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Article

Projects financed through the regional program influences on the economic performance of the enterprises in the field of specialized professional services

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Abstract: The research is focused on the evolution of the enterprises, in the field of specialized professional services, medium-period, enterprises that implemented projects financed within Regional Operational Program (ROP) during the 2007–2013 financial programming period. The analysis of the economic performance of the micro-enterprises corresponds to general objectives, but there can be outlined connections between these performances and other economic indicators that were not considered or followed through the financing program. The study case is focused on the development of micro-enterprises in the services area, in the Central Region, Romania (one of the eight development regions in Romania). The scientific approach for this article was based on a regressive statistical analysis. The analysis included the economic parameters for the enterprises selected, comparing the economic efficiency of these enterprises, during implementation with the economic efficiency after the implementation of the projects, during medium periods, including the sustainability period. The purpose of the research was to analyse the economic efficiency of the selected micro-enterprises, after finalizing the projects' implementation. The authors intend to point out the need for a managerial instrument based on the economic efficiency of companies that are benefiting from non-reimbursable funds. This instrument should be taken into consideration in planning regional development at the national level, regarding the conditions and results expected. Although the authors used regressive statistical analysis the purpose was to prove that there is a need for additional managerial instruments when the financial allocations are being designed at the regional level. This study follows the interest of the authors in proving that the efficiency of non-reimbursable funds should be analysed distinctively on the activity sectors.

Keywords: regional sustainable development; economic efficiency; econometric model; project management; informational system

1. Introduction

The article is focused on the micro-enterprises' evolution in the medium and long term, which implemented projects financed within ROP (Regional Operational Program) during the 2007–2013 financial programming period (expanded with the additional period 2014–2015 for program implementation) in the field of specialized professional services. Priority 4: Strengthening the regional and local business environment, Major area of intervention 4.3: Supporting the development of micro-enterprises. The scientific approach for this article is based on a regressive statistical analysis. The analysis includes the economic parameters for the selected micro-enterprises and compares the economic efficiency of these enterprises, during

implementation, with the economic efficiency after the implementation of the projects, during the medium period, including the sustainability period. The purpose of the research was to analyse the economic activity efficiency of the selected micro-enterprises, in the period when they were no longer monitored. The research objective is to point out the need for a managerial instrument based on the economic efficiency of enterprises that are benefiting from non-reimbursable funds. The authors used regressive statistical analysis to prove that there is a strong connection between the economic efficiency of the enterprises and non-reimbursable financing at the activity sector level.

The projects' calls in which the micro-enterprises obtained financing were focused on the development of relevant business structures and growth potential, encouraging local entrepreneurial initiatives, to stimulate new job formation and local and regional development. The scientific demarche is represented by a statistical analysis of the economic parameters of the selected micro-enterprises, analysing the economic efficiency of these enterprises after implementing the projects, including the sustainability periods. The purpose of the research was to determine the impact of the no-reimbursable financial projects on the efficiency of the selected enterprises. Thus, the economic performances recorded for the selected enterprises and their correspondence to the general objective of ROP, namely the support of the services sector at the Central Region level, according to this activity's potential to generate regional prosperity and to confer new jobs by valorising the cultural and natural heritage of the area. Also, the focus was on the newly created jobs following the implementation of the projects, respectively the evolution of the employees' number for these micro-enterprises. One conclusion that this research is opening is to identify the common elements of these projects that can be included in a future informational system that can allow the monitoring of these projects independently.

2. Literature review

The economic performance of the enterprises can be analysed from the perspective of efficiency, financial indicators, market share (Anggadwita and Mustafid, 2014), profitability, the evolution of income, costs, and profit (Gupta and Batra, 2016; Rehman et al., 2021; Zimon, 2018). This study should be considered also from a perspective that analyses the goals achieved at enterprise level: entrepreneur's experience and enterprise's growth (Bratkovic Kregar and Antoncic, 2016; Lien and Li, 2017), creation of new working places (Anggadwita and Mustafid, 2014), product and process innovation, organizational innovation (Altuntas et al., 2018; Junfeng et al., 2022; Sheehan, 2013; Wolff and Pett, 2006).

Micro-enterprises can adapt rapidly to market demands, to adjust the supply to the demand's evolution, in real time, compared to large companies. Despite the flexibility advantage, the micro-enterprises cannot ensure career development paths for the employees, and cannot support development activities or similar (Vochozka et al., 2015). Usually, micro-enterprises are often family businesses, taken from generation to generation or developed after earning experience in a certain economic area (Bolaños, 2017; De Toni et al., 2003; Kasych et al., 2017). This is the opportunity that these entrepreneurs succeeded in taking it to the next level of evolution or to come

on the market with a new product or service, after an experience gathering in that area (Grando et al., 2006). Micro-enterprises are developing close relations between employees and between employees and managers compared to large companies, which usually leads to a friendlier communication climate that supports flexibility and efficiency: relation between enterprises' demography and economic growth (Chivu et al., 2021); identifying factors that are leading to a prosperous development (Ibinceanu et al., 2021); importance of new policies for supporting entrepreneurship (Negrea et al., 2019); introducing new technologies in small business (Starbek et al., 2002).

