

DO EU GRANTS HAVE AN IMPACT ON PRIVATE PRODUCTIVITY AND EFFICIENCY? AN EMPIRICAL ANALYSIS ON ROMANIAN COMPANIES

MOROȘAN ANDREI-ALEXANDRU

TEACHING ASSISTANT PHD. „ȘTEFAN CEL MARE” UNIVERSITY OF SUCEAVA

e-mail: andrei.morosan@usm.ro

Abstract

One of the central instruments for stimulating regional economic development in the European Union is represented by investment subsidies. Theoretically, these should be very efficient, practically representing a capital injection, but the scientific literature in this field is divided. On the one hand, some of the authors who have studied this subject conclude that European funds have positive effects, supporting the economic growth of the beneficiary regions, on the other hand some authors claim that these subsidies are effective only under certain conditions, that is, they have a conditional positive effect, however there are also authors who claim that subsidies granted to private enterprises do not have notable effects on efficiency and therefore do not lead to economic growth, resulting in a waste of funds.

This article represents an exploratory research of this phenomenon in Romania, the scientific literature on this subject being focused more on macroeconomic, econometric analyses than on microeconomic analyses at the firm level. In this study, we focused on a call for projects within the National Rural Development Program 2014-2020, a program financed by the European Union, and we analysed the evolution of the economic and financial situations of the firms that won and implemented projects with non-reimbursable financing, comparing the evolution of some key indicators with that of a control group.

The results obtained clearly indicate that these non-reimbursable financial aids contribute to increasing the productivity and efficiency of beneficiary companies, demonstrating that at the Romanian level, European funds are efficient, generating structural changes that lead to sustainable economic growth.

Keywords: European grants, economic development, economic productivity;

JEL classification: F63, H25, P33, F15

1. Introduction

The design of instruments to support economic growth is a particularly important objective for both policy makers and the academic community. For the European Union, the attempt to reduce economic disparities between regions or member states is supported by the allocation of funds for financing different types of development projects, for the public and private sectors. This approach has its origins since 1973 when the Regional Development policy was laid down. (Becker, Egger, & Ehrlich, 2018). Theoretically, such an approach in which funds are allocated in order to accelerate economic growth and reduce economic disparities should work very well, but we find that the results reported by the regions benefiting from these funds are very different, due to a multitude of factors. (Dumčiuvienė & Adomynienė, 2014)

2. Scientific Literature Review

Thus, the concern of both policy makers and the academic community to evaluate this type of instrument arises. In the scientific literature, two types of approaches to the evaluation process can be distinguished, macroeconomic approaches, most often based on econometric models, and microeconomic approaches based on enterprise-level analysis. Recently, we have observed that the number of studies conducted at the macroeconomic level is increasing (Wostner, 2008), however, the results obtained are very varied. Authors, such as Martin Reiner, believe that the funds allocated by the European Commission to finance various investment projects have a positive effect on economic growth, as long as a stable macroeconomic environment is ensured at the regional level. (Reiner, 2003), Sjef Ederveen, Henri L.F. Groot and Richard Nahuis also support the idea of a positive effect, but condition it on the institutional system of the recipient region. (Ederveen, Groot,

& Nahuis, 2002), Sascha Becker; Peter Egger and Maximilian von Ehrlich argue that European funds have a positive effect as long as the funded projects are designed with a long-term effect in mind (Becker, Egger, & Ehrlich, 2018). In an article published in 2021, Šelebaj, Domagoj and Bule, Matej conclude that European funds granted to the business environment undoubtedly lead to increased productivity, increased income and reduced unemployment, but they say that the effect is directly dependent on the value of the non-reimbursable financial aid. (Šelebaj & Bule, 2021)

Frank Barry, John Bradley and Aoife Hannan argue that the positive effect on economic growth can only be attributed thru public investment projects aimed at infrastructure development and not thru financing private projects. (Barry, Bradley, & Hannan, 2001).

