

ROMANIAN EFFICIENCY IN EUROPEAN SOCIAL FUND IMPLEMENTATION, AN ASSUMED CHOICE BETWEEN ELIGIBLE ACTIVITIES AND PROGRAM INDICATORS

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Abstract: *In Romanian implementation of European Social Fund (ESF), efficiency, as connecting budgets to indicators, is practically assessed related to activities; by means of expenditure and activities eligibility criteria. Projects are evaluated, contracted and payments are reimbursed for undertaken activities in weak relation with indicators. This represents a real performance problem of European Social Fund implementation in Romania, this article is addressing. The article's research objective is about how related to indicators were the approved budgets of an old call for proposals (2010). Budgets of 318 approved projects within the same call for proposals were analyzed in a quantitative approach against indicators, meaning individuals' benefiting of labor market related services: training and counseling. Conclusions about how this call of proposals would have been properly managed do include the efficiency model for these indicators (as two linear regression models) and improvement oriented recommendations to managing authority as well. The determined linear regression model may be replicate in actual condition of new call for proposals, and recommendation are also actual as long as now, as twelve years ago, budgets are still designed and monitored in connection with eligible activities and expenditures, not with indicators related to people and to specialized services.*

Key words: *efficiency; linear regression; budget; indicators.*

JEL classification: C58; E17; F37.

Introduction

Implementing European Social Fund (ESF) financed projects under actual rules of eligibility criteria means for beneficiaries a lot of data and evidence to be produced managed stored and reported related to performed activities and induced costs. Monitoring eligible activities and reimbursement of eligible expenditure means for managing authority, an impressive volume of data verifications, completed by trained personnel under adequate procedures. All this data to be produced and to be verified comes with a cost of time and money, recorded by both contracting parties: the beneficiaries and the managing authority. As long as this cost is supported by the ESF budgets it affects the economy of its implementation. Moreover, as presented in the guides for applicants, not always a reliable connection can be established between eligible activities and indicators, meaning that activities with low or no contribution to indicators could be considered eligible and may be financed within the eligible expenditure. This also affects the economy of ESF implementation in Romania.

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Focusing on indicators in project's budgets construction could mean a more direct connection between budgets and indicators, a reduced number of eligibility rules, a reduce control volume, so shifting from activities to indicators could ease the ESF implementation and also contribute to an increased performance of ESF implementation, by means of economy and efficiency.

Literature review

Efficiency in public spending is a constant of developed societies, belonging to the part of the world that is conducted by using transparent, democratic rules. Clear set of regulations and rules related to efficiency are set in place by governments and professionals as well in the frame of performance linking through the principle of sound financial management the economy, efficiency and effectiveness with objectives, results and indicators all along entire project cycle. A major mention of this is at art. 33 of European Regulation 1046/2018, the Financial Regulation, performance being here described by the means of the three principles of economy, efficiency and effectiveness, and also the way appropriations should focus on performance, and be used only for programs with ex-ante established objectives, whose achievement should be monitored with the use of performance indicators. The same Regulation states that objectives should be SMART and the correspondent indicators should be relevant, accepted, credible, easy and robust.

The Romanian law, having the same understanding of performance, describes in Law no. 672/2002, the Internal Audit Law, the three principles of economy, efficiency and effectiveness in a similar way with European Regulation and also the Government Decision 1086/2016 is describing the objectives and approaches oriented both on results and on processes of the performance audit missions in Romania.

Not only governments are focused on performance in spending public money, but also international organizations such as International Organization of Supreme Audit Institutions (INTOSAI) that released in 2019 the last version of the international professional standard of performance audit, ISSAI 3000 whose content defines performance audit and its objectives, the principles of performance, general prerequisites for performance audit and main stages of an audit mission used together with GUID 3910 - Central concepts for performance auditing (former ISSAI 3100).

On relation with auditing of EU financed contracts in Romania, three levels of institutions are entitled to conduct performance audit missions: the European Court of Auditors, and they are using ISSAI 3000 and GUID 3910, the Romanian Court of Accounts, having issued in 2013 its own guidelines of performance audit, and internal audit of local authorities, using mostly the Government Decision 1086/2016. As effect of all these, a number of performance audit missions were conducted by European Court of Auditors and by the Romanian Court of accounts, at European and national level. There is no available information about performance internal audit missions in local authorities in Romania.