Analysis conducted in this area highlighted the influence of technique on the micro-enterprises' efficiency: introducing new products (Calantone et al., 2003); strategies for introducing new technology (Baba et al., 2017; Battistella and De Toni, 2011); developing new products among functional units (Fernández et al., 2010); the relation between introducing new technologies and enterprises' stability (de Vaan, 2014); advantages of internal research and development department (Hung and Chou, 2013); clusters influence in increasing efficiency for small business (Krželj et al., 2016).

Micro-enterprise development is related to innovation (Anderson et al., 2014), and research activities (Baer, 2012). There are not many studies that support micro-enterprise development through projects with external financing (Iacob et al., 2019; Kersan-Škabić and Tijanić, 2017). This refers to financing projects and the connection with the evolution of enterprises' performance of the beneficiary enterprises. All this information related to the performance of enterprises raises another challenge for the future, namely to identify the elements that can lead toward digital transformation related to the implementation of the project (such as adoption, implementation, and use). The success of this project is determined to a large extent by identifying factors or prerequisites that are critical for these stages: identifying business success factors (Doneva and Gaftandzhieva, 2022); the relation between resource planning and business performance (Karimi et al., 2007; Marsudi and Pambudi, 2021; Wijaya and Utomo, 2021).

Based on the research conducted in the article, there was identified the need for using an information system able to collect these data and use it for adapting the financial instruments to the needs of enterprises. Big data systems have been widely used in optimizing logistical routes, improving traffic predicting diseases in healthcare, optimizing business, and targeting marketing campaigns: big data systems are used for the decision-making process (Grander et al., 2022, 2021); big data used in forecasting research (Tang et al., 2022); ethics in using big data systems (Chen and Quan-Haase, 2018).

Challenges of globalization, technological and scientific progress, the freedom of movement in the European Union market, but also globally, as well as the complexity of the enterprises' activity represent factors that are shaping the enterprises' evolution. Informational systems used for different reports can be used to improve enterprises' efficiency, including for project management purposes: Digital users acceptance in enterprises' (Vărzaru, 2022); intranet used for increasing internal efficiency (Welch and Pandey, 2006; Welch and Feeney, 2014); accounting data management (Coyne et al., 2018; Huerta and Jensen, 2017; Kim and Kim, 2020; Pickard and Cokins, 2015).

The scientific demarche aims to point out the need for a managerial instrument

based on the economic efficiency of enterprises that are benefiting from non-reimbursable funds. This instrument should be taken into consideration by national and regional stakeholders in planning regional development, to correlate financial input and results expected.

3. Research methodology

For this analysis, information was gathered for micro-enterprises, which implemented projects under one of the priorities of the Regional Operational Program in Romania (ROP) at one region level (Romania has eight development regions)—financed through structural funds (the authors are referring to Axis 4 of the program which supports regional and local business environment, especially micro-enterprises). The analysis also aimed at correlating economic performances obtained by the enterprises that have invested in the improvement of their material base, thus ensuring the opportunity for business development. In this regard, the analyzed enterprises aimed to identify a relationship between the turnover, net profit, debt level, assets value, and number of employees. The identification of a relationship between these variables has to be considered in the framework of projects implemented through the analysed program dedicated particularly to supporting and developing micro-enterprises. Encouraging the micro-enterprises represented the objective of the analysed axis, respectively supporting local and regional business environments to reach sustainable development. ROP provided support for start-ups. Micro-enterprises were supported to accede to new technologies and to implement innovations, IT equipment, and software (including applications), which play a key role in enlarging competitiveness, productivity, and quality of services. Under Priority Axis 4: Strengthening the regional and local business environment, Major area of intervention 4.3: Supporting the development of micro-enterprises, the following types of operations were supported: acquisition of new equipment, software, and equipment required, new technologies, structural changes for micro-enterprises, investments in construction, expansion or rehabilitation and modernization of micro-enterprise, respectively different activities that support business development.

In this context, the research focuses on micro-enterprises working in the field of specialized professional services, which have obtained funding through Axis 4 of ROP, implemented in Romania between 2007–2013. The research aims to identify relationships between the evolution of turnover, net profit, level of debt, assets value, and employee number for the selected enterprises that were included in the study. There were formulated three hypotheses. These hypotheses were completed with additional research questions. These questions aim to identify the strength of relationships for the analysed period, including the project implementing period and after that. The financing authority monitorization was according to financing contract clauses and verified usually in a short period, so the research conducted includes an analysis of the performances achieved by these enterprises in a period in which they did not have any other obligation, so their activity is normal. The hypotheses formulated and the additional research questions that were developed in the analysis are the following:

H1: Correlation between turnover increase (T) and the evolution of net profit (NP)

and debt (D)—with the associated question: Do the results obtained for testing H1 differ during the considered period (implementation-sustainability and post-sustainability period)?

H2: Correlation between turnover size (T) and assets value (considering fixed assets (FA) and current assets (CA)). Additionally, it was formulated the additional question associated with hypothesis 2: Do the results obtained for testing H2 differ during the considered period (implementation-sustainability and post-sustainability period)?

H3: There is a correlation between turnover increase (T) and the evolution of equity (E) and number of employees (Emp) with associated questions: Question 3.1 Higher equity determines an increasing turnover? and Question 3.2 Higher number of employees determines an increasing turnover? Additionally, it was formulated the additional question associated with hypothesis 3: Were the results obtained for testing H3.1 and H3.2 different during the considered period (implementation-sustainability and post-sustainability period)?

