

## IMPACT EVALUATION OF EUROPEAN FUNDS FOR INCREASING THE COMPANIES' COMPETITIVENESS IN THE NORTH-WEST REGION OF ROMANIA

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**Summary:** The assumption of this research paper is that regional competitiveness is significantly influenced by the competitiveness of the companies that are active in the region's territory. In this matter, the purpose is to analyze the impact of the European funds dedicated to increasing the competitiveness of the companies from the North-West Region of Romania. After a seven year programming period, one can ask if indeed these interventions have achieved their objectives. Have the number of jobs and the turnover of the beneficiary companies increased? If yes, have the positive results influenced the regional competitiveness? Thus, in the present research the author is trying to find an answer using the counterfactual method, to the following evaluation question: "Did the intervention have any effect?". In order to respond to this question, one have determined two types of groups: the treated group (containing all the companies that received funds from the North-West region) and the non-treated group (or control group that should include companies with similar characteristics, but which didn't receive any funds). The impact is estimated by comparing the results of the treated group with those of the control group. At the beginning of the analysis, one can plan to draw some requirements that need to be met by the units from the control group.<sup>6</sup>

**Keywords:** regional competitiveness, impact evaluation, productivity, control group

### 1. Introduction

This research paper aims to analyze the competitiveness of the North-West development region of Romania, by evaluating the impact that structural and cohesion funds have on the companies' competitiveness in this region (Martin 2005). It has been demonstrated that competitiveness usually refers to firm performance (Bristow 2005; Stănculescu and Rus 2014) In the author's opinion, such an analysis is relevant because the funds which are dedicated to improving the economic competitiveness (such as the Sectoral Operational Programme "Increase of Economic Competitiveness" – SOP IEC), at company level, also helps to increase the competitiveness at regional level. As such, in the paper at hand one will try to find an answer, by applying the counterfactual method, to the following question: "Did the intervention have any effects?".

The Sectoral Operational Programme "Increase of Economic Competitiveness" is one of the seven operational programs applied in Romania. The general objective of this programme aims to "increase of Romanian companies' productivity" and the result indicators of this programme are the turnover and the jobs created in the companies that have received support. The areas covered by the programme are: manufacturing, research and development, IT and communication, energy and it is composed of 5 priority axes, of which one will focus on the

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Priority Axis 1 – An innovative and eco-efficient productive system, Indicative Operation 1.1.1. Support for strengthening and upgrading the productive sector by tangible and intangible investments, dedicated to SME's with growth potential, particularly active in manufacturing, which wanted to develop and modernize their productive capacity by introducing new technologies.

## 2. Impact assessment by applying the counterfactual method

One can say that the impact of these interventions can be evaluated, in a proper manner, only after a lengthy period of time (many years), and to properly apply this method requires experience in the field. Even so, one will use the counterfactual method of evaluating the impact that these interventions had on the beneficiaries (SME's from the NW Region). The impact of the *Indicative Operation 1.1.1* described above, determines that there is a difference in performance (from the point of view of the number of employees and turnover) between the SMEs which benefited from this intervention and other similar SME's which have not.

In the scientific literature, there are two major typologies of impact assessment: Theory-based impact evaluation and Counterfactual impact evaluation. (European Commission 2014) The European Commission recommends that both methods should be used, because they are complementary, offering useful information on the way which the interventions work. This reaserch paper will be focusing on the counterfactual method, because, with its help, one can determine, by using a control group, what would have happened to the beneficiaries if the intervention would have not taken place. Of course, the obtained net impact by using this method is an estimate and can be influenced by other factors, not just by the analyzed intervention. From a theoretical point of view, the counterfactual refers to the provisioned evolution of events which would have happened in the absence of the analyzed intervention, respectively the „without intervention” scenario.

The European Commission's Guidelines, EVALSED, proposes a set of instruments which should be used for the estimation of the impact, namely the „Difference-in-Differences” method, the „Regression Discontinuity Design” model and the „Propensity Score Matching” method. (European Commission 2013a) From the ones previously mentioned, we will be using the „Difference-in-Differences” method.

