the regional level possibilities for creating innovations do not only exist in individual enterprises. The public sector and private sector working in collaboration can also create good conditions for innovations.

Secondly, we have found inspiration from new economic geography on regional clusters. This is a combination of specialisation of enterprises, the clustering of enterprises in a small area, the provision of financial support to enterprises and local training which, in combination with the framework created at the regional level, strengthens the competitiveness of enterprises and contributes to high levels of competitiveness at the regional level. In economic terms this is referred to as positive regional externalities. Regional clusters should be seen in the light of the local structure of enterprises which is a fundamental precondition for regional development and which constitutes a major structural obstacle in many regions.

Thirdly, there is a long tradition of regarding accessibility as an important factor for regional development. This goes back, for example, to Hirschmann and Myrdal in the 1950s, but is also an important element in modern neo-classical theory on the establishment of enterprises of which, for example, Paul Krugman was one of the founders in the 1990s. Regions close to markets have better opportunities for regional development than regions that are located more peripherally. Accessibility in the form of good infrastructure can compensate for a peripheral geographical position.

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[3] *For example Robert Burro and Xavier Sala-I-Martin (1995) "Economic Growth", McGraw-Hill, New York, and Paul Romer (1986) "Increasing Returns and Long-Run Growth". Journal of Political Economy, vol. 94.*

Inspired by these theories, we have constructed an analytical model with indicators and variables that has the aim of having being so broad that it can capture any adjustments in the programmes, see chapter 4.

Furthermore, the municipalities are used as the basic unit for analysis purposes in the model since they constitute a stable unit for access to statistical data. The consequences of this are that parts of municipalities – even small islands – will not be independent units in the analysis. The advantage of this approach is that the analytical model can cover regional development over longer periods of time, independently of any changes in the EC's geographical programmes.

2.3   Data

The statistical data on regional development is taken from, amongst others, the database ASTRID which is a component of Umeå University/SMC's[4] development project on geographical population micro-simulation models. The main data comes mainly from Statistics Sweden's database LOUISE. The analysis made in this evaluation of the effects of the geographical programmes is also included in the simulation model project as part of the work of incorporating into the model modules relating to the contribution of public resources to effects on demographic and economic development from the geographical perspective.

The data for the investments in the geographical programmes are based on information received from the Swedish Business Development Agency, the National Labour Market Board, the National Board of Fisheries and the Swedish Board of Agriculture.

Data from the above-mentioned sources have been collected in a database referred to throughout as the "Evaluation Database". All analyses in this report are thus based on data from this database. In appendix 2 there is a detailed definition and description of all data used. When we refer in tables and figures to the "Evaluation Database" as a source, we also refer implicitly to appendix 2 for a detailed explanation of data used.

2.4   Report structure

The Swedish report is presented briefly below to give the reader a short introduction. This report consists of 8 chapters with the following contents.

Chapter 3 gives a brief description of regional development in Europe and a presentation of the EC's structural fund programmes. The various programmes are presented as well as the changes that have been made in the design of the Swedish programmes.

Chapter 4 presents the evaluation method used (the analytical model).

Chapter 5 contains a description of regional development in Sweden.

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[4] *SMC means Spatial Modelling Centre and is a part of the Department of Social and Economic Geography at Umeå University. It is located in Kiruna. The main focus of the Centre is on methods development. SMC is an Objective 6 project, which continued within the framework of Objective 1.*

Chapter 6 is a study of whether the regional differences in Sweden have decreased or increased during the period 1995–1999.

Chapter 7 contains a pure statistical study of whether there is a relationship between the EC's geographical programmes and trends in a number of indicators of effects and goals for all regions in receipt of EU support.

To show distinctions in the statistical material, there is a presentation in Chapter 8 of two case studies in order to show that there can be differences in the effects of the EC's geographical programmes between municipalities entitled to support.

Chapter 9 contains a discussion of the usefulness of the evaluation method.

The entire report is summarised in Chapter 1 with a presentation and discussion of the results of the evaluation.

The present English abridged version consist of the full chapter 1, 2, 7 and 9 and the final part of chapter 6. Thus descriptive follow-up information is excluded and so is the chapter on the analytic model which is described in chapter 7 and chapter 9. Finally the section on convergence analysis in chapter 6 is excluded while the main results from the impact analysis remains. In the following chapters and sections the corresponding ones in the Swedish version is placed in parenthesis.

3 Do the objectives programmes contribute to levelling out development? (6.4)

In order to evaluate possible effects of the geographical programme on regional development, we make a descriptive comparison of regional development in two groups of regions before and after the implementation of the objective programmes. Initially we focus on the trends in three goal indicators (per capita income, employment and population) in order to see the effects the structural funds have had in the relatively poorest Swedish municipalities.

Two groups of municipalities are used in the analysis. First we compare development in municipalities in receipt of support with development in municipalities not in receipt of support. Then we consider the municipalities in receipt of support only and compare the third of these municipalities that have received most support with the third that received least support.[5]

Likewise, for the variable "per capita income" we make some *supplementary difference-in-difference analyses* in which we partly consider the group of maximum support municipalities with the group of municipalities not in receipt of support, and partly the municipalities in receipt of least support with the group of municipalities not in receipt of support.

In addition to this we have made, an *extended difference-in-difference analysis*, in which the variables *proportion of private sector employees* and *proportion of the population in the age group 25–64 years* are included as explanatory variables. This extended analysis is made on the three groups: *municipalities in receipt of support*, *municipalities in receipt of most support* and *municipalities in receipt of least support* in comparison with the group of *municipalities not in receipt of support*.

The two periods that are compared are the period 1990–1995 and the period 1995–1999 (however, the periods can vary slightly depending on the data available). The first period ends in the year the geographical programme was introduced and the second period includes the entire period of time covered by the geographical programme. The periods have been selected in such a way that they cover approximately the same length of time. The method used is referred to in the

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[5] *The comparison between municipalities in receipt of support and those not in receipt of support is natural but there is the risk the a comparison is made of municipalities that are structurally very different (e.g. Stockholm and Haparanda). Therefore the analysis has also been made for two groups of municipalities in receipt of support since municipalities of this type as a group are probably more homogenous than the group that includes all Swedish municipalities. The two groups that are compared are the third of the municipalities that have received most support and the third that have received least support. These borderlines have been selected in order to make comparisons that are as different as possible.*

literature as *difference-in-difference*[6], and is used to study the difference between two groups of municipalities and the difference between two periods of time for each group. The hypothesis tested is that development between the two periods is improved somewhat for the municipalities in receipt of support than for the municipalities not in receipt of support and that the geographical programme thus promotes municipal convergence.

In short the difference-in-difference method compares growth paths. The simple one makes the comparison unconditional on changes in other structural factors while the extended model includes two measures of structural factors. The focus on changes implies that if development in regions is influenced by invariant factors these factors is differenced away. Bias due to such factors will thus not occur. The reliability of the estimates depends on how important it is to condition on structural differences, i.e. change in such ones, and how well this is included in the model.[7]

3.1   The simple difference-in-difference analysis (6.4.1)

Table 3-1 to Table 3-3 below show the results for the three goal indicators that have been determined as overall indicators of regional development. The tables show the average annual increase (over time and municipalities) for municipalities in receipt of support and not in receipt of support during the two selected periods.

Table 3-1 Trends in per capita income (%) (6.1)

	90-95	95-99	Difference
Municipalities in receipt of support	2,35	4,45	2,11
Municipalities not in receipt of support	2,28	5,08	2,80
Difference	0,07	-0,63	-0,70

Table 3-2 Population trends (%)(6.2)

	90-95	95-99	Difference
Municipalities in receipt of support	0,00	-0,86	-0,86
Municipalities not in receipt of support	0,88	0,73	-0,15
Difference	-0,88	-1,59	-0,71

Table 3-3 Employment trends (%)(6.3)

	90-95	95-99	Difference
Municipalities in receipt of support	-0,95	0,34	1,29
Municipalities not in receipt of support	-0,62	1,39	2,01
Difference	-0,33	-1,05	-0,72

Source: The evaluation's database. Oxford Research, EuroFutures, Department of Social and Economic Geography, Umeå University

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[6] *The method has been used for example by Teresa Gercia-Milä and Therese J. McGuire in "Do international transfers improve the economic performance of poor regions? The case of Spain", International Tax and Public Finance, 8, 281-295, 2001.*

[7] *More onthe method se for example: Mueser, Troske& Gorislavsky " Using State Administrative Data to Measure Program Performance" IZ wp january 2004 www.iza.org*

The results in the tables clearly show that development in the municipalities in receipt of support has been inferior to that in municipalities not in receipt of support between the two periods. The difference is statistically significant.[8] It is worth noting that the difference in development can be attributed to the fact that the comparisons are made in two periods in which there was an economic recession in the first and an economic boom in the second. It is reasonable to assume that business cycle influence the municipalities in receipt of support different than the other municipalities. An estimate of such an effect is indicated by the extended model below.

Figure 3-1 Graphic illustration of Table 3-1 (F6.4)
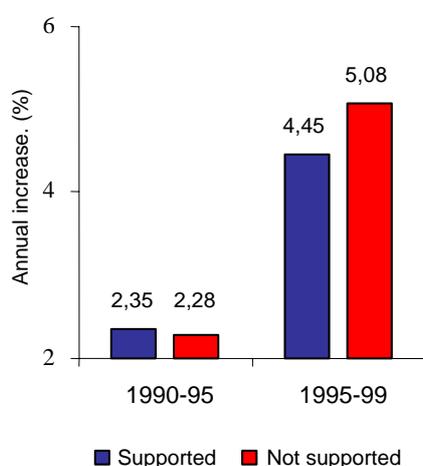
Where per capita income is concerned, (Appendix table 1) the result is that the municipalities in receipt of support were the more successful of the two groups during the period 1990 to 1995 when they did not receive any support. However, during the period 1995 to 1999 municipalities in receipt of support were significantly less successful compared to municipalities not in receipt of support. Even if development trends are positive in both groups, it is the group not in receipt of support that is most successful. The difference-in-difference rating is –0.70 which shows that annual growth in municipalities in receipt of support is 0.70 percentage points lower than in municipalities not in receipt of support. This is thus a sign of an increasing difference between the two types of municipalities.[9]

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[8] *This has been tested with the aid of regression analysis with the difference in the rate of growth between the first and second period as the dependent variable against a dummy (municipality in receipt of support = 1, municipality not in receipt of support = 0) and a constant. As expected the slope is negative and significant in all three cases with p<0.01. se appendix*

[9] *As mentioned above we have also compared municipalities in receipt of most support with municipalities not in receipt of support and municipalities in receipt of least support. The results of this supplementary difference-in-difference analysis is largely identical to the results given above. In these analyses also there was not a significant difference between the municipalities in the first period, while in the second period, 1995-1999, there was a significant negative relationship – in other words significantly lower growth in the municipalities in receipt of support. These result can be seen in Appendix 3.*

Where employment (table 6.2) and population trends (Table 3-1) are concerned, the picture is different. In these respects the municipalities in receipt of support were least successful during both periods and the situation deteriorates relatively between the two periods with the result that the municipalities in receipt of support have negative population growth during the period 1995 to 1999 while the trend is positive in municipalities not in receipt of support.