For the analysed period, through this program, respectively axis 4 dedicated to regional and local business environments, there were identified 23 projects implemented by 23 enterprises in the services sector. These enterprises were identified as direct beneficiaries of the projects from a total of 150 micro-enterprises. The authors split the enterprises depending on the main activity declared for financing, identifying 29 micro-enterprises that benefited from financing. From the sample of 29 enterprises selected, the authors were able to gather relevant data for 23 micro-enterprises (the authors took into consideration enterprises that had financial information published by the official authorities). The information regarding their economic activity for the analysed period, respectively 2005–2019, was extracted from the official database. The research carried out includes only the economic information, without the names of the companies. The scientific demarche is objective and intends to determine the overall evolution of the enterprises active in the field of services, and does not intend to highlight or spot the economic performance obtained by a certain enterprise.

4. Descriptive statistics

Scientific demarche started with a brief descriptive statistic for the turnover (T), according to **Table 1**. The results, for all 23 companies analysed, the turnover increased significantly after implementing the projects, for some of them even more than ten times (F15 and F13).

From **Table 1**. there can be observed the evolution in turnover, generally increases, but in some cases (like F11, F22) turnover decreased towards the end of the analysed period. In some cases, there are big fluctuations (F6, F8, F9). The evolution in turnover is presented in **Figure 1**.

Authors used standard deviation to determine the spread of the values for studied variables compared to their average (according to **Table 2**). The analysis underlines the high values recorded for standard deviations; these results certify the diversity of the enterprises that befitted by financing (the authors identified enterprises with higher turnover, but also some with lower turnover, depending on their business evolution). The average turnover for the analysed period is 620,724 lei, the lowest level recorded

being 97,541 (for enterprise F10), and the highest level recorded 3,733,088 (for F5). Before implementing the projects, the turnover recorded an average level of 198,785, which increased to 960,070 in the next period. From this first step of the analysis, it can be observed that even the lowest level recorded for the average turnover increases very much after implementing the projects, for F7.

It can be observed that there are differences between the average of the analysed enterprises during the entire period in terms of turnover is relevant for research purposes, being a strong argument to conduct a separate analysis of the turnover.

The authors used regression to determine the strength and character of the relationship between one dependent variable and a series of other variables (known as independent variables). The variable chosen as dependent in this analysis is the turnover because it represents the main indicator based on which the enterprises were selected for financing (it was given a certain number of points in the final score used in selection) and which represented an indicator monitored during the project implementation. The author's intention was also to determine de fluctuation of turnover after the enterprises were no longer monitored.

Table 1. Turnover Average for analysed micro-enterprises.

Enterprise	Initial average turnover	Average turnover influenced by projects	The evolution of turnover from one period to another	Annual average of turnover for 2005–2019 period
F1	23,958	173,985	150,027	127,823
F2	311,207	453,595	142,388	407,294
F3	55,180	544,818	489,638	348,963
F4	167,658	228,356	60,698	204,453
F5	488,640	6,571,980	6,083,340	3,733,088
F6	329,805	335,407	5602	333,683
F7	1617	925,085	923,468	198,776
F8	120,549	189,030	68,481	169,117
F9	104,106	137,439	33,333	123,619
F10	31,380	138,891	107,511	97,541
F11	615,133	1,904,923	1,289,790	1,303,021
F12	134,493	280,386	145,893	222,029
F13	7103	375,278	368,175	290,314
F14	174,487	325,354	150,867	265,007
F15	49,491	141,816	92,325	118,735
F16	354,905	1,710,945	1,356,040	1,032,925
F17	123,773	808,285	684,512	532,846
F18	112,030	1,313,549	1,201,519	672,739
F19	743,220	2,585,210	1,841,990	2,032,613
F20	0	198,015	198,015	158,412
F21	352,510	2,111,456	1,758,946	1,407,878
F22	262,048	333,833	71,785	315,887
F23	8765	293,979	285,214	179,894

Source: Authors computation.