Janos Varga and Jan in't Veld, using the econometric model QUEST III, conclude that European funds have positive effects on productivity growth, which further leads to increased production by private entities. The model also revealed the contribution of structural funds to wage growth and unemployment reduction. (Varga & Veld, 2009)

In the article published in 2017, Sabina Žampa and Štefan Bojnec conducted a microeconomic analysis on a sample of firms that benefited from non-repayable financial aid, concluding that beneficiary firms recorded notable increases in financial indicators, superior to the control group. The study also analysed the impact of innovation, but the results were not eloquent. (Žampa & Bojnec, 2017) Another approach based on spatial analysis carried out by Dinu Mihai, Lădaru Georgiana-Raluca, Petre Ionuț-Laurențiu and Mocanu Steliana reflects positive effects in some regions of Romania. (Dinu, Lădaru, Petre, & Mocanu, 2026)

A study conducted on the Greek dairy industry, published in 2025, shows that subsidies together with cluster development can contribute to the increasing of competitiveness and innovation, stimulating sustainable economic development. (Mavrommati, Chatzitheodoridis, Pliakoura, & Kalogiannidis, 2025)

There are also studies that conclude that the private sector has a slightly irrational behaviour in decisions related to accessing and implementing projects with non-reimbursable financing. Daiva Jureviciene and Jūratė Pileckaitė, in an article published in 2013, find that overvalued or oversized projects are frequently promoted, which are more likely to fall within the eligibility conditions of financing programs than to respond to the stringent needs of enterprises. (Jureviciene & Pileckaitė, 2013)

A similar conclusion is reached by researchers Kállay, László; Takács, Tibor, who, following an empirical microeconomic analysis, identified that only 10% of companies benefiting from non-reimbursable funds show improvements in their performance indicators, from their point of view, changes are necessary in the evaluation, selection and monitoring procedures of non-reimbursable funding programs. (Kállay & Takács, 2023)

A study conducted on a sample of companies in the industrial sector published in 2025 by Valentine Millot, Lukasz Rawdanowicz, Jehan Sauvage and Elisabeth van Lieshout revealed that after accessing non-reimbursable financing, their sales increased, but apart from this, the researchers did not identify other positive effects on productivity and efficiency indicators, and even identified cases in which subsidized investment projects had negative effects on productivity. (Millot, Rawdanowicz, Sauvage, & Lieshout, 2025)

In a 2020 analysis based on the results of many studies at the European Union level, Dvouletý Ondřej, Srhoj Stjepan and Pantea Smaranda showed that European funds generally have a positive effect on company sustainability, sales, contributing to reducing unemployment, but the results are mixed in terms of productivity and profitability indicators of beneficiary companies. Furthermore, it was identified that the effects vary greatly depending on the size of the company, region, field of activity and grant intensity. (Dvouletý, Srhoj, & Pantea, 2020)

Thus, we find that there is no unanimous opinion in the scientific literature, there are authors who claim that European funds granted to the private sector have positive effects, others believe that there may be positive effects, if certain conditions are met, but there are some opinions that

support the ineffectiveness of this support instrument. All these aspects are due to the fact that the phenomenon studied is extremely complex with multiple factors that could influence its evolution. A key aspect that could explain the plurality of conclusions is the perimeter/region that is analysed, thus different results are recorded at the level of certain regions/countries. At the level of Romania, there are not very many studies that address the issue of the efficiency of non-reimbursable funds granted by the EU. In a paper published in 2026, Mădălina Melania Alexa analysed, the impact that the LEADRE program has in Romanian rural area, concluding that there are positive effects that contribute to reducing unemployment and supporting economic growth. (Alexa, 2026)

3. Study methodology

We conclude that the subject of the efficiency of the European Union support programs is still an open subject, especially for microeconomic analyses. Having in mind this aspect, this research aims to assess whether the programs funded by the European Union lead to an increase in the efficiency of the private sector in Romania. Basically, we want to find out whether the European funds absorbed by Romanian enterprises lead to an increase in their productivity and efficiency.

The hypothesis of this study is the following: *H₁ Firms that benefit from non-refundable financial aid register higher efficiency indicators compared to firms that do not benefit from this facility.*

This hypothesis is based on the idea that within grant programs, potential beneficiaries are encouraged (either through eligibility criteria or selection criteria) to purchase state-of-the-art equipment or to implement innovative systems and solutions that should also generate certain changes in financial indicators.

In order to have a much clearer picture of the phenomenon, in this material we will limit ourselves to the analysis of a single financing program, therefore eliminating certain factors that could generate interference. Rather, we want to choose a support program in which the fields of activity of the beneficiary enterprises are not very varied, which will help isolate the effects of the studied phenomenon.