All in all, the geographical programmes have not contributed to reducing the difference between the two groups of municipalities – however the result does not show whether trends would have been even more negative without the programmes.

The analysis above refers exclusively to the goal indicators. A corresponding analysis has been made for all the effect indicators. The results of this analysis are presented in brief in Table 3-4 below.

Table 3-4 Results of the "difference-in-difference" test on the effect indicators (6.4)

Were the municipalities in receipt of support capable of strengthening their relative position from the period 1990–1995 to 1995–1999?	
Proportion of population dependent on social welfare	No **
Number of employees in the private sector	Yes
New enterprises	No **
Enterprises with more than 5 employees	No *
Number of employees in business services	Yes
University graduates in the private sector	No **
Proportion of qualified teachers	Yes
Income per employee in the private sector	No *
Turnover on the labour market	No
Unemployment	No **
Employees in culture and sport	No *
Gross commuting	No **

N.B. In some cases it has been necessary to "reverse the sign" (unemployment and population dependent on social welfare). The marks indicate that the difference is significant at the one per cent level (**) or the five per cent level (*).

Source: The evaluation's database. Oxford Research, EuroFutures, Department of Social and Economic Geography, Umeå University

It can be seen from Table 3-4 that the municipalities in receipt of support have not been able to significantly improve their relative position from 1990–1995 to 1995–1999 in any of the 12 effect indicators. For 8 of the effect indicators the position of the municipalities in receipt of support has worsened compared to that of municipalities not in receipt of support (given as No* or No**) in the table. For 4 indicators the difference between the two periods and the two groups is not significant (given as Yes or No in the table).

All in all, the result of the difference-in-difference analysis is that development in the municipalities in receipt of support has been relatively inferior in both the goal and effect indicators between the periods 1990–1995 and 1995–1999 compared to municipalities not in receipt of support. Consequently, despite the support provided by the programmes, it is patently clear that it has not been possible to improve development in the municipalities in receipt of support compared with

development in other municipalities. However it is possible, as mentioned above, that the situation could have been worse in the municipalities in receipt of support if they had not received support during the period 1995 to 1999.

3.2 The extended difference-in-difference analysis (6.4.2)

For the variable *per capita income* some extended difference-in-difference models have been constructed that contain two explanatory variables: *proportion of private sector employees* and *proportion of the population in the age group 25–64 years* in order to test whether any periodical and/or structural changes have taken place between the two periods of time that can possibly better explain regional development than support from the EC's geographical programmes. In the first of the extended models municipalities in receipt of support are compared with municipalities not in receipt of support (Se tables in appendix in this report)

Nor, from the overall perspective, is there a significant difference in the extended model between the two groups of municipalities in the first period. The difference-in-difference estimate is still negative but it is not significant. If we look more closely at the two explanatory variables, it can be seen for example that the variable *proportion of private sector employees* is the driving force for income growth in the group of municipalities not in receipt of support, particularly in the period 1995 to 1999, the higher economic activity in Sweden during these years seem to have benefited these municipalities. Where the variable *proportion of the population in the age group 25–64 years* is concerned, the picture is more diffuse. Where the municipalities in receipt of support are concerned, in the period 1990 to 1995 there was a weakly significant negative relationship between this proportion of the population and income growth, while for the period 1995–1999 there was a weakly significant positive relationship. One possible interpretation of this can be that the support disbursed during the period 1995 to 1999 has made it possible to convert a larger proportion of population in working age to growth into per capita income while this was not possible during the period during which the municipalities did not receive support.

The extended difference-in-difference model has also been estimated for the group of municipalities in receipt of most support against the municipalities not in receipt of support. As mentioned above, the group of municipalities in receipt of most support is the third of the municipalities that have received most support. The picture from the previous extended difference-in-difference model still applies to all variables. However, the difference-in-difference estimator becomes even more significantly negative. Development in the group of municipalities in receipt of most support is 0.84 percentage points lower in comparison with the group of municipalities not in receipt of support for the period 1995 to 1999, which indicates that a great deal of support does not necessarily have a decisive effect.

3.3 Difference-in-difference analysis for municipalities in receipt of most and least support (6.4.3)

In Table 3-5 to Table 3-7 below we look exclusively at the group of municipalities in receipt of support in which development in the group of municipalities that have

received most support (maximum support municipalities) is compared with those that have received least support (minimum support municipalities). The result shows that the maximum support municipalities were at least as successful as the minimum support municipalities between the two periods.

Table 3-5 shows trends in per capita income and it can be seen that the maximum support municipalities, with a difference of 2.11 percentage points between the two periods, have been marginally more successful than the minimum support municipalities, which had a difference of 2.03 between the two periods. Table 3.6 shows population trends and here it can be seen that both groups of municipalities had a more negative trend during the second period than the first, and that the trend was most negative in the minimum support municipalities. In Table 3-7 it can be seen that both maximum support municipalities and minimum support municipalities have succeeded in turning a negative trend into a positive trend and that this occurred most markedly in the maximum support municipalities.

Table 3-5 to Table 3-7 show therefore that the maximum support municipalities have managed better than the minimum support municipalities but, since the difference between the two groups of municipalities is not statistically significant[10], there is only evidence to say that the two groups of municipalities have coped equally well during the two periods.

Table 3-5 Trends in per capita income (%) (6.5)

	90-95	95-99	Difference
Municipalities in receipt of support	2,28	4,40	2,11
Municipalities not in receipt of support	2,50	4,53	2,03
Difference	-0,21	-0,13	0,08

Table 3-6 Population trends (%) (6.6)

	90-95	95-99	Difference
Municipalities in receipt of support	0,22	-0,56	-0,78
Municipalities not in receipt of support	-0,26	-1,23	-0,97
Difference	0,48	0,67	0,19

Table 3-7 Employment trends (%)(6.7)

	90-95	95-99	Difference
Municipalities in receipt of support	-0,99	0,40	1,39
Municipalities not in receipt of support	-0,92	0,22	1,14
Difference	-0,07	0,18	0,25

Source: Evaluation database. Oxford Research, EuroFutures, Department of Social and Economic Geography, Umeå University

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[10] *This has been tested with the aid of regression analysis with the difference in the rate of growth between the first and second period as the dependent variable against a dummy (municipality in receipt of support = 1, municipality not in receipt of support = 0) and a constant. As expected the slope is negative and significant in all three cases with $p<0.05$.*

4 Do the EC's geographical objectives programmes make a difference (7)

With the aid of statistical analyses we have examined whether the investments and project activities that have been started with support from the EC's geographical programmes have also had an effect on regional development. The analyses show that we cannot establish any relationship between the programmes and general economic growth measured by indicators of goals for regional development.

In order to test whether the EC's geographical programmes have created the foundations of stronger regional development in the regions that have received support, we have studied whether the programmes have had a positive effect on indicators that could be expected to be of decisive importance, both immediately and in the long term, for starting up a stronger process of development in these regions. The statistical analyses show that there is no relationship between the EC's geographical programmes and the effect indicators. Therefore, we are unable to establish any significant effect in the statistical analyses from the EC's geographical programmes on regional development in Sweden during the period 1995 to 1999.

In order to check that our assumption – the analysis model – has also included relevant effect indicators we have tested whether there is any generally positive relationship between an increase in the assumed effect indicators effects and general economic growth. The analysis has confirmed a relationship of this type.

4.1 Introduction (7.1)

In this chapter a statistical test is made of whether the EC's geographical programmes have had a direct effect measured with the aid of effect indicators and goal indicators in those regions entitled to receive support. Through these tests an indication is obtained of whether the geographical programmes have contributed, in a decisive manner, to economic growth in the regions entitled to receive support.

The convergence analysis in the in the Swedish unabridged version (chapter 6) shows that there has been no convergence in regional development in recent years. On the contrary, the results indicate divergence. If the EC's geographical programmes (or other similar programmes) had not provided support to promote the development of enterprises and economic growth in the most poorly developed regions in Sweden, would development have been even worse in these regions? In other words, this analysis is also a contribution to a discussion on the reverse situation – "what would have happened if the geographical programmes (or similar programmes) had not provided support for regional development in Sweden?"

By making a statistical analysis of the relationship of the investments with indicators of effects and goals, we test – on a total overall basis and on a number of principal indicators – whether the EC's geographical programmes have had any effect on development in the regions receiving support. Regardless of the results of this analysis, there may very well be parts of regions or municipalities that have

had outstanding positive development – and others that have had negative development. The analysis can neither identify positive or negative relationships for individual municipalities nor provide any explanations of why some municipalities were more successful than others. In the unabridged Swedish version (chapter 8) the statistical is supplemented with two case studies illustrating possible explanations why some municipalities have been more successful and quite clearly have benefited much more from the programmes than others.

In concrete terms we have made three sub-analyses to test the relationship between the EC's geographical programmes and the indicators of effects and goals. This is shown in Figure 4-1.

