THE IMPACT OF THE EUROPEAN FUNDING ON THE ROMANIAN SMEs. CASE STUDY ON THE REGIONAL OPERATIONAL PROGRAM 2007-2013

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Abstract

Romania's accession to the EU has allowed access to significant financial instruments for economic and social development. Their main role was to boost job creation, economic growth, and investments across Europe, with particular focus on the least developed regions and in sectors with growth potential, and Romania subscribes to this goal with all its regions. One of the most important pillars in economic development is to encourage the growth and development of SME's, which have significant economic and social effects in terms of increasing employment, encouraging innovation and stimulating competitiveness on the European market. During the 2007-2013 budgetary period, one of the main programs including financial support for enterprises was the Regional Operational Programme, through which European funds were allocated for the creation and development of microenterprises in the urban areas. The aim of this paper is to analyse the impact of the these funds on the economic performance of the urban Romanian SMEs. It was evaluated how these microenterprises performed once they benefitted from the European funding, and if and to what extent these financing instruments contributed to their growth and development.

Keywords: European Funds, Romania, microenterprise, economic performance

Introduction

Ever since the creation and implementation of the now-called European funds, their main role was to improve the economic potential of the receiving countries and enhance their economic development, particularly the ones that are lagging behind, in order to reduce the economic disparities between European regions and countries.

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Over time, the Structural Funds have become one of the main instruments for financing policies in order to promote regional development of its member states, covering today a third of the total of the EU budget.

The issue of regional discrepancies has been ruled since the beginning of the European Union, as it affects the economic performance of an area (Bache and George, 2009), but the first steps in addressing this problem were really taken in the early 70's, once with the creation of the European Regional Development Fund (ERDF) in order to reduce disparities between Member State's regions. Since then, several types of structural instruments were created, in order to encourage the development of different types of policies.

In the last two programming periods (2007-2013 and 2014-2020), the Cohesion Policy (ERDF, ESP, CF) accounted for a third of the European budget, showing the constant interest of the EU in reducing the gaps in the European regions and the support for sustainable economic development.

Taking into account the amount of money that are invested at EU-level nowadays through the European Structural and Investment Funds (ESI Funds), the literature in the field of assessing the impact of these financial instruments has rapidly developed, scientists and researchers questioning whether their use can lead to economic increase and may generate medium or long-term economic development.

Romania has been a net beneficiary of these funds since 2007, completing the programming period 2007-2013 and approaching the end of the second one, 2014-2020. As the official reports after the ending of the 2007-2013 period have indicated, Romania was placed last in terms of absorption in the ranking of the EU member states. Thus, scientists and researchers have approached this subject (Brasoveanu *et al.*, 2011), (Tătulescu and Pătruți , 2014) trying to identify which were the causes of this result and what improvements need to be done in order to avoid the same result in the following programming periods.

Even so, some of the programs implemented in Romania during the 2007-2013 period have proved to be more successful than others, having a greater addressability from the potential beneficiaries and conducting to greater results in terms of absorption. Such a program has proved to be the Regional Operational Program (ROP), co-funded by the European Regional Development Fund (ERDF), whose main objective consisted in supporting the development of Romania's regions from an economic, social, sustainable and territorially balanced point of view, while supporting the sustainable development of urban growth poles and improving business environment and basic infrastructure.

As one of the major objectives of the Cohesion Policy is to increase the employment rate in EU member states, especially in the newer and less developed countries, and also to create over 15.000 new jobs by the end of 2015, the ROP program allocated a significant amount of money for the creation of microenterprises in order to enhance employment and encourage competitiveness. Studies in the field (Taj and Bilal, 2016) have shown that microenterprises play an important role in employment creation and income generation, as they employ much more labour force than the multinational corporations and help accelerate growth in developing nations. Thus, under the ROP Programme, the Key Area of Interest 4.3-Supporting the development of microenterprises (KAI 4.3) aimed at strengthening the development of micro-enterprises in the field of construction, production and services, located in urban areas, in order to promote an overall increase in the competitiveness of micro-enterprises and the use of new technologies, innovations, equipment and ICT services, with an allocation of 260 billion Euro at EU level.

Since Romania is one of the least developed European countries which benefits from the Cohesion Policy through its funding programmes and also is one of the countries with access to large amounts of European money, the aim of the present paper is to analyse the impact of the European funds allocated within the Regional Operational Programme during the 2007-2013 on the economic performance of the urban Romanian micro-enterprises. In order to achieve this aim, we have set two research objectives: 1. To determine whether the ESI funds granted under the ROP programme 2007-2013 had any impact on the economic performance of the microenterprises, and 2. To determine if, and if so, to what extent did the EU Funds contribute to the growth and development of the urban Romanian SME's.

The methodology used in order to observe the impact of the ESI funds over the micro-enterprises in Romania consists of a three-step counterfactual analysis where the outcomes of the intervention are compared to the outcomes that would have been achieved if the intervention had not been implemented. The data used is based on a set of 787 micro-enterprises, out of which 287 – are beneficiaries of the ROP programme, KAI 4.3 and 500 are non-beneficiaries, selected from 3 of the 8 regions of Romania, namely Bucharest-Ilfov, North-East and West. The regions considered consisted of 12 counties and the indicators considered were selected for the 2008-2019 period.