To test the hypothesis stated above, we proceeded to analyse the National Rural Development Program 2014-2020, a program that is financed by the European Union under the Common Agricultural Policy. One of the measures with an important allocation within this program is Measure 4 "Investments in physical assets" and one of the first calls for projects was sub-measure 4.1 "Investments in agricultural farms". Hence, in this material, we will analyse the companies that benefited from financing under sub-measure 4.1 within the 2015 call for project proposals, in order to have the widest possible time frame. By consulting all the selection reports related to this financing line available on the website of the Agency for Financing Rural Investments (www.afir.ro), we identified 313 projects selected for financing, 3 eligible projects without financing, 199 ineligible projects and 25 withdrawn projects. Of the total number of projects submitted, 279 funding applications were submitted by simplified legal forms PFA, II, IF and 261 by legal entities LLC, Joint Stock Companies and Agricultural Cooperatives.

Our analysis focused on commercial companies and cooperatives, because simplified legal forms, on the one hand, do not keep double-entry accounting records, which does not allow us to determine certain financial indicators, but also present certain legislative limitations (capping the number of employees - PFA, conditioning the existence of the degree of kinship - IF). Consequently, in the analysis we considered the 261 commercial companies and agricultural cooperatives that submitted applications for financing during the 2015 session of sub-measure 4.1. These were divided into two groups: Group 1 which had projects selected for financing (170 enterprises) and Group 2 which did not have projects selected for financing (91 enterprises).

For all 261 enterprises, the financial statements available in the Ministry of Finance database (www.mfinante.gov.ro) for the period 2015-2024 were downloaded. For Group 1, which is the group subject to analysis, we also performed a filtering based on the evolution of fixed assets

compared to the value of the submitted project, basically we wanted to keep only those entities where we can clearly identify in the financial statements the implementation of the project. After applying this condition, 79 enterprises remained in Group 1, in the control group we kept all 91 enterprises.

To prepare the statistical data series for analysis, we eliminated extreme values using the interquartile range (IQR) method, using a coefficient of 1.5. (Pintilescu, 2022)

To test this hypothesis, we comparatively analysed a series of efficiency indicators for the two groups of enterprises:

1. Labor productivity determined as Turnover/number of employees
2. Average profit per employee determined as Net profit/number of employees;
3. Current asset turnover determined as Turnover/Current assets (Tabără, Horomnea, & Toma, 2005)

The three indicators were analysed over the period 2016-2024, as most financing contracts were signed during 2016, so starting this year we can see certain changes in the evolution of the financial indicators.

4. Case study

1 Labor productivity

The first step in analysing this indicator was to clean the data set by eliminating extreme values, which could affect the statistical tests. As described in the methodology, we used the interquartile method using the SPSS software program - version 20.

Table 1 – Quartiles for Labor productivity

Statistics Labor productivity		
N	Valid	1132
	Missing	398
Percentiles	Q1 - 25	230.424,55
	Q2 - 50	374.939,20
	Q3 - 75	639.555,50
	Q3-Q1	409.130,95

Source: author's calculations based on data from www.mfinante.gov.ro

As we can see in Figure 1, after applying the filters, the extreme values are eliminated, obtaining a data series with a normal distribution.

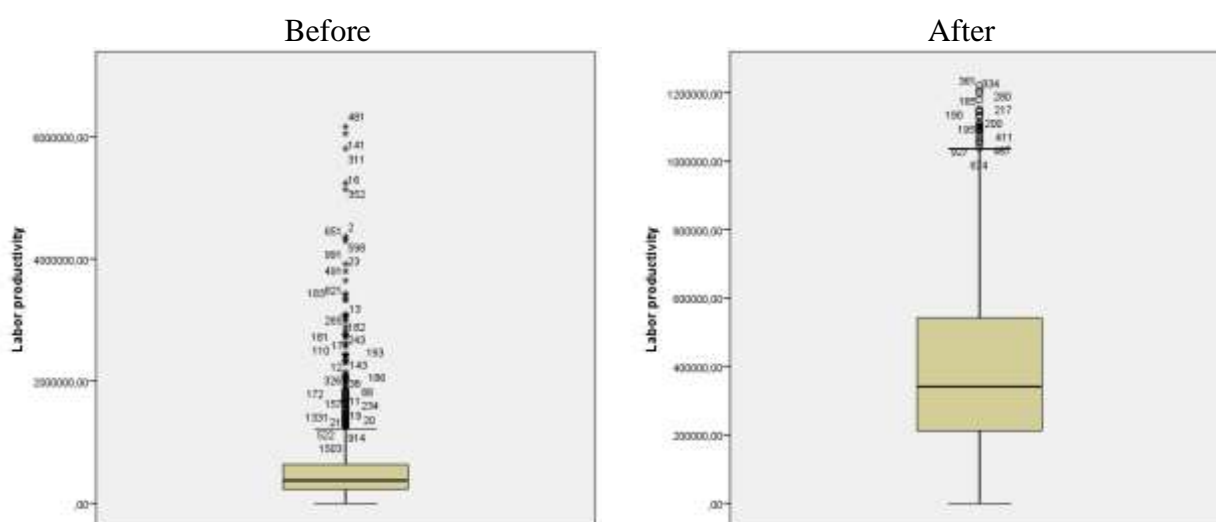


Figure 1 – Distribution of values for Labor productivity

Source: author's calculations based on data from www.mfinante.gov.ro

The analyzed data series - labor productivity has an average of 397,870.16 lei/employee (figure 2).