Figure 4-1 Illustration of the relationships tested in the effects analysis (7.1)
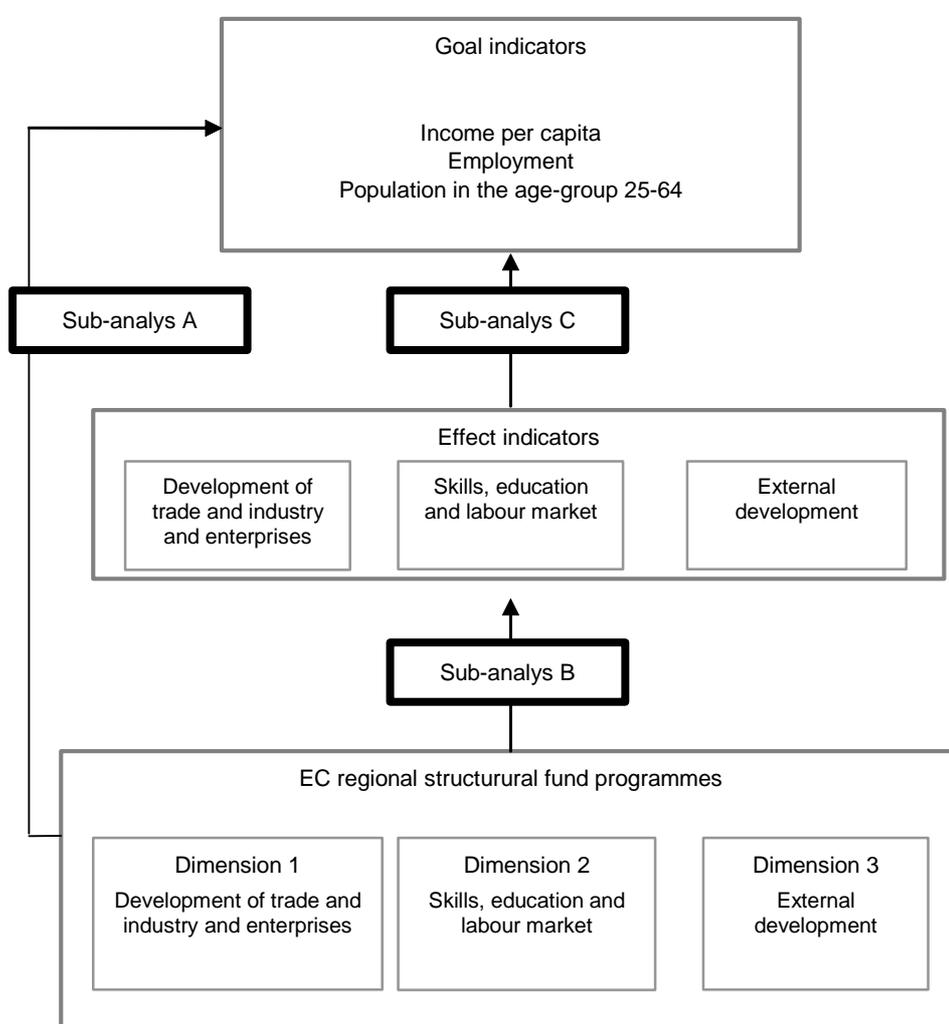
Source: Oxford Research AB, EuroFutures and Department of Social and Economic Development, Umeå University

Three general indicators of goals of regional development were formulated in the project: trends in per capita income, employment, and population in the age group 25–64 years per municipality. In addition to this, 15 more specific indicators have been analysed. In some cases, these so-called "effects" can be assumed to be more

directly related to different types of support. Here they are grouped in three dimensions that correspond as closely as possible to the project areas of the geographical programmes. One possibility is that, in the first place, the support provided has an effect on types of things that is indicated by these "effects" and that these, in turn, can give a positive effect on conditions that are indicated by the general goals. In other words our point of departure is a process in two steps. This hypothesis is studied by dividing the analysis so that background factors and support are related both separately to these effects and directly to the goals. The direct importance of the effects for the goals is also studied in the project. Finally, these are compiled into an estimate of the direct and indirect effects (via the more immediate effects) on the goals.

The aim of sub-analysis A, *EC support and goal indicators,* is to analyse how and to what extent trends in the goal indicators can be explained by the different programmes and the inputs included in these programmes. A test is made of the importance of the EU investments for trends in the goal indicators during the period studied. The sub-analysis is made for municipalities in receipt of support and for labour market regions in receipt of support. These analyses have been made with the aid of a simple regression analysis. The results of this sub-analysis are presented in section 4.2.

The aim of sub-analysis B, *EC support and effect indicators*, is to analyse how and to what extent trends in the effect indicators can be explained by the different geographical programmes and inputs included in these programmes. A test is made of the importance of the EC investments for trends in the effect indicators broken down by the three evaluation dimensions. The sub-analysis is made for municipalities in receipt of support and for labour market regions in receipt of support. These analyses have been made with the aid of a simple regression analysis. The results of this sub-analysis are presented in section 4.3.

The aim of sub-analysis C, *effect and goal indicators,* is to analyse whether trends in the effect indicators correspond to trends in the goal indicators. The sub-analysis was made of municipalities in receipt of support during the period 1995 to 1999. The results of this sub-analysis are presented in section 4.4.

Estimates for parameters of interests have been derived by so called "fixed-effect estimation".[11].

4.2 Relationships between EC support and the goals indicators (7.2)

The following analysis has the aim of examining whether the inputs have any effects in the three dimensions of the three general development indicators – income, employment and population – regardless of the fact that most of the effects can possibly be channelled indirectly via the effect indicator. These are consequently not included in this analysis. On the other hand, a check is made of differences between municipalities in respect of their basic potential for development, which is expressed here as the population in each local labour market

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[11] *The regression results of the three sub-analyses are presented in appendix 4 in the Swedish report Downloadable at http://www.itps.se/pdf/A2004_009.pdf*

region. In such a short-term perspective that this analysis covers (five years) these conditions are changed negligibly. At the same time they give completely different conditions for development in the municipalities. Without taking this into consideration, the support inputs in the analysis would be mostly a proxy for these differences and the possible positive partial effect on trends in the goal indicators would be completely swamped in these predominant differences in basic conditions.

Firstly an analysis has been made of the goal indicators vis-à-vis the inputs, broken down by the dimensions. Then the same analysis has been made with the inputs broken down by different sources of finance: EC, public sector and private sector. The size of the inputs for all three dimensions is included in the analysis of each goal dimension since what has an effect on what is not given. This also applies to the three dimensions.

Table 4-1 shows the results of the analysis of the relationship between the objectives programmes and the assumed goal indicators.

Table 4-1 Relationship between the EC's geographical programmes broken down by the dimensions with the goal variables for municipalities in receipt of support (T7.1)

	Goal indicators in EC regional programmes					
	Per capita income		Employed persons with an income exceeding SEK 72 000 per year		Population 25–64 years	
	Increase in %					
Dimensions	Relationship	Degree of significance	Relationship	Degree of significance	Relationship	Degree of significance
Dimension 1 Trade and industry and enterprises	+	Insignificant	+	Insignificant	-	Insignificant
Dimension 2 Skills, education and labour market	-	Insignificant	-	Insignificant	-	Significant
Dimension 3 External development	-	Insignificant	-	Insignificant	-	Insignificant

Basic data in Swedish report Appendix 4 (http://www.itps.se/pdf/A2004_009.pdf)

Source: Oxford Research AB, EuroFutures and Department of Social and Economic Development, Umeå University

Change in per capita income

The result of the regression indicates that there is no significant positive or negative relationship between the support provided and per capita income. With a significance of 0.111 it is the inputs from dimension 3 that come closest to having an effect on the goal variable. This would mean that with SEK 10 000/capita in support[12], the increase in income would decrease by 0.02 percentage points, which has been assessed as unreasonable. Inputs from dimension 2 and 3 give a negative

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[12] *Approximately €1100*

outcome while it could appear that dimension 1 could have a positive effect on per capita income.

Change in numbers of persons employed with an income of more than SEK 72 000 per year

Nor for this variable has the outcome proved to be significant at the 5 % level. Once again it is dimension 1 – development of trade and industry and enterprises – that comes closest to suggest a positive effect, but the significance is only 0.419. Thus it cannot be said that there is a relationship between the inputs provided for the area in receipt of support and the increase in persons employed with an annual income of more than SEK 72 000.

Change in population in the age group 25–64 years

All dimensions show a negative result for population change. However, dimensions 1 and 3 are not significant at the 5 % level (sign. 0.504 and 0.294 respectively). On the other hand, dimension 2 is significant (0.034) but negative. The result shows that the increase in population would decrease by 0.0135 percentage points with support amounting to SEK 10 000 per capita during the period. Once again there are other reasons for the decrease in population. The population structure is, for example, one of the sluggish structures that do not change within the course of a five-year period.

Table 4-2 shows whether there is a relationship between the goal indicators and the way in which EC projects and activities are financed.

Table 4-2 Inputs broken down by financiers vis-à-vis the goal variables for municipalities in receipt of support (T7.2)

	Goal indicators in EC regional programmes					
	Per capita income		Employed persons with an income exceeding SEK 72.000 per year		Population 25–64 years	
	Increase in %					
Dimensions	Relationship	Degree of significance	Relationship	Degree of significance	Relationship	Degree of significance
EC-Funds	-	Insignificant	-	Insignificant	-	Insignificant
Public co-financing	+	Insignificant	-	Insignificant	-	Insignificant
Private co-financing	+	Insignificant	+	Insignificant	+	Insignificant

Basic data in Swedish report Appendix 4 (http://www.itps.se/pdf/A2004_009.pdf)

Source: Oxford Research AB, EuroFutures and Department of Social and Economic Development, Umeå University

Change in per capita income

The inputs of the EC's geographical programmes are negative in the analysis but not significant (sig. 0.081) for the 5% level. However, they are extremely close. A contribution on the part of the EC results in a negative change of 0.04 percentage points for SEK 10 000/capital in support. Public and private sector capital have not proved to be significant (sig. 0.450 and 0.298 respectively) but both have positive signs.

Change in numbers of persons employed with an income exceeding SEK 72 000 per annum[13]

Private sector inputs have the greatest significance for this variable ($p = 0.159$) and are also positive but extremely small. An input of SEK 100 000/per capita would result in 0.009 percentage points more people with an income exceeding SEK 72 000 per annum. EC and public sector capital are not significant and negative.

Change in population in the age group 25 and 64 years

None of the three categories public sector, private sector or EC support are significant (significance levels over 0.4) for this variable. Quite clearly the changes in the population structure are so strong that the volumes of support have been insufficient to achieve the desired result.