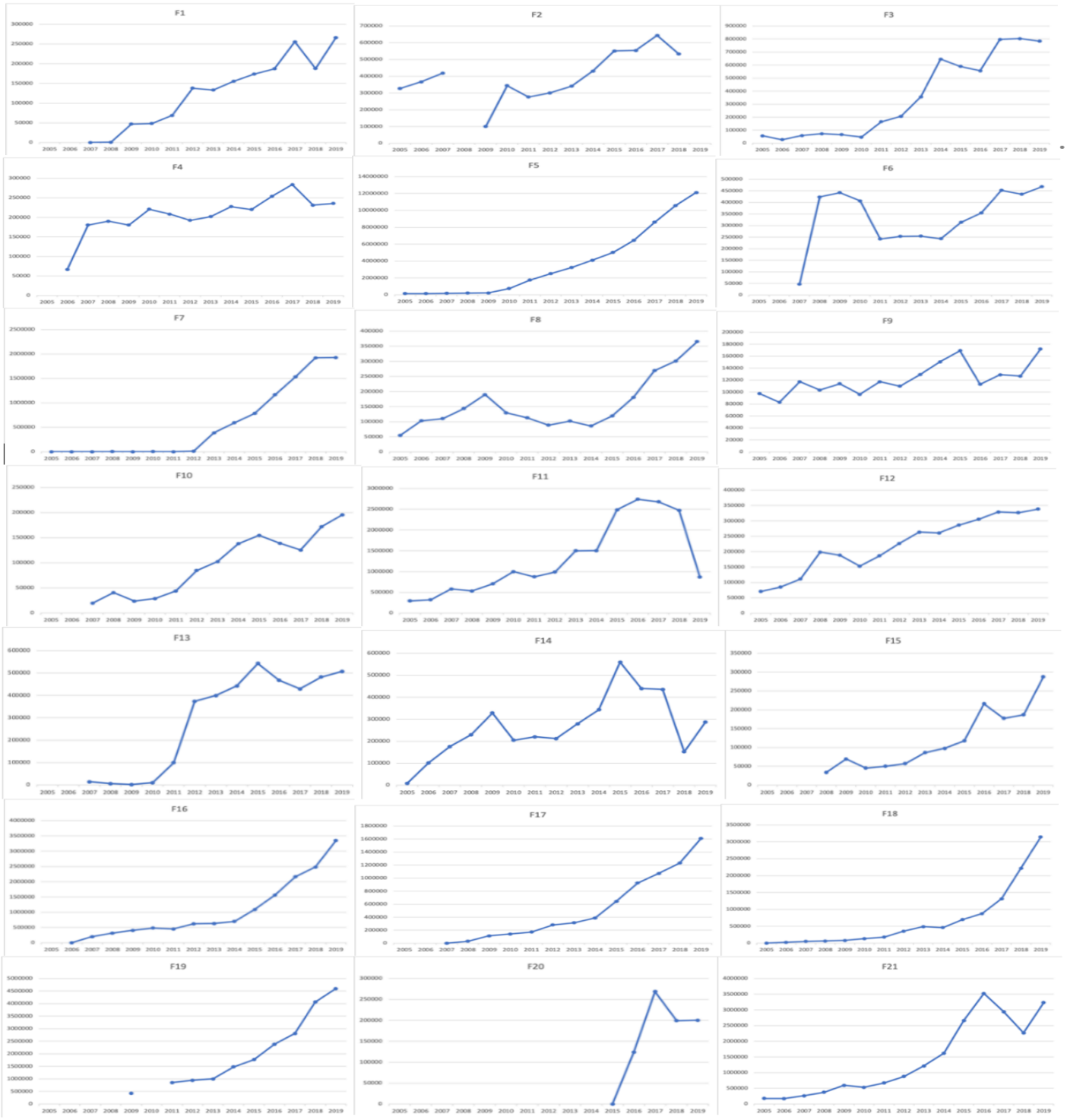

Figure 1. Turnover evolution for the 2005–2019 period.
Source: Authors computation.

Table 2. Turnover (T) statistical value.

Period	Average	Std. Dev.	Min.	Max.
Implementation and sustainability period	198,785	204,745	0	743,220
Post-sustainability period	960,070	1,418,659	137,439	6,571,980
Entire period	620,724	842,459	97,541	3,733,088

Source: Authors computation. Note: For the 2005–2019 period.

5. Testing the hypotheses and solving questions

The hypotheses formulated were tested including the questions formulated for all hypotheses (H1, SQ1; H2, SQ2; H3, SQ3).

Hypothesis H1: Turnover has influenced a positive relation with the evolution of net profit and debt, and the question SQ1 Do the results obtained for testing H1 differ during the considered period (implementation-sustainability and post-sustainability period)? presumes the analysis of **Tables 3–5**.

The correlation matrix shows the intensity of a relationship between two selected variables. Results recorded can be negative, zero or positive, varying between −1 and +1. The correlation matrix is the table that shows the correlation coefficients for considered variables. For the correlation matrix, the variable (X_i) in the table is correlated with each of the other values in the table (X_j). In **Table 3** there are correlated values recorded for turnover (*T*), net profit (*NP*) and debt of the enterprise (*Dbt*) for the analysed period and the period considered the implementation subperiod and post-implementation period. For the 23 enterprises, a total of 311 values were determined yearly, 118 of them being in the implementation and sustainability subperiod, and 193 in post sustainability subperiod.

Table 3. T, NP and Dbt Matrix correlation.

	Implementation and sustainability period			**Post-sustainability period**			**Entire period**		
	T	***NP***	***Dbt***	***T***	***NP***	***Dbt***	***T***	***NP***	***Dbt***
T	1	-	-	1	-	-	1	-	-
NP	0.5324	1	-	0.8152	1	-	0.8346	1	-
Dbt	0.4713	−0.4659	1	0.6099	0.4295	1	0.6417	0.4688	1

Source: Authors computation.

After applying the test *t* for the significance of the correlation coefficients *r*, we obtain (**Table 4**):

Table 4. Correlation matrix (*r*).

r	n	t_{calc}	t_{crit}	**Statistical significance for r**
0.5324	118	6.7739	1.98	yes
0.4713	118	5.7553	1.98	yes
0.8152	193	19.4521	1.98	yes
0.6099	193	10.6362	1.98	yes
0.8346	311	26.6329	1.98	yes
0.6417	311	14.7075	1.98	yes

Source: Authors computation.

According to **Table 4**, a slightly intense relation was determined between T and NP (*coefficient* = 0.5324) for the implementation and sustainability subperiod of the projects. The influence becomes stronger in post sustainability subperiod (*coefficient* = 0.8152). The evolution between business debt and turnover is similar. Turnover was not greatly influenced by the level of debt during the implementing and sustainability period (*coefficient* = 0.4713), but in the post-sustainability subperiod, the relation

between the two grew stronger (*coefficient* = 0.6099). It can be observed that if, during the implementation and sustainability subperiod, the influences of these two variables (net profit and debt) were short-lived, in the post-sustainability subperiod they were further removed.