1.The evolution of Cohesion Policy in the European Union

Economic Cohesion Policy is one of the main priorities on the European agenda nowadays and has been so for several decades. The Treaty on European Union states, at article 2, that the EU "shall have as its task (…) to promote throughout the Community a harmonious and balanced development of economic activities, sustainable and non-inflationary growth respecting the environment, a high degree of convergence of economic performance, a high level of employment and of social protection, the raising of the standard of living and quality of life, and economic and social cohesion and solidarity among Member States[1]. Even so, the idea of a European integration appeared earlier, in 1957, once with the signing of the Treaty of Rome, whose one of the main objectives was to "establish an internal market. It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy,

[1] 191, O. J. (1992). Treaty on European Union. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:11992M/TXT

aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment"[2]. As it can be seen, the Treaty recognized the importance of sharing the economic growth by all the Member States and regions in order to seek convergence on life standards (Brasoveanu *et al.*, 2011).

In this context, the first structural funds were launched in 1958 under the name of *European Social Fund (ESF)*, whose main role was to reimburse the member states with 50% of the costs spent for the professional training and installation allowances given to the workers affected by the economic restructuring. Later on, the ESF was oriented towards combating the unemployment among young people and to the more disadvantaged regions, along with the enlargement of the EU. Not long after, in 1962, the *European Agricultural Guidance and Guarantee Fund (EAGGF)* was created, in order to finance the common agricultural policy, as well as to support the development of rural regions and the improvement of agricultural structures, separated later in the Guarantee and Guidance sections. Although the slow pace of development of the European Community did not require the adoption of a regional policy yet, in 1972, regional policy was described as an „essential factor in strengthening the Community", and the Thompson Report published by the European Commission in 1973 (immediately after the accession of Denmark , Ireland and Great Britain) concluded that „although the objective of continued expansion established by the Treaty has been achieved, ensuring balance and harmony have not yet been achieved". Thompson also specified that „regional policy is in the general interest of Europe...it is as much in the interest of the richer regions of Europe as in the interest of the poorer regions" (Hall, 2014). Thus, in 1975, the *European Fund for Regional Development* (ERDF) was established, whose purpose was to reduce the gaps between the degrees of development of the regions, to compensate for the reduced benefits that Great Britain received following the application of the Common Agricultural Policy (CAP) and to correct the problems arising in regions affected by industrial change and structural unemployment. As we may see, the main focus of the 1970's to 1980's was the support given to the lagging regions, alongside the redistributive policies and equity. As Jacques Delors (1987) mentioned "all regions of the Community ought to be able to share progressively in these benefits (…). It is for this reason that the transparency of the large market should be facilitated by supporting the efforts of regions with ill-adapted structures and those in the throes of painful restructuring. Community policies can be of assistance to these regions, which in no way absolves them from assuming their own responsibilities and from making their own effort".

The development of the regional policy was strongly influenced by the expansion of the European Community (at the time) towards Greece, Spain and Portugal during 1981-1986. The political belief that European economic integration was likely to foster the development of core regions at the expense of the periphery let to the introduction of the principle of "economic and social cohesion" in the

[2] Rome, T. o. (1957). Retrieved October 03, 2022, from https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02016ME/TXT-20160901&from=EN

Single European Act, which led to a radical reform of regional development policies in 1989 (Rodriguez-Pose and Fratesi, 2007). The above-mentioned concept was specifically referring to the elimination of the economic discrepancies between regions, having as main scope to create the premises for an independent economic and social policy to facilitate the accession to the single European market for the states of southern Europe. The reform from 1989 implied the coordination of the existing Structural Funds under the principles of territorial and financial concentration, programming, partnership and additionality, and also a doubling of the funds in the following 4 years, up until 1993 (Rodriguez-Pose and Fratesi, 2007).

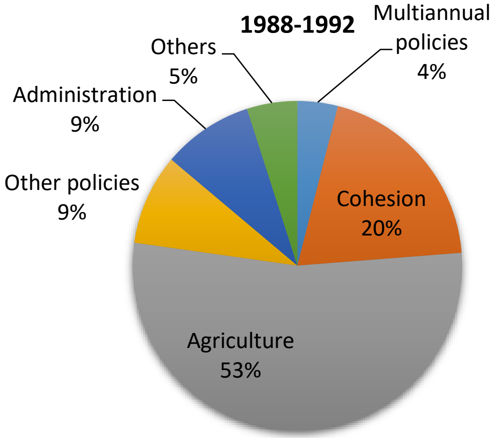
Furthermore, in 1993, the *Cohesion Fund (CF)* was created, destined to support the least advantaged member states of the Community, to manage the challenges imposed by the single market without fulfilling the convergence criteria requested by economic and momentary union. Thus, after the wave of liberalism which started in the 1980s, during the next decade, regional policies for the sheer reduction of disparities became difficult to sustain, so that it had to improve growth and competitiveness, by focusing on mobilizing endogenous assets and resources in all regions. According to (Camagni, 2002) in a globalising economy, territories and not jus-t firms increasingly find themselves in competition with each other. In fact, unlike the case of countries, cities and regions compete in the international market for goods and production factors, on the basis of an absolute advantage principle, and not of a comparative advantage principle (…). Moreover, (Camagni, 2002) considers that weak and lagging territories risk exclusion and decline to a larger extent than in the past, taking into account the present techno-economic phase that considers an increasing importance of knowledge factors, of immaterial elements linked to culture, the innovative utilisation of the existing stock of codified knowledge and technologies that require greater investments in human capital, management and organisation, etc. Thus, we can see that the starting with the 2000s the emphasis in the Cohesion Policy was put upon the competitiveness, alongside the convergence principle, as the EU was getting larger and the issues regarding the regional disparities was adding more pressure.