To sum up it can be said that the effects of the support are marginal compared with the importance of the structural conditions that are indicated by the size of the labour market region. One factor of great importance for positive change is that the labour market region is large from the population perspective and can offer variation on the labour market and larger local purchasing power for the small enterprises. Unfortunately this can hardly be achieved by policies – at least not in the short term.

4.3   The influence exerted by the EC's geographical programmes on the effect indicators of effects (7.3)

This part of out analysis deals with the influence exerted by the programmes of support on the 15 effect variables. In other words this is the first step in the two-step analysis used. The variables are grouped on the basis of the three different dimensions used in the analysis. The results of the analysis are shown in Table 4-3.

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[13] *€8000*

Table 4-3 The effect of structural fund support on changes in the effect indicators, calculated for municipalities in receipt of support (T4.3)

	Supported through the EC's geographical programmes broken down by dimensions for programme inputs					
	Dimension 1 Development of Trade and industry and enterprises		Dimension 2 Skills, education and labour market		Dimension 3 External development	
	Programme support per capital 16–64 years					
Effect indiciators Increase in i procent	Relation-ship	Degree of significance	Relation ship	Degree of significance	Relation-ship	Degree of significance
Proportion of persons dependent on social welfare in the age group 16–64 years	-	Significant				
Number of employees in the private sector	-	Insignificant				
Number of new enterprises	+	Insignificant				
Number of enterprises with more than 5 employees	-	Insignificant				
Number of employees in business services	+	Significant				
Number of university graduates in the private sector			+	Insignificant		
Number of qualified teachers			-	Insignificant		
Income per employee in the private sector			-	Insignificant		
Number of changes in SNI (ISIC) codes[14]			-	Insignificant		
Number of unemployed			+	Insignificant		
Number of persons commuting into the municipality					+	Insignificant
Number of persons moving to the municipality					+	Insignificant
Number of persons living in families with 2 adults					-	Insignificant
Number of registered overnight tourist accommodation					-	Insignificant
Number of employees in culture and sport					-	Insignificant

Basic data in Swedish report Appendix 4 (http://www.itps.se/pdf/A2004_009.pdf)

Source: Oxford Research AB, EuroFutures and Department of Social and Economic Development, Umeå University

4.3.1 Dimension 1. Development of trade and industry and enterprises (7.3.1)

Dimension 1 includes the inputs for supporting the development of regional gainful employment by better diffusion of knowledge and technology, better access to capital, and stronger entrepreneurship. It also includes inputs that have the aim of strengthening local activities such as logistics, innovation, internationalisation, management and IT use. Tourism-related inputs are included in cases where the goal has explicitly been to promote the development of trade and industry.

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[14] *SNI = Swedish Standard Industrial Classification*

Change in the proportion of persons dependent on social welfare

The change in the proportion of persons dependent on social welfare in the municipalities is significantly negative. This means that the proportion of people who are dependent on social welfare is changed negatively by 2.8% for every SEK 10 million in support, calculated per capita. In other words a negative change means, in reality, a positive change in respect of the goal since the number of people dependent on social welfare actually decreases.

Change in the number of employees in the private sector

The analysis shows that the change in the number of employees in the private sector has a negative covariance with the amount of funds received by the municipalities per capita, but the result is not significant. On the other hand, the size of the labour market region is of great importance for the change in the number of employees in the private sector.

Change in the number of new workplaces

The analysis shows a positive relationship between the inputs and the number of workplaces. However, since the result is not significant at the 5% level (sig. 0.272), the result must be seen as a random phenomenon which, in terms of money, would mean that it would be necessary to pay SEK 100 000 per capita in order to further increase the percentage change by 27 percentage points in the municipality.[15]

Change in the number of enterprises with more than 5 employees

The analysis shows the same pattern as most of the variables and the change in this variable is also not significant. According to the analysis, the support provided has not led to any positive effects in respect of the number of enterprises with more than five employees. On the contrary, the result indicates that the results deteriorate as more money that is put into the projects. In addition to the poor conditions in the original structure that we measure in the model, further problems must accordingly exist in these municipalities, problems that have the effect that the potential for change based on existing levels is lower than average. It should be observed that this result is obtained despite the fact that the analysis takes into consideration the effect on the potential for change that can lie in the size of the municipality and the labour market region. With the hypothesis that the structural fund support in itself cannot have had any effect in respect of the goal, the conclusion is that weaknesses not measured in the conditions are larger than any positive effects of the support. It must also be emphasised that a large number of these problems probably emanate from the fact that there is a weak entrepreneur tradition in many of these municipalities. It can also be expected that small enterprises have lower resistance to meet fluctuations in the economy and have therefore been eliminated from the market without much being able to be done. This was a problem during the years of crisis in the 1990s which occurred at the same time as the market for starting up new enterprises seriously diminished.

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[15] *Approx €1110*

Change in the number of employees in the business services

Trends in business services in an area can be seen as an indicator of the situation of trade and industry at large. This means that an increase in business services indicates an expansion of trade and industries that need more or more advanced business services. The analysis shows a weak positive relationship between the support provided and the number of employees in the business services sector during the period. The change in the number of employees in business services is significant (sig. 0.009) which would mean that, with support amounting to SEK 1000 per capita, it would be possible to increase the change in the number of job opportunities in business services by around 1 percentage point. The cost per workplace in the model would then lie at a higher level than the figure given in the ex-post evaluation that was made of the Swedish Objective 6 programme, but the figure is not unreasonable. Many years have passed since it was possible to create a new job for a mere SEK 1 million.

4.3.2   Dimension 2. Skills, education and the labour market (7.3.2)

This dimension includes inputs that have focused on raising the quality and supply of education and training and educational levels in the municipalities in receipt of support. It also includes inputs that focus on creating a more flexible labour market with greater mobility between sectors and inputs directed towards reducing unemployment and segregation. Furthermore, it includes the inputs that are intended to contribute to improving the skills of persons seeking employment and employees.

Change in the number of university graduates in the private sector

During the programme period a fairly substantial change took place in respect of university graduates in the private sector.[16] However, the relationship between this change and the input is far from significant.

Change in the proportion of qualified teachers

The analysis shows that the importance of the support provided by the programme for change in the number of qualified teachers is negative. At the same time it is highly insignificant (p=0.713). Consequently it is not possible to see that the support has had any effect on this variable. Changes in the school system and its groups of teachers are probably dependent on other factors in the municipalities, for example budget problems or changes in the number of children. The municipal part of the education system (compulsory school and upper secondary school) is not associated in any way with the geographical programmes and any relationship must therefore be indirect. Volumes in teacher training programmes also have a considerable effect on change in this variable.

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[16] *The statistics used only include those persons who have successfully completed a university course of at least two years' duration. However, it has been fairly common, particularly during the last economic boom, that students have chosen to start work despite the fact that they have not completed a small part of their studies. This has the effect that the proportion of persons in trade and industry with a university education is somewhat underestimated*

It must also be noted that the quality of the data available for this variable is not the best and that this is due among other things to the fact that not all municipalities have reported this information to the National Agency for Education.

Change in per capita income in the private sector

In a successful geographical programme the change in per capita income in the private sector should have been positive. The aim of the geographical programmes have included increasing incomes in the area receiving support in order to put the area closer to the EU average. Also in this respect we have found that the calculations show a decrease in income but that this result is significant first at the 0.174 level. The interpretation is that with SEK 10 000 in support per capita, the average income in the private sector decreases by 0.01 percentage points. This naturally appears to be clearly unreasonable and it must be assumed that the explanation is the same as that presented above under the example of changes in the number of enterprises with more than five employees. Due to structural problems that cannot be taken into consideration in this analysis, the clearly unreasonable result is obtained that more support reduces activity in the economy.

Change through turnover on the labour market

The third variable under dimension 2 refers to change in turnover on the labour market, operationally defined in this study as the extent of changes in the Swedish Standard Industrial Classification codes (SNI/ISIC codes). Changes in SNI codes indicate that there is some mobility on the market and that people change their jobs between sectors to a fairly great extent, which is a good indication of an efficient and dynamic labour market. However, the results of the calculations prove to be insignificant (sig. 0.206). Nonetheless, if an attempt were to be made to interpret this, support amounting to SEK 10 000 per capita would reduce the increase in mobility on the labour market, measured as the number of changes in SNI codes, by 0.04 percentage points. This result indicates a static labour market and that more support would not lead to a more mobile labour market with more job changes.

Change in the total number of unemployed

The variable change in the total number of unemployed is not significant (sig. 0.212), but as an indication it can be said that an input of SEK 10 000 per capita could further increase total unemployment by 0.04 percentage points. However, it is not credible that the number of unemployed would increase when more money flows into the system and the explanation of this result must once again be sought in other conditions in the municipalities. According to the analysis, the greatest relationship between the number of unemployed can once again be found in the size of the local labour market region.

One common denominator for all variables included under Dimension 2 is that no relationships with the volume of support were significant at the 5 % level. The interpretations of the importance of the support for these indicators rest therefore on very fragile grounds and must therefore be regarded with great caution.

4.3.3   Dimension 3 External development (7.3.3)

Dimension 3 includes inputs that have the aim of improving the general living conditions for households and work through infrastructural improvements, for example in IT infrastructure, road networks, railways etc. The development of public services is also included here, i.e. the mobilisation of natural, cultural and social resources and contributions that strengthen regional identity.

Changes in the number of commuters into the municipality

Trade and industry that is vigorous and expansive often needs more labour. The change in the number of commuters into a region should therefore provide an excellent indicators of how well the various forms of support have succeeded in expanding trade and industry and thus the labour needs of the enterprises. It should be noted that the variable has certain weaknesses. The municipalities that were studied are situated in sparsely populated areas and are relatively large in surface area. Commuting statistics show journeys to and from work over municipal borders. Due to the large surface areas of the municipalities, the journeys in the statistics are only the long journeys. Secondly, it is possibly a doubtful indicator in a community with a large degree of unemployment. Normally, labour needs in a municipality should be met by people needing work and living in the municipality. Commuting into the municipality should then first expand at a later phase in an economic boom when the local labour market can no longer supply the enterprises with labour. It can also be assumed that the measures taken to make the regions larger have borne some fruit but an increase in commuting into a region can also be a sign of weakness in that there may be difficulties in recruiting skilled workers and other key persons locally. The analysis shows that the relationship between the support and changes in commuting is not significant at all (p=0.832).

