FINANCIAL SUSTAINABILITY FOR ROMANIAN COMPANIES - EUROPEAN STRUCTURAL FUNDS BETWEEN INTER-REGIONAL COHESION OR DIVISION? PART II

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Abstract: This article contains the second part of the study "Financial sustainability for Romanian companies - European Structural Funds between inter-regional cohesion and division?" The first part of the study presented several aspects regarding the literature review, selection of the case study analysis of data based on simple statistical methods and several conclusions. This part of the study goes even deeper in the specialized literature presenting the new opinions regarding the efficiency and sustainability for usage of EU funding at the regional level. These opinions also signal several warning signs, especially when considering the increasing economic division between developed and less developed regions or regarding. Also was mentioned the dilemma between equity, which is ensured by the funding proposed to be delivered in the rural areas for ensuring the convergence policy and competitiveness which is obtained by investment high developed area in order to gain further growth. In order to establish the methodology, were analysed the most common approaches in assessing the efficiency of aid in general and European Structural Funds in particular: statistical data analysis, Social Accounting Matrix, Regionalized Hermin, Combined macro and regional model Applied Spatial New Economic Geography. GeoCells a multi-layered hierarchical automaton and Econometric methods. Since none of the studies were focused on the effects of EU funding over the private companies the authors tried to tackle this issue in the current study. Based on a database formed from 493 small and medium sized Romanian companies which directly benefitted from EU investment funding the authors decided to create, for the data analysis, a mixed methodology between the Spatial Data Analysis, Corporate finance and Econometrics. In order to solve the "dilemma" the paper through its case study assessed if there is a link between the efficiency of accessing European funds and the economic development of certain regions. This was done especially by comparing the efficiency of EU funded SMEs projects from well-developed counties with those located in less-developed counties, inside the same region.

Keywords: SME; Financial analysis; Absorption capacity; Foreign Aid; Efficiency; European structural Funds; Cohesion policy; economic efficiency.

JEL classification: *F35; F36; G30; C58; D61; O16; R15.*

1. Introduction

At the European level, the European Structural Funds constitute the main instruments for implementation of the Cohesion Policy. The opinions of the specialists regarding the efficiency of the Cohesion Policy it is mixed. On one side, we have the positive opinions of experts like Busillo et all. (2010), Pastor (2001) or Beugeldsdijk and Eijffiger (2005) considering the cohesion policy of the European Union as a functioning tool for the economic growth and a proper solution for reduction of economic and social disparities. On the other side we can find the opinions of other specialists, which seriously doubt the efficiency, or some particular results of European funding. Boot et all (2001), Horvat and Maier (2004), Horvat (2004), Bauer (2001), Wostner (2008), Droj (2010) or Kemmerling and Bodenstein (2008), highlight the fact that, sometimes, the final results, expected from European funding, are not at the level initially planned. In addition, in these cases, the EU funds absorption is low and the real reduction of economic and social disparities at the European level was not achieved or the results are not sustainable.

Some of the causes, which hinder the absorption capacity, are clearly linked with the readiness of both the beneficiaries of funding and of the national and regional implementing authorities in order to successfully of the European funding. While these authors have excellent contributions towards the improvement of absorption capacity process, other specialists are more concerned over issues regarding with the efficiency of the projects implemented through European funding or through other instruments of foreign aid.

An excellent study of Bourdin (2012) reopens a discussion about the link between "an unprecedented increase in the economic gap between developed regions and those lagging behind" questioning the efficiency of the cohesion policy. Bourdin (2012) also cites authors such as Lackenbauer (2006) which is mentioning a real dilemma between the equity and competitiveness. Other authors such Gorzelak et all (2010) considers that just massive injection of European funding in poor regions may prove ineffective if this process is not sustained by other measures. Studies realized in Spain, South Italy or Eastern Germany also indicate that even if strong infrastructure investments were realized, using European or state funding, this has not increased significantly the competitiveness of the beneficiary regions. It made them dependable and addicted to aid. Bourdin (2012) also cited Aghion and Cohen (2004) who consider that for these regions the most effective investments have been those which are focused on education. The increasing regional differences, within a country, can also be caused by factors such as metropolization (Stryjakiewicz, 2007), concentration of economic development or efficiency of the government (Droj). In front of these facts Bourdin (2012) also mentions that usually European Union faces a hard dilemma between equity, which is ensured by the funding proposed to be delivered in the rural areas for ensuring the convergence policy and competitiveness which is obtained by investment high developed area in order to gain further growth.