Today, the objective of the regional policy is to demonstrate the solidarity of the European Union through social and economic cohesion, reducing the gaps between regions from different member states (Drosu Șaguna and Găinușă, 2011), supporting job creation, competitiveness of the firms, economic development, and sustainable development and improving the quality of life. Starting with 2010, the objectives of the Cohesion Policy faced a turn towards a more balanced set of principles, with emphasis on the environment, climate changes, urban-rural linkages and digitalization. Also, several economic and social shocks, such as the Global Financial Crisis, the Covid-19 pandemics and climate crisis have created a more flexible and reactive frame for the implementation of the Cohesion Policy.

Evolution of the expenditure in the EU budget

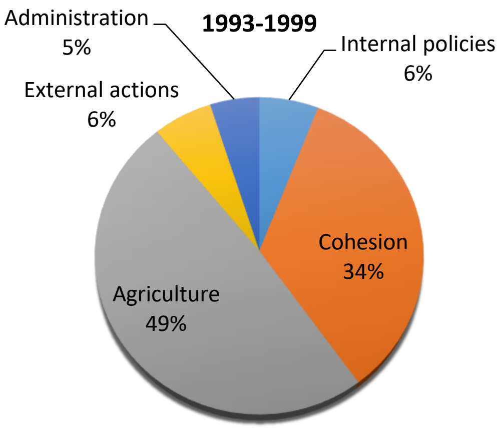
The figures below show the main categories of expenditure included in the multiannual financial plans starting with the Multiannual Financial Framework (MFF) 1988-1992 up to the one proposed for the period 2021-2027, in order to observe the investment priorities of the European Union over time, in accordance with supported policies.