Changes in the number of people moving into a municipality

The change in the number of people moving into a municipality is interesting since many people moving into a municipality is regarded as a positive indicator. The municipality is attractive and is developing. However, the analysis shows partly that the relationship between support provided and persons moving into a municipality is not significant (p=0.975) and partly that the values were negative. In other words the support played no role at all, at least during the period of time covered by the analysis. An increase in people moving into a municipality should also require a stronger boom in the local economy than the effect obtained during the period via the support received from the structural funds. Changes in number of people moving into a municipality will also probably be dependent on other factors which we do not measure with our method.

Families with two adults

The change in the number of individuals who live in families with two adults showed no significant relationship with the volume of support (p=0.536). The relationship is negative. However, an interpretation based on the weak relationship shows that the results were expected: the more money that is provided in support, the fewer the number of people that live in complete families. It must be expected that an expansion of trade and industry must give an increase in the number of

persons without ties in the community. What we see here is also a type of modernity which comes together with shifts in values in society and social inputs in other areas, and which is expressed by an increase in one-person households.

Change in registered overnight tourist accommodation

Fairly large expectations were attached to tourism being given the resources for development, via the structural funds, that the municipalities and enterprises in question felt that they lacked. Tourism is also a sector where there is still scope for substantial new investments. However, the analysis does not show any significant relationship between the support provided and development of tourism, measured as an increase in tourist accommodation (p=0.289), Statistics on tourism are often of doubtful quality and the statistics on which we have relied are no exception. Moreover they can only indicate trends for the 25% of tourists that use commercial accommodation. In addition, the outcome shown in the regression is also negative. For every SEK 100 per capita that is invested there would appear to be a decrease in overnight accommodation of 0.2 percentage points. However, these changes can equally well be due to fluctuations in the economy as an effect of the structural fund inputs.

4.4 Relationships between the indicators of goals and effects (7.4)

The analyses described above – and particularly sub-analysis A – are built on the basic assumption that there is a positive relationship between the indicators of effects and goals. Sub-analysis A shows that there is no significant relationship between the EC's geographical programmes and the goal indicators. By testing for causal relationships between the indicators of effects and goals, it can be established that the lack of achieved effects on the goal indicators is due to the lack of relationships between the indicators of effects and goals.

The relationship between trends in the effect indicators and trends in the goal indicators have been analysed for a total of 9 relationships between, on the one hand, the 15 indicators of effects grouped in three dimensions:

- Development of trade and industry and enterprises

- Skills, education and labour market

- External development

And, on the other hand, the three indicators of goals:

- Per capita income

- Employment

- Population in the age group 25–64 years

These have been analysed with the aid of a statistical model. The data set used in the model is the so-called panel data set, since it is partly cross-section data (observations for all Swedish municipalities in receipt of support during a certain year), and partly time series data (observations for a certain municipality over a period of more than one year, namely the period 1995 to 1999). A total of 125 municipalities are defined as

municipalities in receipt of support. Thus, with a period of time covering 5 years, there are 625 observations available for each indicator in this sub-analysis.

We have constructed a multiple regression model for the analyses. There are many different ways of constructing regression models when working with panel data. We have consistently chosen to use a fixed effect model in this sub-analysis[17].

The results have only been presented as information of whether the relationship between an effect indicator and a goal indicator is significant at a 5 per cent significance level and whether the relationship is positive (an increase in the effect indicator leads to an increase in the goal indicator) or whether the relationship is negative (a decline in the effect indicator leads to an increase in the goal indicator). All results in this sub-analysis are also shown in appendix 4 with the exact results.

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[17] *See e.g. Greene Econometric Analysis*

Trends in effect indicators ands changes in per capita income

This section shows the influence exerted by the effect indicators on the goal indicator "Per capita income". The results of the analysis are presented in Table 4-4.

Table 4-4 Relationship between the effect indicators and per capita income trends in the municipalities in receipt of support (T7.4)

	Per capita income	
	Relationship	Degree of significance
Development of trade and industry and enterprises		
Proportion of persons dependent on social welfare in the age group 16–64 years	-	Significant
Proportion of working population that work in the private sector	+	Insignificant
Proportion of enterprises that are new each year	+	Insignificant
Proportion of enterprises with more than five employees divided by the total number of workplaces	+	Significant
Proportion of the working population that work in the business services sector	+	Significant
Skills, education and labour market		
Proportion of university graduates in the private sector	+	Significant
Proportion of qualified teachers	-	Insignificant
Income per employee in the private sector	+	Significant
Personnel turnover on the labour market	+	Significant
Total unemployment in %	-	Significant
External development		
Gross commuting into the municipality	+	Significant
Gross immigration into the municipality	-	Significant
Number of persons living in families with 2 adults	+	Significant
Number of registered overnight tourist accommodation	-	Insignificant
Number of employees in culture and sport	-	Significant

Basic data in Swedish report Appendix 4 (http://www.itps.se/pdf/A2004_009.pdf)

Source: Oxford Research AB, EuroFutures and Department of Social and Economic Development, Umeå University

For most of the effect indicators the analysis shows that there is an expected positive and negative relationship and that the relationship is also significant. The statistical analysis thus shows that we have included indicators that help to explain income trends in the regions. The analysis itself does not provide any explanations of the results but the following should be observed:

- The proportion of enterprises with more than 5 employees has a positive relationship with income trends. It can be seen as an expression of the situation that large and well-established enterprises play an important role. The proportion of new enterprises probably has a positive relationship with income trends but this relationship is not significant. Accordingly, during the period studied, inputs to promote entrepreneurship were not of decisive importance for economic growth but will possibly be so in the long term. In fact, most of the geographical programmes support the establishment and development of new

enterprises but the analysis cannot confirm the importance of these inputs for total regional development.

- High levels of employment in the private sector as a whole have a positive, but not significant relationship with income trends. This could indicate that other sectors – for example the public sector – can also be an important driving force for the economy. However, this does not apply to those who are employed in culture and sport, a sector that shows a negative significant relationship. During recent years it has been argued that culture can be a decisive factor in support of regional development. This analysis finds no support for a view of this type. On the other hand, it does for those employed in business services.

- Mobility on the labour market has a positive relationship with regional economic growth, and a flexible, dynamic labour market, supported by commuting into a region, has a positive, significant relationship with income trends. However, the opposite applies in respect of people moving into a region, which could indicate that immigration into the regions entitled to receive support consists to a relatively large extent of persons who are not gainfully employed.

4.4.1   Trends in effect indicators and trends in employment

This section describes the influence exerted by the effect indicators on the goal indicator "employment" which, together with income trends, is a central indicator of regional development. In order to eliminate part-time employees with few working hours from the analysis, the "employed" have been defined as persons with an annual income of over SEK 72 000. The results of the analysis are presented in Table 4-5.

Table 4-5 Relationship between the effect indicators and employment trends in the municipalities in receipt of support (7.5)

	Employment	
	Relationship	Degree of significance
Development of trade and industry and enterprises		
Proportion of persons dependent on social welfare in the age group 16-64 years	-	Significant
Proportion of working population that work in the private sector	+	Insignificant
Proportion of enterprises that are new each year	+	Significant
Proportion of enterprises with more than five employees divided by the total number of workplaces	+	Significant
Proportion of the working population that work in the business services sector	+	Significant
Skills, education and labour market		
Proportion of university graduates in the private sector	-	Significant
Proportion of qualified teachers	-	Insignificant
Income per employee in the private sector	+	Significant
Personnel turnover on the labour market	+	Significant
Total unemployment in %	-	Significant
External development		
Gross commuting into the municipality	+	Significant
Gross immigration into the municipality	-	Insignificant
Number of persons living in families with 2 adults	+	Significant
Number of registered overnight tourist accommodation	+	Significant
Number of employees in culture and sport	-	Insignificant

Basic data in Swedish report Appendix 4 (http://www.itps.se/pdf/A2004_009.pdf)

Source: Oxford Research AB, EuroFutures and Department of Social and Economic Development, Umeå University.

The above table shows in broad outline the same patterns that have been identified for the relationship between the effect indicators and per capita income. However, there are two special circumstances that should be observed:

An increase in the relative proportion of new enterprises leads to an increase in employment. This shows that it can be a good idea to support the establishment and growth of new enterprises since this promotes employment, but without having any significant effect on income trends.

The proportion of university graduates in the private sector shows a negative relationship to employment trends – but a positive relationship to income trends. A far-teaching interpretation of this is that the knowledge economy has also left its mark on development. An increase in the amount of knowledge-intensive production – with a larger proportion of highly educated people – gives economic growth but lower employment – which can possibly be due to the fact that the regions are increasingly part of a growing international division of labour.

4.4.2   Trends in effect indicators and population growth

This section shows the causal relationship between some of the effect indicators and population trends. The results of the analysis are presented in Table 4-6.

Table 4-6 Relationship between the effect indicators and population in the age group 25–64 years in the municipalities in receipt of support (7.6)

	Population in the age group 25–64 years	
	Relationship	Degree of significance
Development of trade and industry and enterprises		
Proportion of persons dependent on social welfare in the age group 16–64 years	-	Insignificant
Proportion of working population that work in the private sector	+	Insignificant
Proportion of enterprises that are new each year	+	Significant
Proportion of enterprises with more than five employees divided by the total number of workplaces	+	Significant
Proportion of the working population that work in the business services sector	+	Significant
Skills, education and labour market		
Proportion of university graduates in the private sector	-	Insignificant
Proportion of qualified teachers	+	Insignificant
Income per employee in the private sector	+	Significant
Personnel turnover on the labour market	+	Significant
Total unemployment in %	-	Insignificant
External development		
Gross commuting into the municipality	-	Insignificant
Gross immigration into the municipality	+	Significant
Number of persons living in families with 2 adults	+	Significant
Number of registered overnight tourist accommodation	+	Significant
Number of employees in culture and sport	-	Insignificant

Basic data in Swedish report Appendix 4 (http://www.itps.se/pdf/A2004_009.pdf)

Source: Oxford Research AB, EuroFutures and Department of Social and Economic Development, Umeå University

There are no directly surprising results in the table. On the contrary, the results support our expectations.