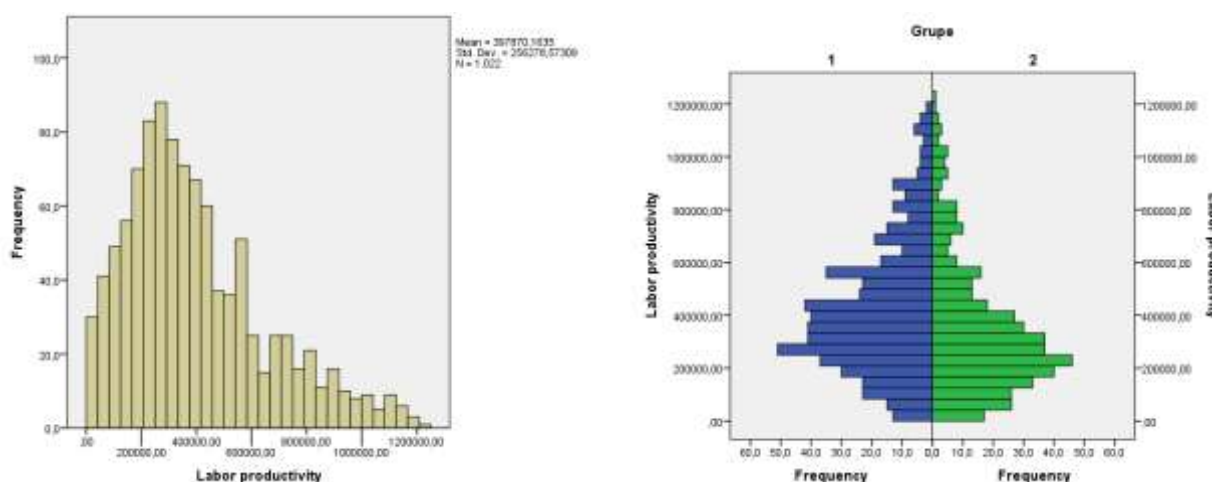


Figure 2 – Distribution of values by subgroups for Labor productivity

Source: author's calculations based on data from www.mfinante.gov.ro

Calculating the average for the two groups of companies, which benefited from financial aid (group 1) and those that did not benefit from non-refundable financial aid (group 2 – control group), we find that the values are: group 1 – 430,918.7416 lei/employee and group 2 – 356,193.8592 lei/employee (table 2). Comparing the averages of the two groups, we find that the value for group 1 is approximately 21% higher than that of group 2.

Table 2 – Calculating subgroup averages Labor productivity

Group Statistics					
	Grupe	N	Mean	Std. Deviation	Std. Error Mean
Labor productivity	1	570	430.918,7416	253.294,34372	10.609,33258
	2	452	356.193,8592	254.208,04269	11.956,94053

Source: author's calculations based on data from www.mfinante.gov.ro

The higher value of labour productivity in group 1 would confirm the stated hypothesis, nevertheless it is necessary to test whether the difference is statistically representative. For this, we applied an independent sample t test using the SPSS software. The results show that the difference between the means of the two groups is statistically significant (Sig.<0,05) (table 3).

Table 3 – Independent sample t test - Labor productivity

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower		Upper
Labor productivity	Equal variances assumed	,286	,593	4,677	1020	,000	74724,88232	15978,54118	43370,31150	106079,45314
	Equal variances not assumed			4,675	966,065	,000	74724,88232	15985,19205	43355,17995	106094,58469

Source: author's calculations based on data from www.mfinante.gov.ro

Thus, the results of this indicator confirm the stated hypothesis, with companies that benefit from European investment subsidies recording higher human resource productivity.

Average profit per employee

The second indicator we analysed is the average profit per employee, similar to the previous case, we proceeded to clean the data series using the interquartile distance method (table 4).