A number of published research are studying the relations that should exist between projects and performance, in a theoretically or more practically manner. For instance, (Stoica, 2011) is theoretically describing the way that efficiency should track all project implementation stages, and other researchers such as (Cărănică and Domnișor 2022) are outlying the increased need for performance audit. Efficiency in ESF contracts is already studied and some researches results are presented even for modeling efficiency. Some articles were reflecting performance related concerns, investigating qualitative aspects and concluding about: projects internal control environment for performance (Dănescu and Dogar, 2012), management accounting instruments for performance (Dogar, 2012), internal control under the perspective of COSO's convergences with the projects internal controls in some cases of

ESF financed projects in Romania (Dănescu et al., 2013). Some articles presented quantitative methods to assist in assessing performance such as: use of quantitative methods for sound financial management decisions in Romanian ESF implementation (Dogar and Mare, 2014 a), a “what if” analysis for sound financial decisions in Romanian ESF grants evaluation (Dogar and Mare, 2014 b), and also a more recent study on assessing European Social Fund efficiency in Romania, a linear regression model (Dogar, 2022) that explores the same population as this research does, but on a diverse criteria on order of data pairs and selecting outliers. Conclusions of these two articles are convergent, aiming to emphasize the effect of establishing eligibility criteria on performance in ESF implementation.

Research methodology

Within this research were considered budgets and indicators of 318 financed and finalized projects, within the same call for proposals financing support measures for unemployed (Ind1): training (Ind2) and counselling for labour market re-accession (Ind2). The maximum allowed value of a project was 500,000 Euros and the total value of the contracted call for proposals was 604,380,202 lei, meaning about 137 million Euros, being by far the most important call for proposals conducted by the managing authority since Romania’s accession to EU. As the call for proposal guide was focusing on eligible activities, applicants were proposing eligible activities in connection with financial program expected results. The research hypothesis is that proposed budgets are justified also for achieving indicators, so values should be in direct relation with indicators Ind1, Ind2, Ind3. This hypothesis has been tested by linear regression method, the linear function used being of type:

$$\text{Budget } (x_i) = A_i x_i + C \quad (1)$$

Where the budget is the dependent variable depending of the indicator, x_i is the independent variable – the indicator Ind1; A_i is the variable unit cost of indicator and C is the application’s fixed costs reported to designated indicator.

Testing all population on selected model, data is returned, and become clear that linear regression model cannot be applied to the entire population, with Probability (F-statistic) being equal to 0.150944. In the sense of further testing this type of regression, extraction criteria is justified to eliminate the aberrant pairs of values. 25 budget layers are taken into consideration and entire population is analyzed by removing successive layers until reaching a proper level of probability, less than 0.05, considering also conclusions on the significance.

After reaching conclusions on how justified are budgets reported to unemployed, a similar methodology is pursued to determine how justified are budgets related to provided services within the projects, being selected the most common and useful ones: Ind2 counselling and Ind3 training.

The linear regression function with two independent variables is:

$$\text{Budget } (\text{Ind2, Ind3}) = A \times \text{Ind2} + B \times \text{Ind3} + C \quad (2)$$

Statistic probability for all considered 318 pairs of data doesn’t return a satisfying value, so also in the case of services the 25 budget layers are taken into consideration, by removing data until reaching the proper level of probability, considering here also the effects of a lower significance.

As a last stage of the analysis, efficiency program indicator has been used to determine the budget layer that returns data respecting both the expected program efficiency

and the hypothesis of justified budgets construction. In every stage of the analysis, conclusions were drafted being presented in the dedicated section.

Results and discussions

Analyzing the projects contracting stage of this call for proposals, it can be observed that from the total population of 318, a number of 98 (representing 30.82%) proposed budget values under the national average as long as the most of the applicants asked for budgets above the national average. It can also be observed that 58.81% of the total population proposed budgets between 90% and 100% of the maximum allowed by the guide for applicants. The average value of a budget was 1,900,566 lei.

Efficiency as regarding unemployed target group (Ind1).

The project beneficiaries proposed an average number of 105.25 unemployed as target group, seizing here an inverse distribution of Ind1 reported to the budget, as only 90 projects (representing 28.30%) proposing the realisation of Ind1 above the national average. Observing the statistic cloud, the situation of projects dealing with small groups of unemployed, under the national call for proposals average, having allocated budgets at the superior limit of the funding program may contribute to a conclusion on efficiency.