4.5   A total evaluation of the results of the three sub-analyses (7.5)

This section summarises the conclusions of the above analyses in chapter 4.

In general it is extremely difficult to see any direct effects arising from the EC support. If we look directly at the relationship between the EC funds and the goal indicators there is only one relationship that is significant at the 5 per cent level. This is the relationship between the EC funds to dimension 2 and the goal indicator "Total population". This relationship is negative!

If we look at the EC funds and the 15 effect indicators, there is only one significant relationship: that between EC support to dimension 1 and the effect indicator "Number of employees in business services". All other relationships are not significant.

If, on the other hand, we look exclusively at the relationship between the effect indicators and the goal indicators, in general all relationships are significant and with expected signs[18].

Accordingly, the main conclusion of this analysis is that we cannot find any direct effect of the EC funds on the effect indicators or the goal indicators. On the other hand a relationship can be demonstrated between the effect indicators and the goal indicators. In brief we can show that improved values of effect indicators are positive but we cannot show that this has occurred with the aid of the EC support. This is also naturally due to the fact that the EC support constitutes a very small proportion of the total Swedish gross national product and for this reason it would perhaps rather have been surprising if we had been able to see a more significant effect from the EC support, not least in light of the fact that the municipalities in receipt of support have, by definition, inferior structural conditions.

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[18] *The analyses in this section are exclusively based on data for municipalities in receipt of support. However a corresponding analysis has also been made for municipalities not in receipt of support to test whether the same relationships can be found between the indicators of effects and goals in the latter municipalities.*
The main tendency is that the relationships between effect and goal variables that occur in the municipalities in receipt of support also occur in the municipalities not in receipt of support. However, there is nonetheless a tendency that the relationships are more significant for the municipalities not in receipt of support. Among other things it can be mentioned that:

   (1) the relationships between the effect variable Proportion of the working population working in the private sector *and the goal variables is significant when we lock at the municipalities not in receipt of support. The effect variable influences per capita income positively but influences employment and population negatively.*

   (2) In the group of effect variables Skills, education and labour market *more or less all relationships are significant for municipalities not in receipt of support. Where the municipalities in receipt of support are concerned, three of five relationships between the effect variables in this group are insignificant. For the municipalities not in receipt of support all relationships are significant. It is particularly interesting that there is a positive relationship between the unemployment percentage and population.*

   (3) Also in the group External development *there is a tendency that the relationships between the effect variables and the goal variables are more significant when we study the municipalities not in receipt of support. One interesting observation is that both gross commuting and gross immigration into the municipality influence employment and population when we lock exclusively at municipalities not in receipt of support. The data is presented in Appendix 5.*

5 The applicability of the evaluation method (9)

The greatest shortcoming with the evaluation methods used is that we have not succeeded in establishing a satisfactory link between the short-term project results (the total programme investment) on the one hand and the projects' effects on the other, particularly on the effect indicators and partly on the goal indicators. However, this shortcoming is not merely a methodological problem; it is also, to an equally great extent, a problem that has its roots in the strategy and implementation of the geographical programmes.

Firstly, the total investments during the entire programme period, 1995–1999, amount to less than 1 per cent of the total investments in fixed and intangible values in the entire country – or slightly more than two per cent of the assessed income for taxation purposes from wage earners and the self-employed in the areas entitled to support during the programme period. This fact alone must lower expectations of the possibilities available to the geographical programmes to change total regional development in Sweden.

Secondly, the analysis is based on the total "gross investments". However, some of the investments have scarcely created any new activities since the projects would have been implemented in any case, and in some cases the projects were unsuccessful etc.

Thirdly, it is difficult to establish a direct link between the projects and the effect indicators. It has not been possible for this evaluation to show whether the implemented projects can be grouped in a number of specific input areas where the projects in combination could show results that could be reflected in specific effect indicators.

Fourthly, experience gained from the two case studies shows that there are considerable differences in programme implementation. To achieve more significant results it is clearly necessary to have a strong, strategic focus on the geographical programmes and their implementation. This would also guarantee the commitment of the local parties involved. This does not seem to have been the case in all regions or municipalities.

The situation described above has the effect that the total real investments are less than the total gross investments. Finally, the total investments are clearly modest in comparison with the overall ambition to promote development in the weakest regions.

Expectations for effects on the regional economy should possibly focus to a greater degree on creating economic dynamism and preparedness for development in the regions rather than expecting that the projects/programmes to break the economic growth curve in a decisive manner in the short term. This requires a revaluation of the way in which the geographical programmes are designed and implemented. This could also be reflected in a new way to determine effects and results of the regional development programmes. One start could be to establish a more robust database with basic data for all projects that have received support.

5.1   Introduction

The main result of the analysis is that there is no measurable effect of the EC's geographical programmes on total regional development.

The analysis is based on a number of assumptions and conditions related to the internal logic of the EC's geographical programmes in respect of the interaction between investments (support), the implementation of the programmes and results. The data on which the analysis is based is of decisive importance for the possibility to make a satisfactory analysis.

The aim of this chapter is therefore to discuss the conditions for the analysis and to point out how they could be improved. It is also indirectly a way of showing how the EC's geographical programmes can be further developed.

5.2   Discussion on the causal relationship between the objective programmes and the effects

The EC's geographical programmes are based on the assumption that there is a direct relationship between the support provided by the programmes and the results achieved in the short term, as well as overall effects on the regional economy in a wider perspective. This assumption of a logical and direct relationship between inputs and outputs is also a basic condition for the analysis.

This logical principle has its origins in the Logical Framework Approach (LFA) concept. LFA can be used to arrange a causal relationship between the input of an objective programme and its results, and to indicate the necessary conditions to achieve success. The principle is shown in Figure 5-1.

Figure 5-1 Logical framework sketch
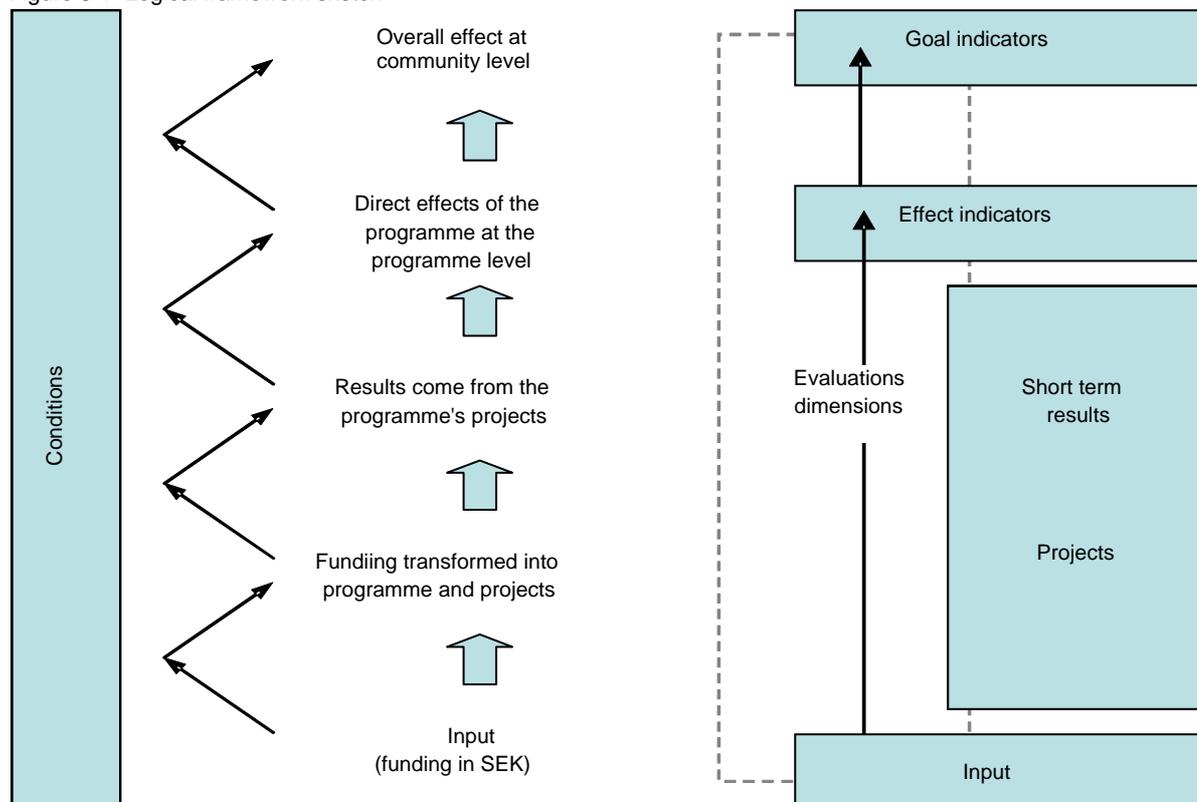
This fundamental causal relationship also has the result that the effects of the EC's geographical programmes are expressed at different levels. This first result is that the budget is transformed into a programme and a number of projects. The next result is that results arise from the various projects. Then, the geographical programme as a whole, i.e. the sum of all the projects that have received support, provides direct effects, and finally these effects contribute to overall effects at community level – in this case to overall economic growth in the region.

In order to make progress from a lower to a higher level it is necessary that a number of conditions are fulfilled. For example, an efficient programme administration is necessary to ensure that the finance provided is transformed into projects in the programme and project management ensures that the projects are implemented in accordance with the project plans etc. At the same time the programmes and the projects should be relevant and make a contribution to regional development in addition to what would have taken place in any case.

The analytical method used for the analysis of the total regional effects of the EC's geographical programmes has its focus on the relationship between the support provided in the programmes – the total investments – and trends in a number of effect indicators. The effect indicators are, as we have described in the section on methods, broken down into three dimensions, each of which has a number of

indicators that, in turn, reflect trends in the development of industry and enterprises, skills, education and the labour market, as well as external developments. In other words in the method we have assumed that the projects will make a contribution to trends in the effect indicators in the dimension the project primarily focuses on.

Accordingly, the individual projects are of little interest to the method selected. We merely assume that all projects will promote development in one of the three dimensions.