Table 5 presents linear regressions determined for turnover (*T*) and the influence variables (*NP* and *Dbt*) for the whole period and distinctively for the two subperiods analysed.

Table 5. *T, NP* and *Dbt*—Linear regression.

	Implementation and sustainability period			**Post-sustainability period**			**Entire period**		
T	*Coef.*	*T-st.*	*P-val.*	*Coef.*	*T-st.*	*P-val.*	*Coef.*	*T-st.*	*P-val.*
NP	1.7760	5.19	0.0000	2.9959	13.49	0.0000	3.0505	17.77	0.0000
Dbt	0.3183	4.62	0.0000	0.7685	5.34	0.0000	0.7447	7.04	0.0000
	R-square = 0.5498			*R*-square = 0.7733			*R*-squared = 0.8039		

Source: Authors computation.

Table 5 reveals the existence of a linear correlation between turnover (*T*) and the independent variables (*NP* and *Dbt*) that are significant (significance level considered 1% ($p < 0.01$)), for the entire period considered. Coefficients *NP* and *Dbt* are positive in all determinations as the researchers expected. It can be observed, for the entire period, very big values for *R*-squared (over 0.80), which shows that the linear model proposed is an illustrative model for the relationship between turnover and the independent variables. Concluding, according to the authors' determinations, net profit (*NP*) and debt (*Dbt*) are relevant factors that are influencing turnover. Their influence has a significant impact related to the size of turnover during the subperiods considered for the analyzed timeline. Therefore, Hypothesis 1 is valid.

Regarding the results for the two subperiods, from **Table 5** we can see that they diverge to a certain extent. Based on these calculations, the authors noticed that debt influences the turnover in a smaller proportion during the implementation and sustainability subperiod (*coefficient* = 1.77) than in the post-sustainability subperiod (*coefficient* = 2.99). the analysis reveals the same conclusion for net profit influence. So, in both situations the multiline relationship is *statistically significant*, the values of the R-squared parameter confirming this.

Hypothesis H2: There is a correlation between turnover size (*T*) and assets value (considering fixed assets (*FA*) and current assets (*CA*)). Additionally, it was formulated the additional question associated with hypothesis 2: Do the results obtained for testing H2 differ during the considered period (implementation-sustainability and post-sustainability period)?

After applying the test of the significance of the correlation coefficients *r* (based on **Table 6**), we obtained (**Table 7**):

Table 6. *T*, *FA* and *CA*—Correlation matrix.

	Implementation and sustainability period			**Post-sustainability period**			**Entire period**		
	T	***FA***	***CA***	***T***	***FA***	***CA***	***T***	***FA***	***CA***
T	1	-	-	1	-	-	1	-	-
FA	0.5742	1	-	0.7172	1	-	0.7607	1	-
CA	0.8165	0.4191	1	0.7324	0.4799	1	0.7703	0.5412	1

Source: Authors computation.

Table 7. Correlation matrix (*r*).

r	n	t_{calc}	t_{crit}	**Statistical significance for r**
0.5742	118	7.5536	1.98	yes
0.8165	118	15.2317	1.98	yes
0.7172	193	14.2235	1.98	yes
0.7324	193	14.8661	1.98	yes
0.7607	311	20.6005	1.98	yes
0.7703	311	21.2341	1.98	yes

Source: Authors computation.

Intense relationships were determined for turnover (*T*) and current assets (*CA*), approximatively equal for the analyzed periods (differing only by 0.0841 between the two subperiods). According to **Table 7**, the relation between *T* and *FA* is not so large, but there can be observed a stronger relation for *T* and *FA* in the first subperiod (*coefficient* = 0.5742) compared with the second one (0.7172). Data reveals a greater influence of *CA* than of *FA* on *T*.

Table 8 shows linear regressions between turnover (*T*), fixed assets (*FA*) and current assets (*CA*) analysed in the same manner.

Table 8. *T*, *FA* and *CA*—Linear regression.

	Implementation and sustainability period			**Post-sustainability period**			**Entire period**		
T	*Coef.*	*T-st.*	*P-val.*	*Coef.*	*T-st.*	*P-val.*	*Coef.*	*T-st.*	*P-val.*
FA	0.1916	2.62	0.0087	0.8418	6.05	0.0000	0.8268	8,08	0.0000
CA	1.5085	7.35	0.0000	1.2847	6.46	0.0000	1.3107	8.43	0.0000
	R-square = 0.6152			*R*-square = 0.6094			*R*-squared = 0.6438		

Source: Authors computation.

Table 8 shows a multilinear relationship between *T* and the independent variables included in the study (*FA* and *CA*), with a significance level of 1% (*p*-value < 0.01). The results obtained for *FA* and *CA* correspond with the authors' expectations, being positive. Therefore, H2 is valid.

Hypothesis H3: There is a correlation between turnover increase and the evolution of equity (*E*) and number of employees (*Emp*) with its components: Question 3.1 Higher equity determines an increasing turnover? and Question 3.2 Higher number of employees determines an increasing turnover? Additionally, it was formulated the additional question associated with hypothesis 3: Were the results obtained for testing H3.1 and H3.2 different during the considered period

(implementation-sustainability and post-sustainability period)?