Even if these studies are analyzing the issues of efficiency of external aid and its impact over the cohesion policy, very few of them were focused on the linkage between the absorption capacity and the efficiency for proper usage of European funding in order to achieve the goals of the Structural Programs and Cohesion

Funds. Therefore, an assessment on this field it is necessary and will be carried out in the next section of the paper.

2. Methods for determining the financial sustainability and efficiency for usage of EU funding

In the first part of this research we tried to establish and analyse mainly statistical data in order to answer to the main research questions: Are the SME projects financed from European Union Structural funding sustainable and efficient? Are they having a net positive impact over their beneficiaries? Can we establish a link between the efficiency of accessing European funds and the economic development of certain regions? Are the inter-regional development differences important when assessing efficiency of European funding?

Taking into consideration the above-mentioned factors the authors focused on analyzing the usage efficiency of the European funds, as well. First, similar case studies have been under a process of selection and valuation. The case studies are from new member states and from old member states, as well. The first conclusion, after analyzing these studies, was that in the last years, the studies regarding the efficiency of using European funding in order to increase the cohesion were mainly national or regional studies.

Different methods have been used to analyze the efficiency and the impact of the European Funds over the local, regional and national economy. From these methods, we can mention:

- Statistical data analysis (Sumpikova et all, 2009 and Daszuta, 2005), based on analysis of statistical data provided by the EU and national state. This type of analysis is the most common and is used also by Romanian Development Agencies (such as Ministerul Dezvoltării Regionale și Administrației Publice, 2015)

- Social Accounting Matrix (SAM) used to quantify the output and employment effects derived from the structural and cohesion funds that a region received due to its "Convergence Region" situation (Ramajo et all, 2014)

- Regionalized HERMIN model uses a top down approach, where the results at the national level are disaggregated to regional level using some region-specific characteristics of the base year (DG Regional Policy, 2008).

- Combined macro and regional model for Hungary – developed by Pecs University, which links macro-econometric model with a regional model ECORET and a Spatial Computable General Equilibrium (SCGE) model. This model predicts changes resulting from additional public spending on education, R&D and infrastructure as well as from changes in regional-level agglomeration (DG Regional Policy, 2008).

- Applied Spatial New Economic Geography models such as CG Europe a spatial general equilibrium model for a closed system of 270 regions covering the whole world. All of regions are treated separately and are linked through endogenous trade (DG Regional Policy, 2008). This model can be further improved by using Geographical Information System (GIS) applications.

- GeoCells a multi-layered hierarchical automaton, which is presented by Bourdin (2012). This model is a meta-model based on spatial agents or a topologic cellular agent and is used on EU27. It models the evolution of

GDP/capita and compares it with the influence of different types of aid under the cohesion policy and the effects of diffusion growth by neighbourhood.

- *Econometric methods* – which include the analysis of certain indicators and projections of the results.

Meanwhile this study has as its goal to analyze the link between the sustainability, efficiency and impact of a programme which finances the small Romanian companies in the North-Western region of Romania. This region is representative for the entire country and for Eastern Europe in general since it comprises all types of sub-regions: from less developed, moderate to well-developed sub-regions. Under these circumstances, the authors tried to select from the proposed methodologies only elements suitable for this type of analysis. Most of the models above are using macro-economic data and we discovered that their applicability to testing efficiency of a regional development programme operating only at the level of SMEs is limited. In the same time the authors wanted to assess if there is a link between the efficiency of accessing European funding and the economic development of a certain region in correlation with theories and researches done by: Bourdin(2012), Gorzelak et all (2010), (Stryjakiewicz, 2007).