Table 4 – Quartiles for Average profit per employee

Statistics Average profit per employee		
N	Valid	1191
	Missing	339
Percentiles	Q1 - 25	6.991,1429
	Q2 - 50	43.316,0000
	Q3 - 75	118.383,0000
	Q3-Q1	111.391,8571

Source: author's calculations based on data from www.mfinante.gov.ro

After eliminating the extreme values, we find that we obtain a series with a normal distribution, which allows us to apply the same statistical tests that we performed in the previous case (figure 3).

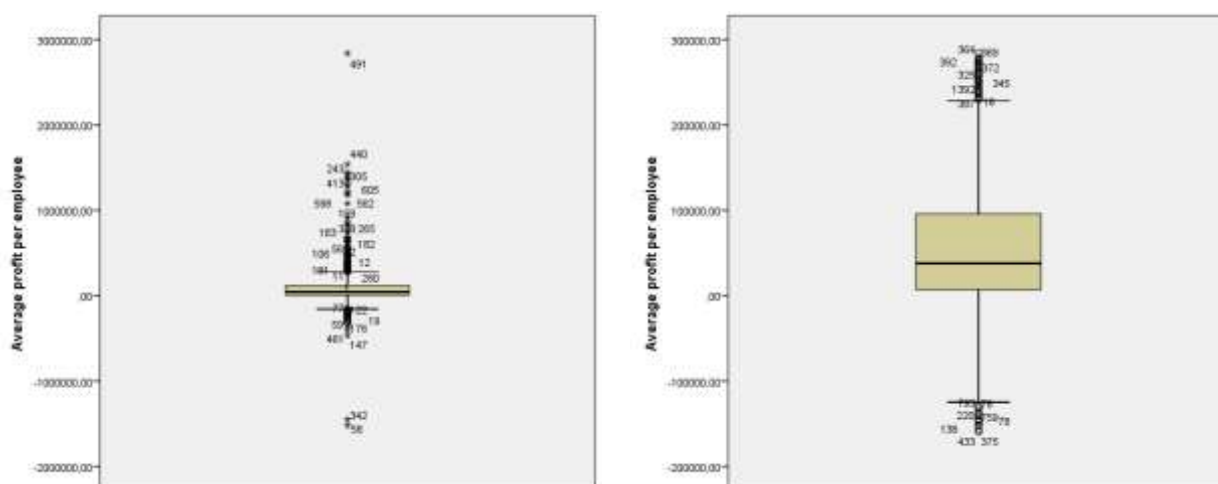


Figure 3 – Distribution of values for Average profit per employee

Source: author's calculations based on data from www.mfinante.gov.ro

The average value recorded for the whole series is 55,144.5306 lei per employee (figure 4), and at the level of the two groups we obtain 59,544.9346 lei per employee for group 1 and 50,018.1945 lei per employee for group 2 (table 5). Thus, the average of the group that benefited from non-refundable financial aid is 19% higher than that of the control group.