The results of applying the t-test for the significance of the correlation coefficients r, are given in the **Table 9**.

Table 9 shows that there is a strong correlation between the dependent variable *T* and the independent variables (*Eq* and *Emp*), for the entire period, results that prove validity of Hypotheses 3.1. and 3.2. There can be a stronger relation between the employees' number and turnover for the post-sustainability subperiod, according to **Table 10**.

Table 11 presents the linear regressions between *T*, *Eq* and *Emp* (independent variables) for the analysed period.

Table 9. Correlation matrix (*r*).

r	n	t_{calc}	t_{crit}	Statistical significance for r
0.6723	118	9.7813	1.98	yes
0.7803	118	13.4378	1.98	yes
0.7230	193	14.4634	1.98	yes
0.8945	193	27.6518	1.98	yes
0.7496	311	19.9077	1.98	yes
0.8981	311	35.8969	1.98	da

Source: Authors computation.

Table 10. *CA*, *CP* and *Na*—Correlation matrix.

	Implementation and sustainability period			**Post-sustainability period**			**Entire period**		
	T	***Eq***	***Emp***	***T***	***Eq***	***Emp***	***T***	***Eq***	***Emp***
T	1	-	-	1	-	-	1	-	-
Eq	0.6723	1	-	0.7230	1	-	0.7496	1	-
Emp	0.7803	0.4442	1	0.8945	0.4339	1	0.8981	0.4794	1

Source: Authors computation.

Table 11. *T, Eq* and *Emp*—Linear regression.

	Implementation and sustainability period			**Post-sustainability period**			**Entire period**		
T	*Coef.*	*T-st.*	*P-val.*	*Coef.*	*T-st.*	*P-val.*	*Coef.*	*T-st.*	*P-val.*
Eq	1.6890	7.51	0.0000	1.7927	11.02	0.0000	1.8767	14.97	0.0000
Emp	40,006.8	9.98	0.0000	134,991.6	18.08	0.0000	131,259.8	23.21	0.0000
	R-squared (*CP*) = 0.6275			*R*-squared (*CP*) = 0.6881			*R*-squared (*CP*) = 0.7220		
	R-squared (*Na*) = 0.8628			*R*-squared (*Na*) = 0.8313			*R*-squared (*Na*) = 0.8370		

Source: Authors computation.

Table 11 shows a significant linear relation identified between *T* and the independent variables (*Eq* and *Emp*), with a significance level of 1% (*p*-value = 0.0000), for the analyzed period. The obtained results of the analysis show a significant influence of the two variables on turnover evolution. *R*-squared records high values, which shows that the model proposed is representative of the correlation between T and the independent variables, being more representative of the relation between T and Emp (the number of employees). Therefore, H3.1 and H3.2 are valid.

Regarding the answers to questions 3.1., 3.2., the data showed a strong correlation between the turnover (*T*) and the own capital in the second part of the analyzed period (0.72) compared to the implementation period (0.67) (based on data available in **Tables 9** and **11**). The analysis shows that the equity contribution becomes more efficient compared to the implementation period.

6. Conclusions

Project implementation generates the need of assuming by the beneficiaries (entrepreneurs) the responsibility of developing the business. Thus, entrepreneurs have to focus on the development strategy of enterprises, considering the obligations assumed by the financing contracts to maintain employees, create new working places, and finally develop the entire enterprise. The objective of the selected priority axis, in which the analysed enterprises obtained financing, is to support the regional and local business environment, at the Central Region level. The evolution of the economic indicators of the analysed enterprises is considered from the perspective of their efficiency after the completion of financing projects, including after the end of sustainability periods, in which enterprises are monitored by the Agency for Regional Development Central Region.

The authors used regressive statistical analysis to prove that there is a need for additional managerial instruments when the financial allocation is being designed at the regional level. This study follows the interest of the authors in proving that the efficiency of non-reimbursable funds should be analysed distinctively on the activity sectors. The purpose of the research was to determine the impact of the no-reimbursable financial projects on the efficiency of the selected enterprises. Thus, the economic performances recorded for the selected enterprises and their correspondence to the general objective of ROP, namely the support of the services sector at the Central Region level, according to this activity's potential to generate regional prosperity and to confer new jobs by valorising cultural and natural heritage of the area. Also, special attention was given to the newly created jobs following the implementation of the projects, respectively their maintenance and the subsequent period of sustainability. All hypotheses considered were validated.

The research conducted shows good and relevant results for future analysis at the regional level, underlining the characteristics of the services sector. Stakeholders who are designing financial instruments for regional development should consider the results obtained and use them to increase financing efficiency. Productivity, profit and turnover increased significantly based on the aid of no-reimbursable projects implemented. Still, this is a characteristic of service sector enterprises. The research conducted approaches regional development in a new manner. The analysis presented could be used as an instrument based on the economic performances of the enterprises that are benefiting from no-reimbursable financing to determine the guiding lines for regional strategies.