This is naturally a simplification in order to disconnect the projects that have received support from the analytical method. We have chosen this method, partly because it is simple and partly since it uses one set of data for all projects (action/programme, financing information and region). The quality of this data has been described in more detail in section 5.4.

It can be questioned whether it would not have been possible to calculate the project results achieved that were close to the projects in order to thereby point out relevant effect indicators for (groups of) the projects that received support.

This problem is discussed below with a focus on:

- The total importance of the support provided in the programme for regional investments

- The programmes' capacity to create added value – strategy and implementation

- Quality of the data of the projects that received support.

5.3   The total programme support

Figure 5-1 shows that the objective programme (the financial investment) is the first condition for transforming the programme strategy and programme implementation into reality. This is discussed below.

5.3.1   Do the objective programmes make a difference to the total investments?

The expectations of achieved programme effects measured by both effect and goal indicators must, however, first be evaluated in relation to the total investments for all programmes during the entire period 1995 to 1999. Even if SEK 17.8 billion is a considerable sum of money, it comprises, for example, only about 1 % of the total gross investments in fixed assets. The normal investment concept only includes investments in fixed assets. If investments in intangibles are included, for example investments in human resource development and innovations, which are part of many of the projects that have received support, the EC projects would constitute an even smaller proportion of the total investments in the entire country. Placed in relation to the assessed income of labour and the self-employed in the areas in receipt of support during the programme period, the figure is somewhat higher, but still only slightly more than two per cent. In other word there should be realistic expectations of the effects the geographical programmes can have on development in individual regions and on regional conditions in Sweden.

It is therefore almost unrealistic to expect that a total investment of SEK 17.8 billion could change growth in the regional economies in the short term, measured in the form of macroeconomic key ratios such as income trends.

However, we cannot disregard the fact that the regional development programmes normally have the objective of promoting growth in income and employment. The question is whether the regional development programmes can contribute anything at all in the short term to changing trends in the macroeconomic key ratios and thereby create greater convergence in regional development, or whether quite different, radical macroeconomic interventions are necessary to succeed in this respect. This is discussed in more detail below in a discussion of whether projects that receive support have the capability to create utility and value added.

5.3.2 "Gross investments" compared to "net investments"

One of the basic questions in every evaluation of development programmes is whether the objective programmes also contribute to establishing something new, i.e. whether the objective programmes actually provide support for projects that would not otherwise have been implemented.

Every programme evaluation tries to answer this difficult question. For this evaluation it is also a question of methodology. The point of departure of this analysis is the total investments (in the total amount of programme support). This is based on the assumption that all investments contribute to promoting regional development and that these investments constitute an extraordinary investment over and above what would otherwise have been invested in the regions.

In other words, the total investments without EC's geographical development programmes can be described as a form of "gross investments". This shows directly that there are items that should be deducted from the total investments in order to arrive at the actual "net investments" as an expression of the contribution made by the geographical programmes to what we can call innovative regional investments/projects. Innovative regional projects of this type will include projects that would not otherwise have been implemented and which at the same time promote positive regional development. Firstly a proposal is submitted for ways in which we can approach a definition of the concept "net investments" – innovative regional investments/projects – by narrowing down the investments that should not be included:

- Projects that predominantly ensure the employment of the participants instead of promoting regional development. Projects of this type normally contain few results, if any at all, whose effects extend beyond the project itself. When the project is finalised it will not leave any results or effects that continue to be of importance for regional development.

- Projects that would have been implemented in any case, partly or entirely.

- Unsuccessful projects (can hardly be avoided if the objective programmes are to be innovative and thus accept a certain risk level).

All in all this means that the total innovative investments (net investments) are fewer and that expectations in respect of achieved effects should be reduced.

5.4 Do the objective programmes create value added? The importance of correct strategies and implementation.

With the relatively small size of the total investments as the point of departure, it can be relevant to present the point of view that it is not the main mission of the regional development programmes to create economic growth in the short term. With the relatively small funds available, the main mission must be to make economic growth possible in the future. To create the fundamental conditions for change in regional development, the geographical programmes should, in our opinion, focus on:

- Changing the attitude of the regional stakeholders to, for example, cooperation, innovations and education and finally to assume joint responsibility for regional development.

- To change the behaviour of the stakeholders to take initiatives in matters relating to cooperation, education, innovations etc.

- To promote human resource development and the acquisition of knowledge in the regions.

According to our evaluation it is by working purposefully in these fields that the regional development programmes can contribute to changing the basic structures and thereby promote positive regional development in the weakest regions. In a longer perspective it can be expected – hoped – that the geographical programmes will contribute to stronger economic growth in the weakest regions.

The case studies we have made (chapter 8 in the Swedish report not included in the English version) support the above-mentioned opinions. Two municipalities with equivalent basic conditions and approximately the same amount of project funds per capita allocated to them have developed substantially differently during the programme period: the municipality of Ljusdal has developed more positively than the municipality of Ovanåker.

However, a number of different factors can have exerted an influence on developments in the two municipalities but there are two prominent differences between the municipalities that are worth mentioning and which are probably of importance for the differences in development:

- Organisational preparedness.

- The interest shown by businessmen.

Basically it is a case of creating regional development that is based on making good use of the stakeholders concerned or exerting an influence on them to have a positive attitude towards, and a willingness to enter actively into, regional development projects, not just today but also tomorrow.

On the basis of the experience gained from the case studies, it is a reasonable conclusion that successful development work requires a well-supported

organisation that can act as the "spider in the web" and commitments from the enterprises/businessmen, which is achieved by having clear links to the problems they meet in their everyday work. A further generalisation of this conclusion is that

The geographical programmes should focus on a small number of development problems and these problems are felt to be relevant by the regional stakeholders. For example it should be possible to incorporate the projects into an overall strategy in which the sum of a number of projects focuses on one development problem[19]. They can, for example, be innovations, and projects can then be started that have the aim of building up an innovation infrastructure (innovation centre, advisory expertise, etc), support to development projects and cooperation projects between universities and enterprises. The objective can also be to develop the potential of the region for goods transportation by extending or adapting the transport infrastructure, creating opportunities to combine different forms of transport, training of personnel, for example in logistics etc.

- In their implementation the geographical programmes should deliberately attempt to implement projects that focus on a common strategy. With their present design the regional development programmes are normally fairly broadly formulated and it can therefore be difficult to produce projects that can support a strategic focus.

- If groups of projects can be arranged in relatively narrow strategic areas with specific goals, it will be easier, according to our evaluation, to determine effect indicators and thereby also demonstrate a relationship between the investment and the effect indicators. The effect indicators should naturally have been defined more narrowly than what was possible in the analysis in chapter 4 (7).

However, it must be strongly emphasised that it has not been possible for this analysis to check whether projects in receipt of support can be grouped into a number of narrow strategic input areas for which specific effect indicators can be constructed. As we have seen above, it is also difficult to find relevant official data that fits the project groups. This has also been evident during the implementation of this project.

Even if more specific effect indicators can be constructed and it is possible to demonstrate a relationship between the geographical programmes and the effect indicators, the total size of the programmes show that caution must also be exercised in the future when formulating expectations of direct macroeconomic effects. However, by changing attitudes, behaviour etc, it can be hoped that, in a long-.term perspective, this will have a positive effect of the overall development in the regions ands thereby also on the macroeconomic key ratios for the regions.

In the regions entitled to support, the EC's geographical programmes will commandeer both financial and personnel resources that could have been used for other activities or investments. In those cases where the EU's geographical programmes do not contribute to improving the quality of the investments compared to what they could have otherwise been used for, it can be argued that

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[19] *Here it can also be relevant to build the strategy around the cluster concept.*

the regional development programmes lead to only slight use of the regional resources. To ensure that this does not happen, strict requirements should be made of the quality of the geographical programmes.

In this analysis we have not tried to evaluate the quality of the geographical programmes and thus their capability of actually creating new activities that are also of better quality than the activities that the programmes will possibly supersede.

5.4.1   Data – quality of the data for the projects in receipt of support

Since the source material from the Swedish Business Development Agency, the National Labour Market Board and the National Board of Fisheries suffers from serious shortcomings, the results of this study will thus naturally suffer from uncertainty. Above all it is the geographical allocation of project funds that gives rise to uncertainty but problems have also occurred in the extraction of data.

Much of the information on the project's geographical focus is clearly of inferior quality. This applies first and foremost to the information in the National Labour Market Board's database in which only the principal municipality is reported. This is often an entirely different municipality to that which is actually affected by the project. It should also be possible for information on public sector co-financiers to provide guidance in this case, but there is no information of this type in the National Labour Market Board's database. In other words the National Labour Market Board's material has very great shortcomings not least in the perspective of the directives that have been issued for the follow-up of disbursed funds.

The National Board of Fisheries' material also has shortcomings in this field since only one municipality is given in respect of geographical focus, even in cases where the projects have concerned several municipalities. On the other hand the database of the Swedish Business Development Agency (STINS) covers this aspect somewhat better and as a rule states both the principal municipality and all the other municipalities the projects have focused on. However, the breakdown of funds allocated to the municipalities concerned is only done in a standard fashion in STINS' database, which has no information on the actual allocation by municipality. This may be regarded as a minor shortcoming that is also difficult to remedy since, in a project that extends over several municipalities, it is often difficult to relate funds and project activities to each of the municipalities involved.

However, all databases have considerable shortcomings where funds have been allocated to framework projects run by major stakeholders such as ALMI, the county administrative boards, universities and other institutions. As a rule, these are only based in the county town in each county or to a regional centre and the projects are not broken down by all the municipalities that are affected. These county towns or regional centres are often not even included in the programme, which clearly shows the shortcomings in the allocation of funds in the project databases. In addition to this there are a number of national stakeholders whose project inputs are usually only "accounted for" at the home base of these stakeholders. As an example it can be maintained that the investments made by the

National Rail Administration in the Objective 6 programme, in which over SEK 500 million from the EU and the public sector was allocated for physical infrastructure, was "accounted for" in its entirety for the municipality of Borlänge – a municipality that lies outside the area supported by Objective 6 and which can scarcely have received all these funds.