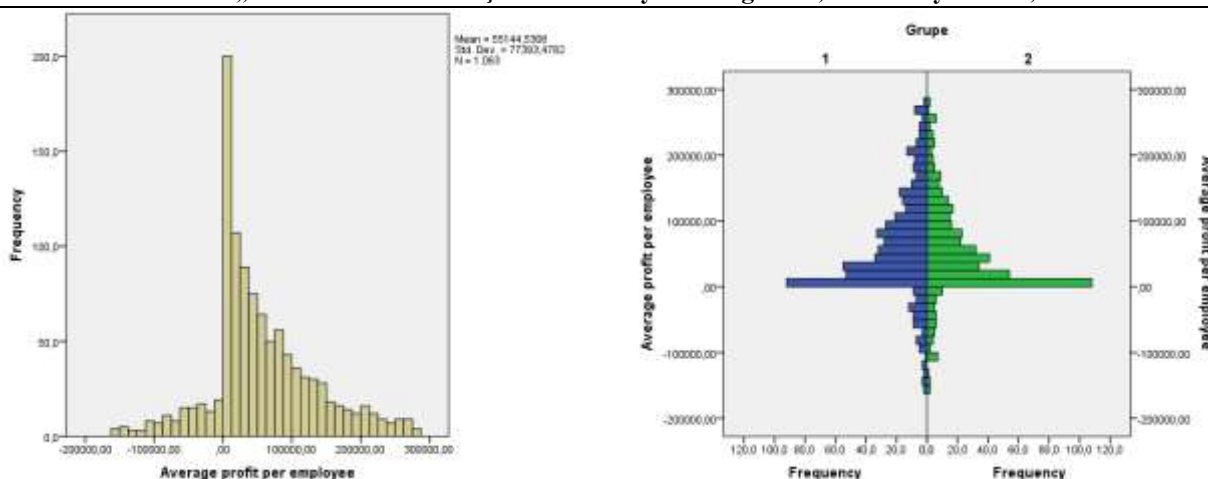


Figure 4 – Distribution of values by subgroups for Average profit per employee

Source: author's calculations based on data from www.mfinante.gov.ro

And in the case of this indicator, we observe that group 1’s average is above the average of whole series, and group 2’s average (the control group) is below the average of the whole series, which would support the validation of the study hypothesis, although we need to test whether the difference between the means is statistically significant.

Tabel 5 – Calculating subgroup averages Average profit per employee

Group Statistics					
	Grupe	N	Mean	Std. Deviation	Std. Error Mean
Average profit per employee	1	572	59.544,9346	80.398,99762	3.361,65097
	2	491	50.018,1945	73.487,36627	3.316,43841

Source: author's calculations based on data from www.mfinante.gov.ro

After applying an independent sample t test using the SPSS program (table 6), we find that the difference between the groups means is statistically representative (Sig.<0.05), thus the second indicator also confirms the study hypothesis.

Tabel 6 – Independent sample t test Average profit per employee

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Average profit per employee	Equal variances assumed	4,966	,026	2,004	1061	,045	9526,74013	4754,62960	197,19463	18856,28564
	Equal variances not assumed			2,017	1056,807	,044	9526,74013	4722,23051	260,72622	18792,75404

Source: author's calculations based on data from www.mfinante.gov.ro

Current asset turnover

The third indicator we analysed is a general efficiency indicator, which is not necessarily related to human resources, however it can help us formulate an opinion regarding the study hypothesis.

Tabel 7 – Quartiles for Current asset turnover

Statistics Current asset turnover		
N	Valid	1220
	Missing	310
Percentiles	Q1 - 25	,6425
	Q2 - 50	1,0786
	Q3 - 75	1,6668
	Q3-Q1	1,0243

Source: author's calculations based on data from www.mfinante.gov.ro

Similar to the previously analysed indicators (table 7), after eliminating the extreme values we obtain a series with a normal distribution, which allows us to proceed to apply similar statistical tests (figure 5).

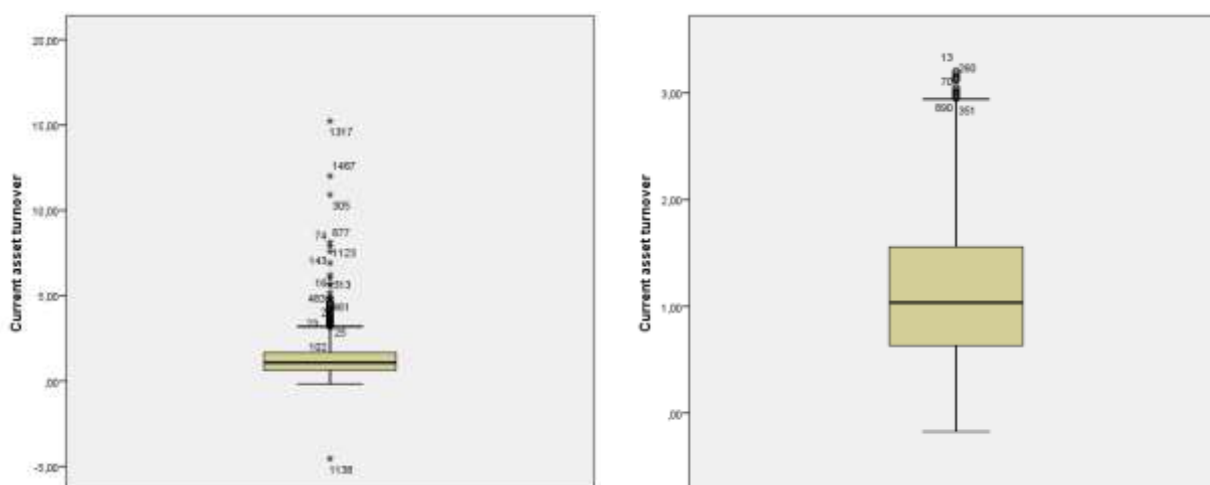


Figure 5 – Distribution of values for Current asset turnover

Source: author's calculations based on data from www.mfinante.gov.ro

The average value for the whole series is 1.1434 (figure 6), for group 1 - 1.2352 and for group 2 - 1.0403 (table 8), which would support the confirmation of the study hypothesis. Group 1 registering a value higher than the average of the whole group, while the control group registers a value lower than of the whole group. And in this case, the average of the group of companies that benefited from European subsidies is approximately 19% higher than that of the control group.