Figure 1.Total expenditure EU 1988-1992



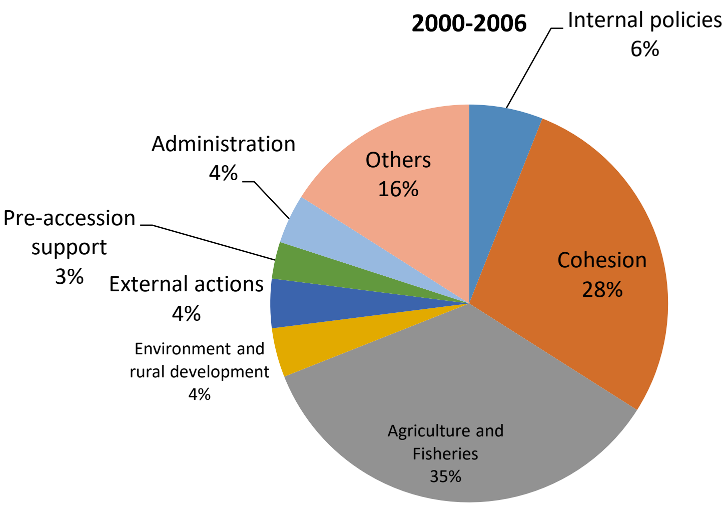
Source: Authors' representation

Figure 2.Total expenditure EU 1993-1999



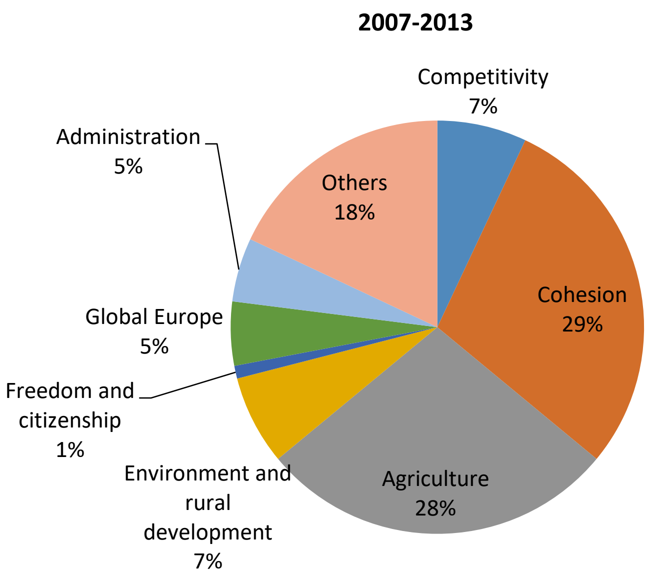
Source: Authors' representation

Figure 3. Total expenditure EU 2000-2006



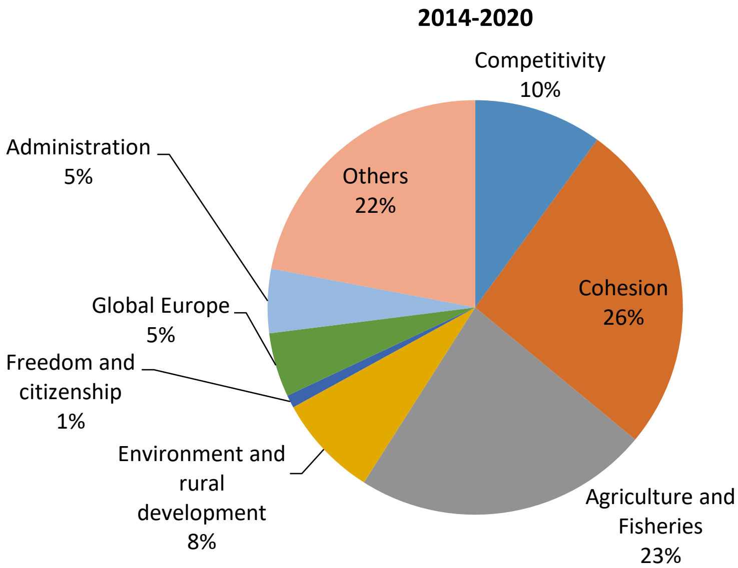
Source: Authors' representation

Figure 4. Total expenditure EU 2007-2013



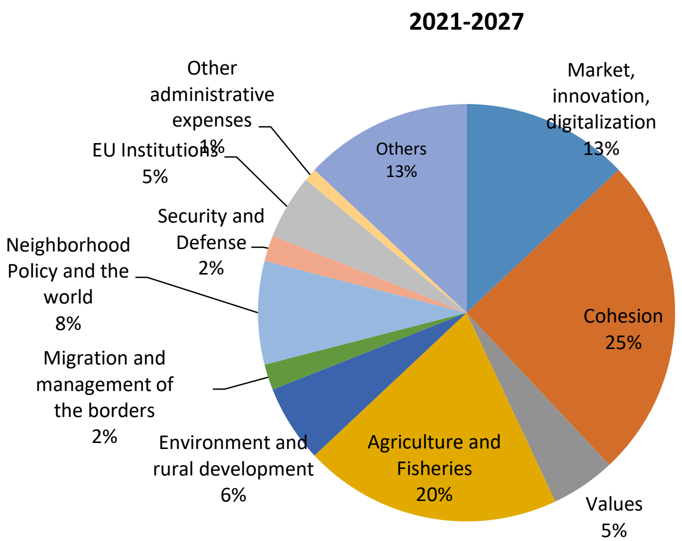
Source: Authors' representation

Figure 5. Total expenditure EU 2014-2020



Source: Authors' representation

Figure 6. Total expenditure EU 2021-2027



Source: Authors' representation

As it can be seen from the above, in the period 1988-1992 (Figure 1) the focus was on investments in agriculture and cohesion policy, preparing the budget for the transition to the internal market. In 1993 (see Figure 2.) the total budget increased to allow investments in cohesion in preparation for joining the euro area in the late 1990s, as well as in domestic policies, which included research and innovation. Furthermore, the 2000-2006 (see Figure 3) financial perspective followed the preparation of the European budget and economy for the integration of 10 new member states, so that the spending on internal policies, research and development and pre-accession aid increased, while spending on the agricultural sector reduced. Subsequently, the MFF 2007-2013 (see Figure 5.) slightly increased the investments made within the cohesion policy and competitiveness, with the accession of 3 new member states, in order to encourage the national economies of the member states to recover from the regional gaps. Funds allocated to agriculture and rural development also decreased, while a new policy began to be funded separately, that of citizens, security and justice. The next MFF continued the trend started in 2007-2013, with spending on competitiveness increasing (especially for the research and innovation sector), while investment in agriculture continued to fall.

With regard to the MFF 2021-2027, there are changes regarding the orientation of expenditure, so that the competitiveness sector is renamed the Single Market, including spending on innovation and digitization, the Erasmus+ program is removed from the competitiveness field, and the Values program appears to have an own budget line. Also, the expenses related to agriculture and cohesion decrease, and in order to reduce the problems related to the migration and security crisis, the Citizenship and Global Europe chapters are reconfigured and receive greater funding within their own areas (European Parliament, 2019).

2. Measuring the impact of the EU Funds

While the budget for the Cohesion policy kept increasing in the last programming periods, the interest for the evaluation of the European fund's medium and long term effectiveness also started to gain importance among the researchers, but also among the habilitated private and public institutions.

To this matter, there are numerous studies that evaluate the impact of the EU funds in the reduction of the economic gaps among European regions, but also there are a series of studies that evaluate the national impact. Even so, the literature in the field is complex and the results vary greatly and have not reached yet a common conclusion, as the empirical studies are depending on the periods considered, the indicators provided, the availability of the data taken into consideration, the methodologies used and also on a series of regional, national and geographical characteristics.

Several regional-oriented studies have shown that there are positive results when it comes to evaluating the impact of the EU funds (Cappelen *et al.*, 2003; Becker *et al.*, 2010; 2012; 2018). In a study researching the impact of the EU regional support on growth and convergence in the EU, the authors show that the structural funds have a significant and positive impact on the growth performance on EU regions and, hence, contribute to greater equality in productivity and income in Europe (Cappelen *et al.,* 2003), but the impact is stronger in more developed countries. Several other studies (Mohl and Hagen, 2010) (Pellegrini *et al.*, 2012) come to strengthen the same conclusion, arguing that there is a positive impact of the EU regional support on the growth performance of the EU regions. Furthermore, (Psycharis *et al.*, 2018), in a paper studying the effects of EU funds upon the Greek regions have shown that large-scale EU co-financed projects enhance competitiveness and are able to reduce regional inequalities, while more targeted small-scale interventions are critical factors for local economic growth and development. Furthermore, (Becker *et al.*, 2018) argue that the Structural Funds induced positive effects on the recipient regions and countries for all the 4 programming periods that existed so far, underlining that the transfers were weaker during times of economic crisis. Also, the authors observed that even though the transfers show almost immediate effects, they do not prove to have long-term effects in terms of real-capita-income growth in recipient regions. Also, on a study regarding the effects of EU Funds on Romania and Bulgaria, (Surubaru, 2020) has shown that even though there was an increase of the GDP growth due to EU transfers, the evidence shows that also other factors could have equally influenced the internal economic growth.