One direction for future research, that this article is opening is to try to identify the common indicators for enterprises that implement non-reimbursement financing projects, indicators that can be included in a future informational system that will be able to allow to monitor these projects independently. This idea leads toward digital

transformation related to the implementation of the project (such as adoption, implementation, and use). This refers to an information system able to collect these data and use it for adapting the financial instruments to the needs of enterprises. The data analysis included in the research covered the period 2005–2019 so that the results obtained should not be influenced by the pandemic period. The research should be continued and include data also for the pandemic period (2020–2021) but also after this period to analyse the pandemic influence on these enterprises and their evolution after. Also, it would be interesting to determine whether these enterprises benefited or applied for other non-reimbursable financial support (governmental or European funds).

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References

Altuntas, S., Cinar, O., & Kaynak, S. (2018). Relationships among advanced manufacturing technology, innovation, export, and firm performance. Kybernetes, 47(9), 1836–1856. https://doi.org/10.1108/k-10-2017-0380

Andrei, J. V., Chivu, L., Gogonea, R.-M., et al. (2021). Business demography and economic growth: Similarities and disparities in 10 European union countries. Journal of Business Economics and Management, 22(5), 1160–1188. https://doi.org/10.3846/jbem.2021.15067

Anggadwita, G., & Mustafid, Q. Y. (2014). Identification of Factors Influencing the Performance of Small Medium Enterprises (SMEs). Procedia - Social and Behavioral Sciences, 115, 415–423. https://doi.org/10.1016/j.sbspro.2014.02.448

Battistella, C., & De Toni, A. F. (2011). A methodology of technological foresight: A proposal and field study. Technological Forecasting and Social Change, 78(6), 1029–1048. https://doi.org/10.1016/j.techfore.2011.01.006

Bolaños, A. B. (2017). Are South American Countries Really Converging? The Influence of The Region's Integration Projects. Romanian Journal of Economic Forecasting, XX(3), 130-149.

Bratkovič Kregar, T., & Antončič, B. (2016). The relationship between the entrepreneur's personal network multiplexity and firm growth. Economic Research-Ekonomska Istraživanja, 29(1), 1126–1135. https://doi.org/10.1080/1331677x.2016.1211947

Calantone, R., Garcia, R., & Dröge, C. (2003). The Effects of Environmental Turbulence on New Product Development Strategy Planning. Journal of Product Innovation Management, 20(2), 90–103. Portico. https://doi.org/10.1111/1540-5885.2002003

Chen, W., & Quan-Haase, A. (2018). Big Data Ethics and Politics: Toward New Understandings. Social Science Computer Review, 38(1), 3–9. https://doi.org/10.1177/0894439318810734

Cicea, C., Popa, I., Marinescu, C., et al. (2019). Determinants of SMEs' performance: evidence from European countries. Economic Research-Ekonomska Istraživanja, 32(1), 1602–1620. https://doi.org/10.1080/1331677x.2019.1636699

Coyne, E. M., Coyne, J. G., & Walker, K. B. (2018). Big Data information governance by accountants. International Journal of Accounting & Information Management, 26(1), 153–170. https://doi.org/10.1108/ijaim-01-2017-0006

De Toni, A., & Nassimbeni, G. (2003). Small and medium district enterprises and the new product development challenge.

International Journal of Operations & Production Management, 23(6), 678–697. https://doi.org/10.1108/01443570310476672

de Vaan, M. (2014). Interfirm networks in periods of technological turbulence and stability. Research Policy, 43(10), 1666–1680. https://doi.org/10.1016/j.respol.2014.07.007

Doneva, R., & Gaftandzhieva, S. (2022). Adoption of Digital Business Solutions: Designing and Monitoring Critical Success Factors. Electronics, 11(21), 3494. https://doi.org/10.3390/electronics11213494

Fernández, P., Luisa Del Río, M., Varela, J., et al. (2010). Relationships among functional units and new product performance: The moderating effect of technological turbulence. Technovation, 30(5–6), 310–321. https://doi.org/10.1016/j.technovation.2009.09.003

Grander, G., Da Silva, L. F., Gonzalez, E. D. R. S., et al. (2022). Framework for Structuring Big Data Projects. Electronics, 11(21), 3540. https://doi.org/10.3390/electronics11213540

Grander, G., da Silva, L. F., & Santibañez Gonzalez, E. D. R. (2021). Big data as a value generator in decision support systems: a literature review. Revista de Gestão, 28(3), 205–222. https://doi.org/10.1108/rege-03-2020-0014

Grando, A., & Belvedere, V. (2006). District's manufacturing performances: A comparison among large, small-to-medium-sized and district enterprises. International Journal of Production Economics, 104(1), 85–99. https://doi.org/10.1016/j.ijpe.2005.01.007

Gupta, V. K., & Batra, S. (2016). Entrepreneurial orientation and firm performance in Indian SMEs: Universal and contingency perspectives. International Small Business Journal: Researching Entrepreneurship, 34(5), 660–682. https://doi.org/10.1177/0266242615577708

Huerta, E., & Jensen, S. (2017). An Accounting Information Systems Perspective on Data Analytics and Big Data. Journal of Information Systems, 31(3), 101–114. https://doi.org/10.2308/isys-51799

Hung, K.-P., & Chou, C. (2013). The impact of open innovation on firm performance: The moderating effects of internal R&D and environmental turbulence. Technovation, 33(10–11), 368–380. https://doi.org/10.1016/j.technovation.2013.06.006

Iacob, S. E., Mihai, M., Marcela, Ș., Ioan, R. P. (2019). Significant Interdependencies of the Services Sector in the Romanian Economy: An Analytical Examination. Economic Computation and Economic Cybernetics Studies and Research, 53(4/2019), 143–158. https://doi.org/10.24818/18423264/53.4.19.09