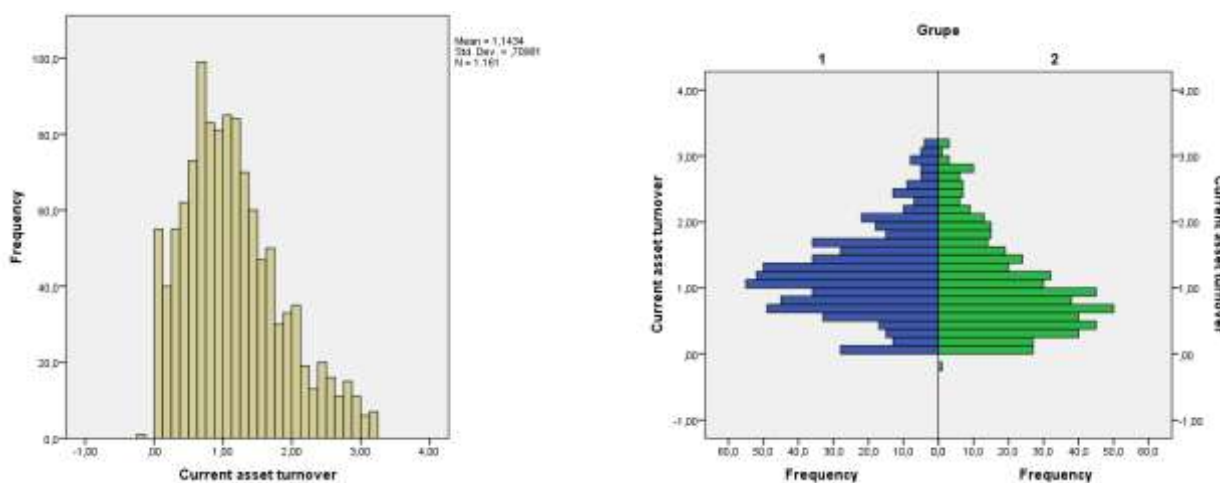


Figure 6 – Distribution of values by subgroups for Current asset turnover

By comparatively analysing the graphic representation of the indicator for the two groups of companies, we find that it can be easily observed that there is a difference between their shape (figure 6).

Tabel 8 – Calculating subgroup averages Current asset turnover

Group Statistics					
	Grupe	N	Mean	Std. Deviation	Std. Error Mean
Current asset turnover	1	614	1,2352	,68901	,02781
	2	547	1,0403	,71923	,03075

Source: author's calculations based on data from www.mfinante.gov.ro

To determine whether the difference between the means is statistically significant, we proceeded similarly, applying an independent sample t test (table 9), which confirmed that the difference is statistically representative (Sig. <0.05).

Tabel 9 – Independent sample t test Current asset turnover

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Current asset turnover	Equal variances assumed	1,955	,162	4,712	1159	,000	,19487	,04136	,11372	,27601
	Equal variances not assumed			4,700	1130,621	,000	,19487	,04146	,11352	,27621

Source: author's calculations based on data from www.mfinante.gov.ro

5. Conclusions

In the present study, for all three indicators that we analysed, we found that group 1 which is made up of companies that benefited from non-refundable financial aid, recorded values above the series average, and group 2, that is made up from companies that did not benefit from non-refundable financial aid (the control group), recorded values below the series average. The analysed indicators show us that companies that benefited from European investment subsidies are more productive and more efficient than companies that did not benefit from this support instrument. Moreover, the fact that in all the cases the differences between the averages of the two groups were statistically significant confirms the stated study hypothesis, namely that European funds have a positive effect on the productivity and efficiency of beneficiary companies.

We can conclude that European funds granted to the business environment lead to increased productivity and efficiency of beneficiary enterprises, which will translate at macroeconomic level into sustainable economic growth.

A particularity of this study that supports the increased comparability between the two groups, respectively their homogeneity, is that all the companies analysed operate in the primary sector, thus the results of this study are not affected by the differences between sectors or fields of activity.

6. Limitations and future prospects

The main limitation of this study is that it is conducted on the data of a single call for projects and on a single financing line, which implies a relatively small volume of data. The conclusions of this research cannot be generalized, but they encourage us to expand the analysis and the volume of data considered.