On the other hand, other studies suggested that the EU funds did not manage to demonstrate a significant impact on the economic development of the recipient regions (de la Fuente *et al.*, 1995; Rodriguez-Pose and Garcilazo, 2013). Moreover, in a paper researching the impact of the EU funds on the regions in Southern Italy, (Guido de and Emanuele, 2015) also found a limited impact on local measures for employment, population and house prices. (Ederveen *et al.*, 2006) also argue that European support as such did not improve the countries' growth performance, but it does enhance growth in countries with the right institutions.

Besides the country-level and regional-level studies that seek to evaluate the medium and long-term effects of using EU funds, the literature also offers us a large framework of studies that involve their effects on certain policies or fields: the impact of the EU's Cohesion Policy on firm growth in the period 2007-2013 (Bachtröglera *et al.*, 2019) which showed that the beneficiaries of the CF boosted both value added and employment growth, but the impact on productivity tended to be smaller. Furthermore, (Mack *et al.*, 2020) argue about the effects of EU rural development funds for micro-enterprises and tourism activities in Romania, showing that on average, funds did not contribute to the creation of new enterprises in Romanian rural communities during 2009-2014, but, however, it was found that the higher the treatment intensity it was, the more newly established enterprises were created.

In Romania, up to this point, there are no studies conducted in order to assess the impact of the European funding on the urban SME's through the ROP Programme. The only analysis that were developed are based on the results of the program and on their indicators, which calculate the quantity of projects that were submitted and finalized and analyse the final indicators achieved compared to what was planned, but these studies do not focus on the effects in time of the EU funding nor do they focus on the economic development of the funded companies.

3. The role of the ROP Programme in Romania in 2007-2013. Key Area of Interest 4.3

Romania has been a net beneficiary of the European Funds since 2007, starting with the MFF 2007-2013. Although it was ranked least in the European countries when it comes to absorbing the EU Funds, having an absorption rate of 92% in 2017 (compared to the EU rate of 96%), some of the programs implemented have proved to be more successful than others. Even though it benefitted from the n+2 rule, which prolonged the implementation period for the projects up to 2015, the final calculation of the achievement of the results and indicators, as well as the final estimations of EU payments were only available after the actual implementation phase of the programs and after the technical and financial audit of the projects.

To this matter, the ROP Programme has shown that here was an increased interest from the beneficiaries (public or private entities) to apply for these funds and to manage to fulfil successful projects.

The general objective of the ROP programme 2007-2013 was to support an economic, social, territorially balanced and sustainable development of the Romanian regions, corresponding to their needs and specific resources, by focusing on the urban poles of growth, by improving the infrastructural conditions and to the business environment to make Romania's regions, especially those lagging behind, more attractive places to live, visit, invest in an work.

The strategic objectives of the ROP programme 2007-2013 were: (1) creating 15,000 new jobs by the end of 2015 and (2) reducing disparities between regions in the period 2007-2015 in terms of GDP/capita.

The achievement of these 2 objectives was expected to be done through an integrated approach, based on a combination of public investment in local infrastructure, active policies to stimulate business activity and support for the development of local resources, which will be met through calls for projects. within 6 priority axes:

- Priority Axes 1 – Support for sustainable development od urban growth poles
- Priority axes 2 – Improvind local and regional transport infrastructure
- Priority axes 3 – Improving social infrastructure – creating the premises for a better access of the population to essential services
- Priority axes 4 – Strengthening the local and regional business environment - creating and developing support structures for businesses of local and regional importance
- Priority axes 5 - Sustainable development and promotion of tourism
- Priority axes 6 – Technical Assistance

The total value of the ERDF funds allocate for the ROP programme for 2007-2013 was of almost 4 billion euro, and by the end of October 2016 the implementation rate was as it follows (table 1):

Table 1. Implemention rate of the ROP programme 2007-2013

Allocated	**100%**
Submitted	217,4 %
Approved	127,7%
Contracted	108,7%
Paid	77,7%
Reimbursed from the EC	94,5%
Finalized	73,8%

Source: Authors' representation based on data obtained in the Final Report of Implementation for the ROP Programme 2007-2013[3]

After the approval of the program by the EC in 2007, the launch of the project applications during 2007-2008, the intensification of the process of signing the financial agreements in 2009-2010 and the acceleration of payments to beneficiaries during 2010-2013, the main feature of the ROP programme during 2014-2017 was the intensification of the process of physical and financial completion of the financed projects. As a result, implementation stages of the ROP 2007-2013 are presented in Table 2.

Table 2. Implementation stages of the ROP programme 2007-2013

No.	**Criterion**	**Value**	**ERDF contribution**
1	ROP total allocation	4,66 (bil euro)	3,96 bil euro
2	No. of grant applications	10.056 (13,99 bil euro)	8,62 bil euro (217% ERDF of ROP)
3	No. of approved grant applications	5.180 (8,19 bil euro)	5,02 bil euro (127%)
4	Signed grant agreements	5.164 (7,91 bil. Euro)	4,80 bi. Euro (121,1%)
5	Finalised projects	2.294 (3,67 bil. Euro)	2,93 bil. Euro (74%)

Source: Authors' representation based on data provided by Final Report of Implementation for the ROP Programme 2007-2013

Out of all the Priority axis of the ROP, it appears that 4.3 - referring to business environment, had the least allocations, but it was the most successful one in terms of certified payments, as it can be seen in Table 3.