According to EVALSED - The Evaluation Guide for socio-economic development, the European Commission guide, the "difference in differences" (DID) is a relatively simple to implement method. In short, the principle underlying that this method uses is as follows: set up a group of non-beneficiaries, composed of units that share similar characteristics with the beneficiaries of the intervention group. The resulting variable for the two groups is measured before and after the intervention. The control group is evaluated in terms of change throughout the period, compared with the change in the intervention group. The difference between the two changes gives an estimate of the impact of intervention. (European Commission 2013b)

$$\Delta_{T-NT} = E + S_{T-NT}$$

Where :

$\Delta_{T-NT}$  = the difference in results observed between the beneficiaries and non-beneficiaries

$E$  = the real effect (and unkown) of the intervention on the result

$S_{T-NT}$  = differences arising from the selection of beneficiaries and non-beneficiaries (selection bias)

The purpose of this method is to estimate the impact of interventions by calculating a double difference: a difference in time (before-after) and a difference across subjects (between

beneficiaries and non-beneficiaries). The availability of data about beneficiaries and non-beneficiaries for at least two periods, allows a more plausible estimate of the impact.

The method was used by many authors: for example, Hart&Booner (2011) used it to evaluate the impact of an intervention ("Invest NI" in Northern Ireland) on the value added, turnover and employees of the companies from Northern Ireland. The conclusion was that there is no significant impact on the value added and turnover, and the impact is significant, but negative in the case of the employment.

### 3. The development strategy of the intervention and control groups

In order to have a more realistic estimate of the impact one must pay close attention to the selection of the control group; it must include a number of units similar to those in the intervention group, composed of SMEs which have benefited from intervention (Indicative Operation 1.1.1.). The control group should be composed of SMEs which have characteristics similar to those that were supported by the intervention; the only difference between the two groups may be that units of the control group did not receive financial support while in the period of the analysis (2007-2013).

To understand the impact of the intervention, the control group identification is mandatory. Thus, it must meet the following conditions:

- 1.) The control group units must have characteristics similar to those of units in the intervention group:
  - Must be an SME;
  - Must have the same domain and to operate in the same town or, if not, in the same county;
  - Preferably, to be established in the same year as the intervention beneficiary company (many exceptions to this rule);
  - Incorporate similar performance levels, especially in terms of number of employees or turnover, profits etc.;
- 2.) For statistical significance there must be a sufficient number of control units - in terms of sample and the time interval for the comparison of "before-after";
- 3.) The control group, as well as the intervention group, must be based on interpretable indicators, statistically validated, relevant, and data sets for both groups have to be numerical and of high quality.

The number of total observations from the developed database contained both in the control group and the intervention is *262 companies*. Twelve variables were extracted for each beneficiary and non-beneficiary. The database for the counterfactual analysis includes a complete set of information collected from various sources (Ministry of Public Finance, The Management Authority of the SOP IEC). One can note that this data gathering was a challenge to this paper as the matchmaking was conducted for each beneficiary firm, individually. The types of data available to beneficiaries and non-beneficiaries of the intervention are:

- 1.) *Identification*: company name, year of establishment (only for units in the control group), the title, the year of allocation and the amount allocated (only for beneficiaries of intervention);
- 2.) *Localization*: county, city;
- 3.) *Financial Data*: turnover, profit, debt, fixed assets, current assets, equity, number of employees;
- 4.) *Activity domain* according to the NACE codes.

The database (which contains both the intervention group and the control group) being analyzed in the period 2007-2013 comprises a number of 262 companies from the North-West

region, beneficiary and non-beneficiary, distributed, as follows, by the NACE Rev. 2 codes, 2008: two companies of agriculture (primary sector), 12 companies active in the mining industry, 154 companies active in manufacturing, 68 companies in the construction sector and 26 companies in the services sector.

At the county level, it was noted that the companies which are benefiting the most from interventions are located in Bihor County (40 companies), followed by Cluj County (35 companies), Maramureş (18 companies), Sălaj (16 companies), Satu Mare (15 companies) and Bistrița-Năsăud (7 companies). In the control group, each beneficiary companies was mirrored by a pair firm from the regional counties, with the exception of four companies which have been identified in a county counterpart from another region.

Most companies, both beneficiary and non-beneficiary, are present especially in each county municipality; at their level, one can talk about a higher level of concentration of firms. Thus, in Cluj-Napoca we found 44 companies, followed by Oradea, with 42 companies, Satu Mare - 22 companies, Baia Mare - 14, Bistrița and Zalău with 8 companies. One can assume that the increase of competitiveness in cities where very few companies have benefited from intervention cannot be observed because the improved results achieved by a small number of firms are not sufficient for them to generate positive effects on the area in which they operate. By analyzing areas of activity it has been observed that most companies are active in "Manufacture of fabricated metal products", followed by "Construction of buildings", "Manufacture of other non-metallic mineral products" etc. Because this operation targeted most industries, not having a focused approach on those that contribute to regional identity, the information that we have is not sufficient for identifying specific regional economic activities.