Furthermore, the material from STINS was supplied in three Excel files (one per objective) with several sections in each file (one for each decision/region). Somehow, Gotland's 5b project had been replaced by Jämtland's Objective 6 project and Blekinge's Objective 2 project by Objective 6 projects in Dalarna. Thus we had material in which certain projects were duplicated and other projects that should have been included were missing. Fortunately this was discovered and it could be corrected with supplementary extracts from STINS' database. In addition to causing more work it also creates a feeling of uncertainty when using the project databases.

Also the material supplied by the National Labour Market Board also had strange errors, which had to be corrected manually. For example, for several projects the final year was given as the year prior to that when the project was approved, with the strange consequence that the projects would have proceeded for a negative number of years. In some cases the final year was given as a year prior to 1995, i.e. before the geographical programmes entered into force. In all these cases the final year was redefined as the same year in which the project was approved, i.e. the project was given a period of time of one year. Since this only referred to a small number of projects this did not lead to any great problems for the analyses, but is nonetheless worth mentioning as a weakness in the source material.

It is not possible to arrive at any other conclusion than that the present design of the project databases suffer from so many shortcomings – both in respect of useable results follow-up and basic project data – that the possibilities of following up and evaluating the objective programmes are seriously undermined. In additions to the questions that have already been raised, one can also wonder about the appropriateness of dividing the responsibility for storing project data between four organisations and three databases. In addition to the fact that the quality of the material varies depending on the database, the work of the users is also made difficult by this division. Unfortunately these shortcomings still exist today. The "geographical" report on the location of the projects' activities is just as weak in the present period as it was for the period 1995 to 1999. The difficulties of making similar studies to this one in the future but with more precise data is a problem that has not yet been solved.

We recommend that the present structure is replaced by a common database for reports of project data, which is placed under the responsibility of one stakeholder. The administration of disbursements and reports of data can be broken down in the future to a number of stakeholders. What is most important is that all data relating to the projects are collected in a common database in which certain items must be completed for the reports to enter the system. Perhaps the quantity of information in this database should also be limited in favour of better quality in respect of the

data. In this way equivalent data would be obtained for all projects and the present shortcomings could be corrected. In addition to this more efficiency would naturally be achieved in both the administration of the database and in its use for reports to the EU Commission, studies of objective programmes etc.

Appendix: Estimates from difference-in-difference analyses

Variable name and abbreviation	
Average income change per capita	dv1p
Dummy variable, d1=1 municipality with support else d1=0	d1
Dummyvariable t1=1 indicating period 1995–1999, t1=0 isperiod 1990–1995	t1
Change in the proportion employed in the private sector in the municipality.(Cycle indicator)	dx1
Change in the proportion population in municipality between 25–64 (Structural indicator)	dx2

Estimated models:

Regression nr. 1. Simple regression: estimates for table 4.1

```
  Source |       SS       df       MS              Number of obs =     568
---------+------------------------------           F(  3,   564) =  466.23
   Model | 911.522         3  303.841             Prob > F      =  0.000
Residual | 367.558       564  .652               R-squared     =  0.713
---------+------------------------------           Adj R-squared =  0.711
   Total | 1279.080      567  2.256              Root MSE      =  .807


------------------------------------------------------------------------------
    dv1p |     Coef.   Std. Err.       t    P>|t|     [95% Conf. Interval]
---------+--------------------------------------------------------------------
      d1 |     .071      .097        0.737   0.461     -.118        .261
    d1t1 |    -.696      .136       -5.103   0.000     -.964       -.428
      t1 |     2.80      .091       30.940   0.000     2.623       2.979
   _cons |     2.278     .064       35.577   0.000     2.151       2.403
------------------------------------------------------------------------------
```

Regression nr. 2. Multiple regr. Extended model including indicators for cycle and structure

```
  Source |       SS       df       MS              Number of obs =     568
---------+------------------------------           F( 11,   556) =  183.84
   Model | 1003.241       11  91.204             Prob > F      =  0.000
Residual | 275.840       556  .496               R-squared     =  0.784
---------+------------------------------           Adj R-squared =  0.780
   Total | 1279.080      567  2.256              Root MSE      =  .704


------------------------------------------------------------------------------
    dv1p |     Coef.   Std. Err.       t    P>|t|     [95% Conf. Interval]
---------+--------------------------------------------------------------------
      d1 |     .224      .150        1.492   0.136     -.071        .519
     dx1 |     .027      .014        1.855   0.064     -.002        .055
     dx2 |     .185      .100        1.839   0.067     -.013        .382
   dx1d1 |    -.019      .020       -0.967   0.334     -.059        .020
   dx2d1 |    -.262      .144       -1.819   0.069     -.545        .021
    d1t1 |    -.292      .270       -1.080   0.281     -.822        .239
      t1 |     1.77      .190        9.300   0.000     1.397       2.145
   dx1t1 |     .308      .031       10.050   0.000     .248        .369
 dx1d1t1 |    -.164      .047       -3.501   0.001     -.256       -.072
   dx2t1 |    -.176      .137       -1.284   0.200     -.446        .093
 dx2d1t1 |     .387      .207        1.868   0.062     -.020        .794
   _cons |     2.19      .116       18.833   0.000     1.963       2.420
------------------------------------------------------------------------------
```

Regression nr. 3. Simpel regression: Municipalities with large amount of support vs non supported municipalities (compare reg 1)

```
  Source |       SS       df       MS              Number of obs =     404
---------+------------------------------           F(  3,   400) =  368.17
   Model | 727.633         3  242.544             Prob > F      =  0.000
Residual | 263.513       400  .659               R-squared     =  0.734
---------+------------------------------           Adj R-squared =  0.732
   Total | 991.146       403  2.459              Root MSE      =  .8117
```

```
------------------------------------------------------------------------------
    dv1p |     Coef.   Std. Err.       t    P>|t|     [95% Conf. Interval]
---------+--------------------------------------------------------------------
      d1 |     .005        .140      0.033   0.973     -.270         .279
    d1t1 |    -.689        .197     -3.491   0.001    -1.077        -.301
      t1 |    2.801        .091     30.773   0.000     2.622        2.980
   _cons |    2.278        .064     35.385   0.000     2.151        2.404
------------------------------------------------------------------------------
```

Regression nr. 4. Multiple regression: Municipalities with large amount of support vs non supported municipalities (compare reg 2)

```
  Source |       SS       df       MS              Number of obs =     404
---------+------------------------------           F( 11,   392) =  168.96
   Model |  818.514       11  74.4103375           Prob > F      =  0.0000
Residual |  172.633      392   .44038921           R-squared     =  0.8258
---------+------------------------------           Adj R-squared =  0.8209
   Total |  991.146      403  2.45942006           Root MSE      =  .66362

------------------------------------------------------------------------------
    dv1p |     Coef.   Std. Err.       t    P>|t|     [95% Conf. Interval]
---------+--------------------------------------------------------------------
      d1 |     .156        .262      0.594   0.553     -.359         .671
     dx1 |     .027        .014      1.969   0.050      .000         .054
     dx2 |     .185        .095      1.951   0.052     -.001         .371
   dx1d1 |    -.036        .026     -1.357   0.176     -.087         .016
   dx2d1 |    -.339        .266     -1.274   0.204     -.861         .184
    d1t1 |    -.848        .423     -2.005   0.046    -1.680        -.016
      t1 |    1.771        .179      9.871   0.000     1.418        2.123
   dx1t1 |     .308        .029     10.667   0.000      .251         .365
 dx1d1t1 |     .031        .077      0.407   0.685     -.120         .182
   dx2t1 |    -.176        .129     -1.363   0.174     -.431         .078
 dx2d1t1 |     .481        .348      1.382   0.168     -.203        1.165
   _cons |    2.191        .110     19.989   0.000     1.976        2.407
------------------------------------------------------------------------------
```

Regression nr. 5. Simpel regression: Municipalities with less amount of support vs non supported municipalities (compare reg 1)

```
  Source |       SS       df       MS              Number of obs =     400
---------+------------------------------           F(  3,   396) =  339.55
   Model |  709.984        3  236.662             Prob > F      =   0.000
Residual |  276.007      396   .697               R-squared     =   0.720
---------+------------------------------           Adj R-squared =   0.718
   Total |  985.991      399  2.471               Root MSE      =   .835

------------------------------------------------------------------------------
    dv1p |     Coef.   Std. Err.       t    P>|t|     [95% Conf. Interval]
---------+--------------------------------------------------------------------
      d1 |     .220        .146      1.502   0.134     -.068         .507
    d1t1 |    -.774        .207     -3.740   0.000    -1.180        -.367
      t1 |    2.801        .094     29.918   0.000     2.617        2.985
   _cons |    2.278        .066     34.402   0.000     2.148        2.408
------------------------------------------------------------------------------
```

Regression nr. 6. Multiple regression: Municipalities with less amount of support vs non supported municipalities (compare reg 2)

```
  Source |       SS       df       MS              Number of obs =     400
---------+------------------------------           F( 11,   388) =  156.74
   Model |  804.862       11  73.169              Prob > F      =   0.000
Residual |  181.129      388   .467               R-squared     =   0.816
---------+------------------------------           Adj R-squared =   0.811
   Total |  985.991      399  2.471               Root MSE      =   .683

------------------------------------------------------------------------------
    dv1p |     Coef.   Std. Err.       t    P>|t|     [95% Conf. Interval]
---------+--------------------------------------------------------------------
```

```
       d1 |    .293      .175       1.671    0.095     -.052      .638
      dx1 |    .027      .014       1.913    0.057     -.001      .054
    dx1d1 |   -.017      .029      -0.577    0.564     -.074      .041
      dx2 |    .185      .097       1.895    0.059     -.007      .376
    dx2d1 |   -.074      .167      -0.440    0.660     -.402      .255
     d1t1 |   -.825      .363      -2.271    0.024    -1.540     -.111
       t1 |   1.771      .185       9.587    0.000     1.408     2.134
    dx1t1 |    .308      .030      10.360    0.000      .250      .367
  dx1d1t1 |   -.017      .066      -0.258    0.797     -.148      .113
    dx2t1 |   -.176      .133      -1.324    0.186     -.438      .086
  dx2d1t1 |    .348      .263       1.325    0.186     -.169      .865
    _cons |   2.191      .113      19.415    0.000     1.970     2.413
------------------------------------------------------------------------
```

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