In the future, we intend to analyse other lines of financing with different specificities (for example, addressed to the secondary or tertiary sector), to see if we identify representative intersectoral differences. Also, in future research, we intend to analyse whether European investment subsidies have an effect on the profitability and financial stability of beneficiary enterprises.

Another limitation of this study is the time horizon of only nine years. It is very important to see whether these differences are maintained over a longer time horizon of 15-20 years, that is, whether the firms in the control group manage to catch up or whether the changes generated by the project are structural and long-term.

7. References

- [1] Alexa, M. M. (2026). Changes in Leader Funding for Non-Agricultural Areas. *Annals of the „Constantin Brâncuși” University of Târgu Jiu, Economy Series*, 313-325.
- [2] Barry, F., Bradley, J., & Hannan, A. (2001). The Single Market, The Structural Funds and Ireland's Recent Economic Growth. *Journal of Common Market Studies*, Vol. 39, nr. 3, 537 - 552.
- [3] Becker, S., Egger, P., & Ehrlich, v. M. (2018). Effects of EU Regional Policy: 1989-2013. *Regional Science and Urban Economics* 69 (2018), 143–152.
- [4] Dinu, M., Lădaru, G.-R., Petre, I.-L., & Mocanu, S. (2026). Territorial Disparities and the Dynamics of Agricultural Investment Implementation in Romania: Analysis of Measures DR-15 and DR-20 in the 2023–2027 National Strategic Plan. *Annals of the „Constantin Brâncuși” University of Târgu Jiu, Economy Series*, 83-92.
- [5] Dumčiuvienė, D., & Adomynienė, I. (2014). The Evaluation of European Union Structural Support. *Procedia - Social and Behavioral Sciences* 156, 382 – 387.
- [6] Dvouletý, O., Srhoj, S., & Pantea, S. (2020). Public SME grants and firm performance in European Union: A systematic review of empirical evidence. *Small Business Economics*, Volume 57, 243–263.
- [7] Ederveen, S., Groot, L. H., & Nahuis, R. (2002). Fertile Soil for Structural Funds? Tinbergen Institute Discussion Paper TI 2002-096/3.
- [8] Jureviciene, D., & Pileckaitė, J. (2013). The Impact of EU Structural Fund Support and Problems of its Absorption. *Business, Management and Education*. 11. , 1-18.
- [9] Kállay, L., & Takács, T. (2023). The impact of public subsidies on investment and growth: Policy about evaluation, selection and monitoring. *Journal of Policy Modeling* Volume 45, Issue 5, 895-909.
- [10] Mavrommati, A., Chatzitheodoridis, F., Pliakoura, A., & Kalogiannidis, S. (2025). Assessing Operational and Investment Efficiency in the Greek Dairy Industry: A DEA-Based Composite Model. *Scientific Annals of Economics and Business* Vol. 72 No. 3 (2025), 465-488.
- [11] Millot, V., Rawdanowicz, L., Sauvage, J., & Lieshout, E. v. (2025, July). The market implications of industrial subsidies. *VoxEU*. CEPR.
- [12] Pintilescu, C. (2022). *Analiza statistica a datelor in SPSS si in R*. Iasi: Editura Sedcom Libris.
- [13] Reiner, M. (2003). The Impact of the EU's Structural and Cohesion Funds on Real Convergence in the EU. *NBP Conference Potential Output and Barriers to Growth ZALESIE GÓRNE*.
- [14] Šelebaj, D., & Bule, M. (2021). Effects of grants from EU funds on business performance of non-financial corporations in Croatia. *Public Sector Economics*, Vol. 45 No. 2, 177-207.
- [15] Tabără, N., Horomnea, E., & Toma, C. (2005). *Analiza contabil-financiară*. Iași: Editura Tipo Moldova.

[16] Varga, J., & Veld, J. i. (2009). A Model-based Assessment of the Macroeconomic Impact of EU Structural Funds on the New Member States. European Economy. Economic Papers 371. March 2009. Brussels.

[17] Wostner, P. (2008). Micro-efficiency of the EU Cohesion Policy. European Policies Research Center, Glasgow.

[18] Žampa, S., & Bojnec, Š. (2017). The Impact of Subsidies on Production Innovation and Sustainable Growth. Management and Production Engineering Review, 54-63.

[19] *** Rural Investment Financing Agency – www.afir.ro (consulted December 2025)

[20] *** Ministry of Public Finance – www.mfinanate.gov.ro (consulted January 2026)