[3] Available at https://www.adrse.ro/Documente/POR_2014/CMPOR/RFI_POR_2007_2013_FINAL.pdf ,accessed at 12.09.022)

Table 3. ROP allocation and certified payments per Priority Axes

Priority axis	Total allocation of the program	Total of eligible costs certified by the Payment Authority	Public contribution	Certificated payments (%)
PA.1.Urban development	1.438.98.380	1.236.173.329,66	1.236.173.329,66	85,91
PA.2.Road infrastructure	952.105.021	797.627.591,39	797.627.591,40	83,78
PA.3.Social infrastructure	864.474.865	739.396.046,21	738.900.182,02	85,47
PA.4.Business environment	561.685.142	593.957.676,21	504.886.013,44	89,89
PA.5. development and promotion of tourism	717.378.873	624.415.460,31	571.896.611,04	79,72
PA.6.Technical assistance	131.506.650	115.869.083,55	115.869.083,55	88,11
Total	**4.666.139.931**	**4.107.439.187,33**	**3.965.352.811,11**	**84,98**

Source: Data retrieved from RFI.. Final Report of Implementation for the ROP Programme 2007-2013

Key Area of Interest 4.3 – Supporting the development of micro-enterprises

The aim of the 4.3 KAI was strengthening the development of micro-enterprises in the field of construction, production and services, located in urban areas, in order to promote an overall increase in the competitiveness of micro-enterprises and the use of new technologies, innovations, equipment and ICT services.

The support granted to micro-enterprises under KAI 4.3 was for the restructuring of the underdeveloped areas with economic growth potential, especially in small and medium towns, aiming at the creation of new jobs. The expected result indicator refers to the number of newly created jobs in supported micro-enterprises, thus reflecting the main objective pursued by the intervention. In total, by KAI 4.3 were financed 2019 companies, through 2103 projects completed in the period 2009-2016 (ROP Evaluation Office, 2019). The comparison between the target indicators and the realization rate can be seen in Table 4.

Table 4. Results of the ROP program

Program indicator	**Indicator Type**	**Estimated through signed contracts**	**Realised through finished projects**	**ROP 2007-2013 target**	**Contracting rate**	**Realization rate**
Financially assisted micro-enterprises	Output indicator	2019	2103	1500	140%	140%
New jobs created through micro-enterprises	Result indicator	9270	9714	3000	324%	324%

Source: Authors' representation based on data obtained in the Final Implementation Report ROP program 2007-2013 and The evaluation report for the KAI 4.3.

The total allocation for this KAI was of 260 million euro, out of which 200 were from the ERDF funds, the rest of 60 million being from national contribution. With regard to the regional financial allocation, the North-East region (which is also the poorest region in Europe) was appointed the most funds, followed by South, South –West and South-East regions, while the least amount of money were dedicated to Bucharest-Ilfov region (which does not qualify as a lagging region thus did not receive a high amount of money), as it can be observed from Table 5.

Table 5. 4.3 KAI allocation and contract's status per region

Region	**North East**	**South-East**	**South**	**South-West**	**West**	**North-West**	**Centre**	**Bucharest-Ilfov**
Financial allocation (mil EUR)	32,66	26,51	28,47	28,03	20,69	24,19	21,81	17,73
Contracts by region								
Submitted	940	526	837	537	383	951	655	573
Rejected	494	300	305	303	209	585	453	367
Contracted	310	217	418	234	174	366	203	203

Source: Authors' representation based on data obtained in the Final Implementation Report ROP program 2007-2013 and The evaluation report for the KAI 4.3.

Considering the Table 5 above, as well as taking into account the fact that the regions which were appointed the most amounts of ERDF money are also the most under-developed, it would have been expected to show the most interest in the project submitting stage, but also in the contracting one. Even so, table 5 above shows us that even though the North-East region was placed second in the submitting stage by the number of applications, its contracting stage was at 32%, while other regions, such as South-West or West were at almost 50%. Thus, the table above shows us the number of projects submitted, rejected and contracted by each region.

4. Data and methodology

The aim of the paper is to analyse the impact of the European funds allocated within the Regional Operation Programme during the 2007-2013 budgetary period on the economic performance of the urban Romanian SMEs. Thus, it was evaluated how these microenterprises performed once they benefitted from the European funding, and if and to what extent these financing instruments contributed to their growth and development.

In order to achieve this objective, we have tested our research hypothesis *RH: The funds granted under the ROP Program 2007-2013 improved the economic performance of the beneficiary companies*.

The data collection process consisted of retrieving information from administrative and secondary sources in order to build a database for the quantitative analysis. The lists for the beneficiary firms were collected from the Regional Development Agencies for the three regions considered while the values of the economic indicators for the beneficiaries and for the non-beneficiaries were obtained from the www.listafirme.ro database.

The data gathered consisted of a sample of 787 micro-enterprises, out of which 297 were net beneficiaries of the 4.3 KAI, while the other 500 were non-beneficiary firms that did not apply or receive EU funding under the KAI 4.3. The data was collected for 3 regions – Bucharest-Ilfov, North-East and West, comprising 12 counties. In order to gather the data, we first identified the Call of Proposals for the period 2008-2011 of the KAI of interest, and then we identified the public list of beneficiaries of the European Funds. The economic indicators that are used as matching criteria in selecting the matching non-beneficiaries are as it follows:

- turnover
- Average number of employees
- Net profit
- Liabilities
- Fixed assests
- Current assets
- Equity

The period chosen is 2008-2019, as 2008 was the first year that the first Call of Proposal for the KAI 4.3 was launched and extended the period to 2019 in order to have a more complete picture of the economic performance of the beneficiaries during and after the use of the European Funds.