#### 4. The analysis of the intervention's impact on the outcome variables

The two outcome variables, turnover and number of employees, but especially that relating to employment, are factors of regional competitiveness. In most reports and studies with concerns in the field of impact assessment on economic interventions, both variables are addressed. The number of employees is one of the analyzed variables to observe the impact of interventions. In the 2007-2013 timeframe, an increase with 1,559 employees was noticed amongst all companies that have benefited from intervention (25% growth), which is on average 12 employees / firm assisted. In the non-beneficiary companies, the number of employees decreased; in 2013 compared to 2007, the variable decreased by 20 employees. Thus, the *resulting change* is one in the employment rate for the beneficiary companies, a very pronounced change when compared to the one observed in the non-beneficiary companies, which proved to be negative, within the period studied. One noticed that the beneficiaries of intervention have experienced higher levels of employment than non-beneficiaries in the North-West region. However, what one can't know is if this increase in the number of jobs would have happened anyway for the beneficiary companies. Thus, this aspect is estimated with the DID method.

**Table 1: Difference in Differences applied to the beneficiaries and non-beneficiaries for employment, 2007-2013, number**

Difference	Beneficiaries	Non-beneficiaries	DID
<b>Employment variation 2013-2007</b>	11,90076	-0,15267	12,05344

Source: Table made by the author according to the database with information collected from the Ministry of Public Finance, the SOP IEC

From the table above one can see that in the data set, taking into account both beneficiaries and non-beneficiaries, the variation of employment between the two groups in 2007-2013 is approximately 12 jobs. In other words, the net impact on employment in the group of beneficiaries was 12.05344, in average per firm.

The turnover of the companies is the second analyzed outcome variable in order to observe the impact of the intervention. In the 2007-2013 timeframe, the turnover of the beneficiary companies increased by over 655 million RON, or by 69%, while its growth is more pronounced for the non-beneficiary companies (78%). The results of the variables are different from those of employment. The resulting change is a modification of the turnover recorded for the beneficiary companies, with only 14% larger when comparing with the change observed in the non-beneficiary companies.

**Table 2: Difference in Differences applied to the beneficiaries and non-beneficiaries for the turnover, 2007-2013, RON**

Difference	Beneficiaries	Non-beneficiaries	DID
<b>Turnover variation 2013-2007</b>	5.002.321,02	4.380.580,60	621.740,42

Source: Table made by the author according to the database with information collected from the Ministry of Public Finance, the SOP IEC

According to the table above it is observed that the intervention had an impact on the turnover of the beneficiaries, but the increase in the timeframe studied was much stronger among non-beneficiaries. It is likely that the turnover of the beneficiaries to have increased anyway, even in the absence of an intervention.

## 5. Conclusions

By analyzing the two results one can conclude that the intervention had an impact on the two outcome variables analyzed and the beneficiary companies registered increases in both turnover and number of employees. Given the fact it can be stated that the companies from the control group represent the competition for the companies in the intervention group, as they are active in the same market, are located in the same geographical area, are recording similar economic results, then overall it cannot be yet said that the beneficiary companies are more competitive than non-beneficiary strictly based on the examined indicators (employment and turnover).

Of course, it is very important to assess the impact interventions on the jobs and turnover, but also, the impact on output or productivity growth is very relevant. Usually, the effect occurs at production level, but productivity either remains at the same levels or grows, but at a lesser extent. In other words, the main effect is manifested by increasing and diversifying operations and then the capital, employment and output increase proportionally. However, the efficiency growth is usually modest.

## References

1. Bristow G. (2005): Everyone's a "winner": problematising the discourse of regional competitiveness, *Journal of Economic Geography*, vol. 5, p. 285-304
2. European Commission (2013a): Evaluated Sourcebook: Method and techniques

3. European Commission (2013b), EVALSED - The resource for the evaluation of Socio-Economic Development
4. European Commission (2014): Guidance Document on Monitoring and Evaluation, Brussels
5. Hart M., Bonner K. (2011): Data-Linking and Impact Evaluation in Northern Ireland
6. Martin R. (2005): A study on the factors of regional competitiveness, draft final report for the European Commission, Directorate-General Regional Policy, Cambridge: University of Cambridge
7. Stănculescu O., Rus A. (2014): Competitive Industries in the North-West Region of Romania – Case Study using Analytic Hierarchy Process, ”*Managerial Challenges of the Contemporary Society*”, vol. 7(2), p. 137-141