Ibinceanu Onica, M. C., Cristache, N., Dobrea, R. C., Florescu, M. (2021). Regional Development in Romania: Empirical Evidence Regarding the Factors for Measuring a Prosperous and Sustainable Economy. Sustainability, 13(7), 3942. https://doi.org/10.3390/su13073942

Junfeng, R., Yechi, M., Farmanesh, P., et al. (2022). Managing transitions for sustainable economic development in post-COVID world: do fiscal and monetary support matter? Economic Research-Ekonomska Istraživanja, 35(1), 5420–5433. https://doi.org/10.1080/1331677x.2022.2028176

Kasych, A., & Vochozka, M. (2017). Theoretical and methodical principles of managing enterprise sustainable development. Marketing and Management of Innovations, 2, 298–305. https://doi.org/10.21272/mmi.2017.2-28

Karimi, J., Somers, T. M., & Bhattacherjee, A. (2007). The Role of Information Systems Resources in ERP Capability Building and Business Process Outcomes. Journal of Management Information Systems, 24(2), 221–260. https://doi.org/10.2753/mis0742-1222240209

Kersan-Škabić, I., & Tijanić, L. (2017). Regional absorption capacity of EU funds. Economic Research-Ekonomska Istraživanja, 30(1), 1191–1208. https://doi.org/10.1080/1331677x.2017.1340174

Kim, S.-B., & Kim, D. (2020). ICT Implementation and Its Effect on Public Organizations: The Case of Digital Customs and Risk Management in Korea. Sustainability, 12(8), 3421. https://doi.org/10.3390/su12083421

Krželj Čolović, Z., Milić Beran, I., & Vrdoljak Raguž, I. (2016). The impact of clustering on the business performance of Croatian SMHEs. Economic Research-Ekonomska Istraživanja, 29(1), 904–913. https://doi.org/10.1080/1331677x.2016.1204101

Lien, Y.-C., & Li, S. (2013). Professionalization of Family Business and Performance Effect. Family Business Review, 27(4), 346–364. https://doi.org/10.1177/0894486513482971

Marsudi, A. S., & Pambudi, R. (2021). The Effect of Enterprise Resource Planning (ERP) on Performance with Information Technology Capability as Moderating Variable. Journal of Economics, Business, & Accountancy Ventura, 24(1), 1–11. https://doi.org/10.14414/jebav.v24i1.2066

Negrea, A., Ciobanu, G., Dobrea, R. C., Burcea, S. t. (2019). Priority Aspects in The Evolution of The Digital Economy for Building New Development Policies. Quality-Access to Success, 20(S2), 416-421.

Pickard, M. D., & Cokins, G. (2015). From Bean Counters to Bean Growers: Accountants as Data Analysts—A Customer Profitability Example. Journal of Information Systems, 29(3), 151–164. https://doi.org/10.2308/isys-51180

Rehman, M. A., Shah S. G. M., Cioca L. I., Artene A. (2021) Accentuating the Impacts of Political News on the Stock Price. Romanian Journal of Economic Forecasting, 24(2), 55-73.

Sheehan, M. (2013). Human resource management and performance: Evidence from small and medium-sized firms. International Small Business Journal: Researching Entrepreneurship, 32(5), 545–570. https://doi.org/10.1177/0266242612465454

Starbek M., & Grum J. (2002). Concurrent engineering in small companies. International Journal of Machine Tools and Manufacture, 42(3).

Tang, L., Li, J., Du, H., et al. (2022). Big Data in Forecasting Research: A Literature Review. Big Data Research, 27, 100289. https://doi.org/10.1016/j.bdr.2021.100289

Vărzaru, A. A. (2022). An Empirical Framework for Assessing the Digital Technologies Users' Acceptance in Project Management. Electronics, 11(23), 3872. https://doi.org/10.3390/electronics11233872

Vochozka, M., & Psárska, M. (2016). Factors supporting growth of added value, performance and competitiveness of SMEs and selected EU countries. Innovation Management Entrepreneurship and Corporate Sustainability.

Welch, E. W., & Pandey, S. K. (2006). E-Government and Bureaucracy: Toward a Better Understanding of Intranet Implementation and Its Effect on Red Tape. Journal of Public Administration Research and Theory, 17(3), 379–404. https://doi.org/10.1093/jopart/mul013

Welch, E. W., & Feeney, M. K. (2014). Technology in government: How organizational culture mediates information and communication technology outcomes. Government Information Quarterly, 31(4), 506–512. https://doi.org/10.1016/j.giq.2014.07.006

Wijaya, M. I., -, S., & Utomo, D. (2021). Enterprise Resource Planning Modification: A Literature Review. ComTech: Computer, Mathematics and Engineering Applications, 12(1), 33–43. https://doi.org/10.21512/comtech.v12i1.6610

Wolff, J. A., & Pett, T. L. (2006). Small-firm performance: Modeling the role of product and process improvements. Journal of Small Business Management, 44(2), 268–284. https://doi:10.1111/j. 1540-627X.2006.00167.x

Zimon, G. (2018). Influence of group purchasing organizations on financial situation of Polish SMEs. Oeconomia Copernicana, 9(1), 87–104. https://doi.org/10.24136/oc.2018.005