The outcome variable considered was the net profit. The net profit is the difference between income and expenses. The amount of income represents, in fact, the turnover of a company, which must be calculated following certain rules according to the specificities of the company. For example, if a company is a VAT payer or has obtained funding from an investor or a bank loan, these amounts must be excluded when calculating income. A company's expenses can be divided into three broad categories: production expenses (starting with raw materials to the salaries of the employees who actually work in productions), operational expenses (from rent to marketing expenses) and taxes and duties owed to the state. If the production expenses are deducted from the turnover, the gross profit is obtained. From this, the operating expenses are subtracted and the operating profit results, to which fees and taxes are applied. What remains after deducting all these expenses is net profit.

The quantitative analysis was conducted to estimate the impact of the funding over the urban Romanian SME's and constituted of a counterfactual analysis in which the outcomes of the intervention are compared to the outcomes that would have been achieved if the intervention had not been implemented.

The counterfactual analysis was conducted on a 3 - step methodology:

- A propensity score model (PSM) is estimated via a probit model to determine the predicted probabilities that will be used for matching the units
- Units matching – each unit from the treated group (beneficiaries) gets a match, using certain characteristics, previously presented, from the control group (non-beneficiaries)
- A difference-in-difference model (DID) is estimated, in order to asses estimated value of the impact of funding on the outcome of the beneficiaries and the net effect of the program.

The DID model is estimated as it follows:

$$Outcome = \beta_0 + \beta_1 Time + \beta_2 Treated + \beta_3 Time * Treated$$

Where:
Outcome (*y*) is the Net Profit
Time is a binary variable (1 – year *t*, 0 – year *t-1*)
Treated is the treatment variable (1 – beneficiaries *B*, 0 – non-beneficiaries *NB*)
Time*Treated is the interaction variable, for Time=1 and Treated=1
The β_3 coefficient measures the net effect of the funding on the outcome, and is determined as it follows:

$$Net\ effect = (\bar{y}_{tB} - \bar{y}_{tNB}) - (\bar{y}_{(t-1)B} - \bar{y}_{(t-1)NB})$$

5. Results of the empirical research

To answer the research question, after selecting matching units for beneficiaries, using PSM, an impact analysis is conducted, where treatment effects are estimated, namely the average treatment effect on the treated (ATT) and the net treatment effect of the program. The matching step of our research resulted in 222 matching pairs (beneficiary – non-beneficiary companies) for each year, after eliminating the NA's.

For each year, averages and standard deviations of the outcome are calculated for the groups of beneficiaries and non-beneficiaries (Table 6). There is a matching heterogeneity of both groups, for the entire period. The average outcome is observed to have an increasing trend after 2011, for both groups. But there are differences in outcome between beneficiaries and non-beneficiaries, the average for the beneficiaries considerably exceeding the average for the non-beneficiaries, especially in the second half of the analysed time period

Table 6. Summary statistics for the interest groups

	Beneficiaries		**Non-Beneficiaries**	
Year	Average	Std. deviation	Average	Std. deviation
2008	99301	196358	122725	364052
2009	88953	146606	145206	142284
2010	89933	152845	94924	162446
2011	113457	223734	101603	126910
2012	131291	264702	100813	131248
2013	151208	462080	128827	505940
2014	156475	345770	129320	269293
2015	245174	539372	144321	294597
2016	290719	669008	166693	280692
2017	341246	576635	200112	281121
2018	370898	715254	236426	342250
2019	431113	772713	292222	439289

Source: Authors' representation

The estimated ATTs are presented in Table 7 and will represent the effect of the funding among SMEs who received it, regardless of membership to the beneficiaries or non-beneficiaries groups. To calculate the ATTs, the matched non-beneficiaries group is a counterfactual for the beneficiaries, acting as beneficiaries that could have gotten the treatment, but did not received it.

A positive and significant ATT (where Average Treatment effect on the Treated is the averaged difference between the profit of the beneficiaries of the funds and the profit of the non-beneficiaries) indicates that the treatment (funding) has impacted the outcome of the beneficiaries by causing a significant increase of their net profit, situation that can be observed since 2015.

As we can see in Table 7, European funding has positively impacted the beneficiaries, meaning that there is a significant increase of their profits on medium-term. This impact can be continuously observed starting with 2015, as it is positive and significant. Before 2015, only in 2012 we can observe that this impact has been positive and significant, while in 2009 it is negative and significant. Also, in the period 2008-2010, the impact is negative and non-significant, with the exception of 2009.

Table 7. Estimated ATT

Year	Estimated ATT	T-stat	p-value
2008	-22334	-0.81222	0.41667
2009	-39687**	-2.5693	0.01019
2010	-4537.2	-0.29453	0.76835
2011	11941	0.75185	0.45214
2012	30478*	1.7081	0.08762
2013	22381	0.52083	0.60249
2014	27155	0.93257	0.35104
2015	100853**	2.5149	0.01191
2016	124026**	2.6532	0.00797
2017	141134**	3.5345	0.00041
2018	137290**	2.6718	0.00754
2019	138891**	2.3971	0.01652

Note: ** significant at 5%; * significant at 10%

Source: Authors' representation

In interpreting the results above, we may also have to consider the fact that the world was facing an economic crisis starting with 2008, whose effects lasted for several years, up to 2012-2013, so that when the program first started, in 2008-2009, the companies were already starting to feel the effects of the economic crises. Furthermore, we have to mention that even though the program officially started in 2007 on paper, the actual call of proposals for projects were not launched until mid-2008 and after, which means that the actual funds were allocated to the firms by the end of 2008 -2009, the earliest. This means that they were spent over the period 2009-2010, which leads us to the conclusion that the effects only started in 2010 the earliest. Another reason for the time-lapse that shows in our results, indicating positive effects only starting with 2015 is the fact that 2007-2013 was the first multiannual financial framework that Romania was part of as a European member state, which translates into the fact that it took several years for the preparation of the functioning of the ROP program, its institutions, its instruments and its control and managing authorities which delayed the effectiveness of the results. Moreover, the beneficiaries did not have any prior experience in the implementation of the EU funds so that every issue that they might have met on the road was a problem whose solution took a bit longer to be found as it was something new to react to.