Taking into consideration the goals of this study, the analysis of Šumpíková et all (2003) and the principle of additionality mentioned by Wostner and Slander (2009) and Del Bo, C., Florio, M., Sirtori, E., & Vignetti, S. (2011); the authors decided to create, for the data analysis, a mixed methodology between the Spatial Data Analysis, Corporate finance and Econometrics. The Corporate finance indicators which were selected were: Productivity analysis, Job Creation, Return on Equity and Solvency. For further analysis of these indicators, several econometric methods were taken into consideration. The most suitable econometric method, considering the goal of our study and the information which had to be analyzed is the Student dispersion (Van Hauwermeiren et all., 2012). The Student dispersion is used when low volume samples are available or when a normal distribution approximation is unsatisfactory. By definition, the probability density of Student distribution (Van Hauwermeiren et all., 2012) is:

$$f(t) = \frac{\Gamma\left(\frac{\nu+1}{2}\right)}{\sqrt{\pi\nu}\Gamma\left(\frac{\nu}{2}\right)} \left(1 + \frac{t^2}{\nu}\right)^{-\frac{\nu+1}{2}}, t \in \Re, \nu \ge 1$$

The distribution parameter n is called the degree of freedom and can take the values 1, 2, ..., n. Where n, the degree of freedom, is greater than 30, the Student distribution is equivalent to the normal distribution. The student distribution can be visualized as a dispersion diagram and from the analysis of the obtained results can be easily assessed the following: common and marginal distributions, as well as information about how the association of variables influences the analysis.

3. Initiation of the second phase - case study

The construction of the case study was realized in several steps:

- Identification of databases containing the necessary information for the case study
- Collection of the data and creation of the initial dataset

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- Corrections to the data set
- Analysis of the statistical and financial data
- Modelling of the results using econometric instruments
- Interpretation of the results
- Drawing up the conclusions

As mentioned by Romanian Government (2007) the overall objective of the ROP consists of "supporting and promoting sustainable local development, both economically and socially, in the regions of Romania, by improving the conditions of infrastructure and business environment, which support economic growth". In order to do so, ROP's main objective was to reduce the economic and social development disparities between the more developed regions and the less developed ones and also to increase economic competitiveness (Romanian Government, 2007). Most of the projects funded under this programme were supposed to be finished until 31.12.2015 but the real absorption capacity could be calculated only after the end of 2017. But this does not impede on analyzing if the programme had real conclusive results over its beneficiaries since most of the projects were already completed at this point, especially those submitted in 2009 or 2010. For these projects the beneficiaries are already in the postimplementation monitoring stage which lasts between three to five years. As mentioned above, the Axis 4.3 was selected especially since its main objectives were the increase in economic competitiveness, job creation and economic growth, and since the beneficiaries are micro-enterprises, the analysis over their financial results should bring relevant results regarding the increase of efficiency. The total number of companies selected for the case studies is 493, all located in North-Western region of Romania. These companies were selected for financing in the Regional Operational Programme Axis 4.1 and 4.3

Figure 5 Distribution of awarded contracts for beneficiaries for Axis 4.3 and 4.1



Source: Calculation of the author based on data provided on fonduri-ue.ro

Based on the databases from the Ministry of Finance: www.mfinante.ro were collected additional information regarding the financial results of these companies before and after the implementation of the projects. The following table was computed and statistically analyzed in the first part of the study:

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Table 2 Unweighted arithmetic average	e of the efficienc	y indicators for SN	ЛEs
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Indicator (Evolution	Counties (Evolution 2010-2015)						
2010-2015)	Cluj	Bihor	Satu Mare	Maramures	Bistrita Nasaud	Salaj	
Return on Equity	0,1022	0,072582	-0,014424	-0,09624123	0,129935078	0,105435	
Economic efficiency	62898	19981,7	-19508,62	-3393,70943	5735,583333	15656,75	
Number of employees	1,8	4	3,5	1	1	0	
Solvency	0,6721	0,743479	-8,138828	2,004169507	2,377897371	1,757087	