Linear regression model seemed not to be applicable, as data in the table bellow (table no.1), so, as a whole the call for proposals didn't fund projects in direct relation to unemployed people (Ind1), but to eligible activities (conclusion 1).

Table 1: Linear regression testing results for all 318 implemented projects

Dependent Variable: BUGET				
Method: Least Squares				
Sample: 1 318				
Included observations: 318				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
IND1	170.1558	118.1889	1.439693	0.1509
C	1883217	21686.27	86.83917	0
R-squared	0.006516	Mean dependent var		1901131
Adjusted R-squared	0.003373	S.D. dependent var		317271.6
S.E. of regression	316736.1	Akaike info criterion		28.17579
Sum squared resid	3.17E+13	Schwarz criterion		28.19946
Log likelihood	-4477.95	F-statistic		2.072717
Durbin-Watson stat	1.816594	Prob(F-statistic)		0.150944

Source: statistic processing of all 318 data series

If testing the entire population doesn't return an appropriate value of statistic probability, the cause is the outliers that have to be removed. Assuming that greatest budget values are the outliers, those have been removed, so 25 layers were defined for budget value, each layer being as thick as 17,457.9 lei. To extract a valid conclusion, these layers were successively removed and the probability calculus has been remade after each removal, for the rest of the population.

Table 2: Linear regression testing results for all 25 budget layers, Ind1

Layer no.	Representativity	Remained value	Indicator 1			Recalculated value
			Prob (F-stat)	IND1	C	
0	100.00%	604380202				-
1	82.08%	483104066	0.1454	199.8593	1830164	588609447.5
2	74.21%	430306163	0.0873	241.7748	1797443	579819367.4
3	67.30%	384238683	0.0947	265.8676	1767670	570971489.5

4	61.01%	342745410	0.1123	275.7492	1738458	561819949.2
5	57.23%	318032804	0.0910	297.1561	1716588	555683839.1
6	52.52%	287380850	0.1279	385.6804	1683853	547228289.1
7	48.74%	263087806	0.1641	372.7079	1662248	539754200.2
8	45.28%	241040320	0.1207	422.7726	1633452	532297456.8
9	40.88%	213184473	0.1825	381.9934	1604376	521482099.9
10	38.68%	199383023	0.1765	397.3438	1584092	515477919.6
11	35.85%	181812599	0.1324	446.1801	1552691	507161407.0
12	33.96%	170196327	0.0925	503.1083	1527440	501133695.5
13	32.08%	158702709	0.0721	543.4292	1502919	494778958.6
14	29.87%	145388752	0.0499	598.2166	1471071	486669677.1
15	27.36%	130432607	0.031	663.9768	1431874	476753763
16	27.04%	128575307	0.0254	688.9746	1424522	475429647
17	26.42%	124886947	0.0334	681.3984	1418731	472786233.4
18	24.84%	115743455	0.0673	674.9314	1402740	465904051
19	23.58%	108503627	0.0507	725.3837	1378626	460055481.3
20	22.01%	99526387	0.0227	850.3972	1338697	452134022.9
21	21.70%	97745952	0.0242	842.1258	1334580	450481323.3
22	19.81%	87176892	0.0051	1053.766	1274085	440035774.2
23	18.24%	78454746	0.0076	1032.652	1248459	430148370
24	16.98%	71545759	0.0082	1032.505	1221920	421325175
25	14.47%	57874734	0.0567	1255.677	1163179	400090554.4

Source: statistic processing of all 318 data series

Examining result, layer’s 14 function statistic probability is the first a linear relation can be confirmed between budget and Ind1, so only for 29.87% of the projects there is a clear relationship between budgets and unemployed, as a main target group of the call for proposal and also important indicator (conclusion 2).

Efficiency regarding services: counselling (Ind2) and training (Ind3).

As an average, the 318 project analyzed population, proposed values of 302.62 persons for counselling (Ind2) and 178.23 persons for training (Ind3). Applying also here the layers method described above, calculus was made for linear regression with two independent variables (Ind2 and Ind3), and also separate for Ind2 and Ind3 as presented in the table bellow (table no. 3).