The results of the DID coefficient estimates can be observed below, in Table 8.

We used the difference-in-difference method in order to compare the changes in outcomes over the period 2009-2019 between the beneficiaries (the treatment group) and the non-beneficiaries of European funds (the control group). Mainly, the net effect of the program is positive, except for three periods, but the effect is not sufficiently large to be significant, or the groups are not homogenous enough. As we can see from Table 8, the net effect of the program for two consecutive periods is mainly positive, with the exception of 2009 compared to 2008, 2013 compared to 2012 and 2018 compared to 2017. Even if it is positive, the only significant net effect can be observed in 2010 compared to 2009. Furthermore, we have also compared 2008 to 2013 and 2008 to 2015 for a more robust test. In the first case, the results are positive but not significant, while in the last case, where 2008 is the first year of implementation and 2015 is the last year, there is a significant positive impact of the European funds over the net profit of the beneficiary firms. Also, when we compared 2008 to 2019 (the last available data for the beneficiary and non-beneficiary firms) we also obtained a significant and positive result, which showed the impact of the EU funds over the treated firms. Moreover, our computations also included the 2013 vs 2015 period, where the results turned positive, but not significant.

Table 8. DID coefficients estimates – the net impact for periods of interest

Period	DID	T-stat	p-value
2009/2008	-32829	-1.060	0.289
2010/2009	51261	2.525	0.011740**
2011/2010	16846	0.737	0.461
2012/2011	18623	0.708	0.479
2013/2012	-8097	-0.162	0.872
2014/2013	4774.3	0.087	0.930
2015/2014	73697	1.455	0.146
2016/2015	23173	0.363	0.7166
2017/2016	17108	0.263	0.7925
2018/2017	-6662	-0.097	0.92249
2019/2018	4419	0.055	0.9559
2013/2008	45805	0.853	0.394
2015/2013	78472	1.270	0.204
2015/2008	124276	2.500	0.0126**
2019/2008	162315	2.467	0.0137**

Note: **significance at 5%
Source: Authors' representation

We may explain the results above by saying that in the period 2008-2010 there were only a few call of proposals for submitting EU projects and the firms were not very interested in the calls, as they did not have the experience to implement them. Also, the bureaucracy and other similar administrative factors were a challenge for many firms that were accepted in the program so that they gave up to the financing. The results that show us the net effect in 2010 compared to 2009 can be explained through the fact that the financing allowed the beneficiaries to invest a sudden amount of money in a short period of time, which led to an increase in their economic indicators for a short period of time, immediately after receiving the financing. Moreover, the economic crisis that hit worldwide and started in 2008-2009 has spread its negative effects on companies until at least 2012-2013, which led to the results we can see in table 7. Also, during the 2012-2013 period of time, the program got suspended from the EU as there were several issues regarding corruption and economic fraud during 2007-2012 which has led to a period of suspending the EU payments and the lack of call of proposals. Even so, when comparing the first and last year of implementation (2008 vs 2015) we observe that there is a significant positive result, which indicates that the EU funds had a positive impact over the treated firms, as did the computation 2008 vs 2019. These calculations show us that the impact form one year to another may not be significant, even though positive at some points, but when a longer period of time is considered, especially one that takes into consideration key-moments of the start and end of a programming period, the results are significant and positive, indicating that the effects of the use of the EU funds may have effects on medium term.

Conclusions and further research

The study we conducted over the implementation of the ROP programme regarding the use of the EU funds in the urban SME's during the MFF 2007-2013 is the first one of its kind in Romania. The results showed us that the counterfactual analysis indicates that the EU funds had a positive impact on the net profit of the beneficiary companies, leading to a significant increase by observing the ATTs, confirming our research hypothesis. Further, the DID method, applied on 222 matching pairs of beneficiaries-non-beneficiaries of the programme, showed a mainly positive estimated effect of the funds over the net profit, but not significant. Also, the results indicated that there are positive and significant effects of the use of EU funds when longer periods of time are considered, especially taking into account the start and end date of a programme, in order to observe the medium-term effect.

The results showed in the present paper should also take into consideration the fact that during the analysed period there was a worldwide economic crisis whose effects spread until at least 2012-2013 and also that for Romania, the 2007-2013 programming period was the first one since its accession in the EU. Thus, the managing and control authorities, as well as the beneficiaries, took a longer period of time to prepare and adjust for the programme and face the issues that appeared on the way.

Given the results in the study, one of the limits of our study is the fact that we only considered one control variable so that future research will consider more outcome variables, such as medium number of employees and also another set of predictors (such as region or other set of economic characteristics), to reduce as much as possible heterogeneities caused by other factors than treatment. The study can also be extended by taking into consideration a longer period of time for the beneficiaries of the 2007-2013 programming period, in order to explore the effects of the EU funds over a longer period of time and assess the impact they have over the economic performance of the urban Romanian SME's funded through the ROP programme. Moreover, another development of the present study may take into consideration a larger number of beneficiaries and non-beneficiaries firms, thus including other regions in the study.

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