Source: Own calculation based on data provided by the Romanian Ministry of Finance <u>www.mfinante.ro</u>

But we observe that interesting results are obtained when applying the statistical correlation and we compare the results of the companies located in the well-developed counties (Cluj and Bihor) with the results of companies located in lesser developed counties (Bistrita Nasaud and Salaj). Usually, the statistical correlation is used to highlight the interdependence or link observed variables in the statistical population. The plotted correlation between two variables is represented in the form of points, to provide information about correlation, analyzed data uniformity and symmetry. Examining visual graphical representation of points (x_i ; y_1), it can be seen that in all N possibilities, we have positive linear correlation between the variables that follow a normal distribution (Student) and a positive linear correlation between variables following a partial normal distribution (Chi Square).

Figure 6 Correlation between rate of return and solvability for well-developed counties (left) and less-developed counties (right)



Source Analysis realized by author with application ModelRISK – VoseSoftware

Examining visual graphical representation of points (x_i ; y_1), you can see that in both cases, we nonlinear positive correlation between profitability and solvency both variables follows a normal distribution (Student). In case of less developed regions we can observe the fact that the point cloud is predominantly located in quadrant III (both variables are negative) while analysing the results from the most developed regions we can observe the fact that the results are located mostly in quadrants I and II proving that in these cases the solvency is mainly positive.

Figure 7 Correlation between rate of return and number of employees for welldeveloped counties(left) and less-developed counties (right)



Source Analysis realized by author with application ModelRISK - VoseSoftware

When analysing the correlation between the Return on Equity and number of employees the disequilibrium is even higher between Bihor and Cluj the most developed counties in the region and Salaj and Bistrita Nasaud. It can be clearly observed, that the results from the less developed regions are concentrated in the upper right corner of the quadrant showing that both the number of employees and the Rate of Return are having moderate or neutral evolution. We also detect that in the better economic developed regions the points cloud is concentrated mainly in quadrant II because these regions had increases in both number of employees and in financial results.

Figure 8 Correlation between solvency and number of employees for well-developed counties (left) and less-developed counties (right)



Source Analysis realized by author with application ModelRISK - VoseSoftware

The last graphical analysis brought together all three indicators: return on equity, solvency and number of employees. Again, we can observe the huge differences between the results of the indicators between the two compared situations: companies from well-developed economically counties and companies from lesser-developed counties.

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Conclusions

The conclusive remarks must start from the two questions that stayed at the basis of this research:

- Are the SME projects financed from European Union Structural funding sustainable and efficient? Are they having a net positive impact over their beneficiaries?

- Can we establish a link between the sustainability and efficiency of accessing European funds and the economic development of certain regions? Are the interregional development differences important when assessing efficiency of European funding?

Scrutinizing the results of the case studies, we can certainly consider that there is a close link between the development of a region, absorption capacity, sustainability and efficiency for usage of European funds. The bigger chances for a successful implementation of EU funds are having the companies, located in good business areas, and which have a good organizing and financial capacity prior to application. Inter-regional differences seem also to be important, since SME projects developed in regions with a concentrated economic power and well-developed business environment seem to bring good results. This is contradicting the principles of the Cohesion policy and should be addressed properly in the future programs by establishing different priorities for development in different regions. On the other hand, an increase in the organizational capacity, at the level of SME, could bring a more efficient usage of European funding.

Considering these, we can definitely conclude that European funded projects have a net positive impact over their beneficiaries but also the inter-regional development differences are important. Even if the projects are developed in the same region, those implemented in better-developed areas have superior effects and use more efficient European funds than the projects, which are developed in lesser-developed areas. As this aspect seems to be signalled by different researchers over the last years it should be further researched at the national or international level in order to establish its causes and address it properly.

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