Table 3: Linear regression testing results for all 25 budget layers, Ind2, Ind3

Layer no	Representativity	Ind2 and Ind3	Indicator 2		Indicator 3		C
			Prob (F-stat)	IND2	Prob (F-stat)	IND3	
0	100.00%	Prob (F-stat)	Prob (F-stat)	IND2	Prob (F-stat)	IND3	
1	82.08%	0.14338	0.2599	92.268	0.3427	151.235	1795707
2	74.21%	0.07092	0.1631	117.152	0.3051	169.677	1755892
3	67.30%	0.07927	0.25	101.833	0.1994	285.023	1714152
4	61.01%	0.10527	0.2139	114.318	0.2917	298.101	1680892
5	57.23%	0.04872	0.4376	82.298	0.0929	509.847	1633671
6	52.52%	0.04974	0.8112	33.038	0.0735	623.709	1602132
7	48.74%	0.07211	0.6599	63.235	0.1164	563.888	1581575

8	45.28%	0.04007	0.6713	63.248	0.0831	656.838	1540736
9	40.88%	0.11717	0.7692	46.887	0.1488	600.614	1525084
10	38.68%	0.14406	0.6424	75.178	0.2093	540.069	1509316
11	35.85%	0.10118	0.4973	111.043	0.2239	543.632	1471414
12	33.96%	0.03737	0.4775	115.372	0.1155	715.655	1419406
13	32.08%	0.02478	0.5392	100.140	0.0773	819.411	1385039
14	29.87%	0.00407	0.3741	143.289	0.0358	984.667	1312616
15	27.36%	0.00234	0.3561	154.717	0.0265	1069.53	1262623
16	27.04%	0.00136	0.3254	163.850	0.0202	1115.76	1245772
17	26.42%	0.00141	0.2915	176.468	0.0238	1112.62	1235327
18	24.84%	0.00076	0.4264	137.634	0.0114	1284.2	1193802
19	23.58%	0.00068	0.6305	87.948	0.0065	1409.629	1168456
20	22.01%	0.00045	0.3877	159.093	0.0115	1306.988	1138829
21	21.70%	0.00046	0.3414	175.791	0.0144	1267.055	1135636
22	19.81%	0.00031	0.1452	273.298	0.0336	1098.724	1101547
23	18.24%	0.00011	0.078	338.040	0.0321	1085.328	1051843
24	16.98%	0.00061	0.0699	360.000	0.1003	898.7997	1060170
25	14.47%	0.00721	0.0756	418.424	0.2427	709.0804	1035323

Source: statistic processing of all 318 data series

As it can be observed, the hypothesis of a justified construction of the budgets may be confirmed for Ind2 and Ind3 starting from layer 12, but unconfirmed by separate calculus for Ind2 and also Ind3. Comparing the evolution of statistic probability of the three situation presented (Budget(Ind2, Ind3), Budget(Ind2), Budget(Ind3)) it can be observed that statistic probabilities for Budget(Ind2, Ind3) and Budget(Ind3) are practically varying together, following the same trend, confirming a more dependent budget on Ind3 but Ind2. This conclusion is supported also by correlation coefficients R^2 and adjusted R^2 , having values increasing more rapidly reported to number of layers for Ind3 than for Ind2. Because of this finding, evolution of probability Ind2 in the function Budget(Ind2, Ind3) could be neglected, so it can be considered for layers starting from 12, as validated the hypothesis of justified budget construction (Prob F-stat.=0,0373).

Aggregating efficiency regarding indicators (Ind1, Ind2 and Ind3).

As it can be observed, the hypothesis of justified budgets is confirmed for layers bigger than 14 for Ind1 and bigger for 12 for Ind2 and Ind3. As effect of these findings, it may be concluded than for all layers bigger than 14 (so for a reduced population of about 30%), the hypothesis of justified budgets may be confirmed so the identified functions are for Ind1:

$$\text{Budget (Ind1)} = 598.2166 \times \text{Ind1} + 1471071 \quad (3)$$

and for Ind2 and Ind3

$$\text{Budget (Ind2, Ind3)} = 143.2898 \times \text{Ind2} + 984.6678 \times \text{Ind3} + 1312616 \quad (4)$$

To determine the function that could be used in construction zero base of the budgets of this call for proposals external restriction have been checked, and the most relevant information were provided by the programming document, approved by the European Commission, here being settled a value of the financial program main budget and also values for indicators, such as long term unemployed, our considered Ind1. A standard cost of this

indicator has been so calculated at 13,045.92 lei/person, as a reflection of acceptable Romanian ESF financed program efficiency for the European Commission.

It can be easily observe that starting with layer 22 this efficiency external condition is accomplished. As representatively, the layer frequency is 1.57% and the usage, as it is, of the layer function 22 would induce values bigger than those of conditionality, so in order to model the economic behaviour within the layer 22 a detailed analysis of layer 22 was performed, as in table below (table no. 4)

Table 4: Linear regression within layer 22, Ind1

Project no	Represe ntativity	Remained value	Indicator 1			Recalculate d value	Unit cost
			Prob (F-stat)	IND1	C		
						-	
63	19.81%	87176892	0.0051	1053.766	1274085	440035774	13147
62	19.50%	85428164	0.0050	1055.48	1267950	438163656	13092
61	19.18%	83683942	0.0053	1049.167	1262875	436254015	13034
60	18.87%	81939802	0.0036	1096.087	1251332	434643915	12986
59	18.55%	80196102	0.0061	1057.553	1251332	432243465	12915
58	18.24%	78454746	0.0076	1032.652	1248459	430148370	12852

Source: statistic processing of layer 22 data series

The representativeness of the population satisfying both the external efficiency condition and also the hypothesis of budgets justified construction is only about 19.18%, so it can be concluded that only a fifth of the population submitted budgets respecting the efficiency criteria of the call for proposal sound financial management (conclusion 3). The functions describing this population behaviour of are:

$$\text{Budget (Ind1)} = 1049.167 \times \text{Ind1} + 1262875 \quad (5)$$

By recalculating coefficients for the population of 61 projects the dependence of budget to Ind2 and Ind3 is:

$$\text{Budget (Ind2, Ind3)} = 306.45 \times \text{Ind2} + 1067.83 \times \text{Ind3} + 1082338 \quad (6)$$

Under the above described circumstances, the value of a service package offered to a long term unemployed should be 1049.167 lei, the value of a counselling service should be 306.45 lei and a training package should be 1067.83 lei.

Fixed costs are representing about 80% of the total budget (conclusion 4).

Regarding this it can be observed that budgets are more linked to services than to number of unemployed (conclusion 5)

Conclusions

Linear regression model seemed not to be applicable, so, as a whole the call for proposals didn't fund projects in direct relation to unemployed people (Ind1), but to eligible activities. This can induct large amount of spent sums not related to indicators, but for eligible activities, reported as fixed costs in relation with indicators. This reality is not conform with provisions of European Regulation stating that all appropriations should be used only for programs with ex-ante established objectives, whose achievement should be monitored with the use of SMART performance indicators. Activities are not monitored reported to indicators (conclusion 1).

Efficiency is increasing while the representativeness of the remained population decreases. Only for 29.87% of the projects there is a clear relationship between budgets and unemployed, as a main target group of the call for proposal and also important program indicator. This means that in the absence of a set of relevant, accepted, credible, easy and robust indicators of the call for proposals, not set by the managing authority into the call for proposals documents, most of the applicants maximized budgets in favour of their own organizations (conclusion 2).

Even less of the above mentioned population of about 30% (only about 19.18% of total), submitted budgets respecting the efficiency criteria of the call for proposal sound financial management (conclusion 3).

Regarding to the fixed value of each of determined functions modelling budgets with considerate indicators, it can be observed that fixed costs are about 80% of the total (conclusion 4).

Regarding fixed costs it can be observed that budgets are more linked to services (Ind2 and Ind3) than to number of unemployed (Ind1). This conclusion is also confirmed by R^2 values. For example for the population of 61 projects $R^2(\text{Ind1})_{61} = 0.124451$ iar $R^2(\text{Ind2, Ind3})_{61p} = 0.25275$, meaning that an efficiency approach on standard services (activities) could also be taken into consideration (conclusion 5).

As an overall conclusion, focusing on eligible activities without considering a set of relevant, accepted, credible, easy and robust indicators related also to number of people receiving activities related services, efficiency of the financial program cannot be observed but in minority of about 20% of the projects. Money is spending mostly on applicants fixed costs as an average of 80%. Shifting from diverse eligible activities to specified services and indicators in monitoring and implementation should not only increase the performance in ESF implementation, but also decrease the administrative costs for beneficiaries, lot of these costs being now properly justified, according the eligibility criteria, within the fixed costs, with an impact of reduced performance. In this respect, in further programming activities for ESF implementation in Romania, the Managing Authority should assume a shift from eligible activities to program indicators, or at least provided services directly linked to program indicators.

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