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The 14th Economic International Conference: Strategies and Development Policies of Territories: International, Country, Region, City, Location Challenges | May 10-11, 2018 | Stefan cel Mare University of Suceava, Romania

Strategies and Development Policies of Territories: International, Country, Region, City, Location Challenges

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https://doi.org/10.18662/lumproc.89

How to cite: Morosan-Danila, L. (2018). Performing Cost-Benefit Analysis for Funding Projects. In C. Năstase (ed.), *The 14th Economic International Conference: Strategies and Development Policies of Territories: International, Country, Region, City, Location Challenges | May 10-11, 2018 | Stefan cel Mare University of Suceava, Romania* (pp. 396-405). Iasi, Romania: LUMEN Proceedings. https://doi.org/10.18662/lumproc.89

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Performing Cost-Benefit Analysis for Funding Projects

Lucia MOROSAN-DANILA[1]*

Abstract

Cost-Benefit Analysis is an analytical tool used to estimate (in terms of benefits and costs) the socio-economic impact due to the implementation of certain actions and / or projects. The impact has to be assessed against predetermined objectives, with the analysis usually taking place by taking into account all individuals affected by the action, either directly or indirectly. The paper presents the importance of Cost-Benefit Analysis for companies that want to access non-reimbursable funds (from the European Commission's budget or national budget), but also its impact on the decision of the financiers to grant funds to the applicant companies. Cost-Benefit Analysis forecasts will positively impact company's activity? Is CBA real or shows processed information only to determine the financer to give the financing? Who really benefits from the forecasts? These are questions stay unanswered, because the risks and uncertainties to which companies are subjected daily, does no guaranties for future developments and situation, none the less a CBA. The CBA stay only a prediction.

Keywords:
Cost-Benefit Analysis, financing, funding projects, benefit, risk

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https://doi.org/10.18662/lumproc.89
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1. Introduction

Companies want to benefit from the non-reimbursable founds offered by the European Union and national budgets, but the main question is – Are these companies able to manage correctly the received founds, are they capable to spend so much money in a short term, in certain conditions imposed by the financer? In order to reduce and eliminate the failure in implementing the projects with non-reimbursable founding, the interested companies have to evaluate themselves and their projects by conducting a Cost-Benefit Analysis (CBA).

2. Problem Statement

In general, the CBA needs to determine whether the analysis is being conducted by adopting a local, regional, national, EU or global perspective. The appropriate level of analysis should be determined in relation to the size and purpose of the project, ie in relation to the group / area where the project has a relevant impact.

In Romania, CBA is not presented and analysed in the scientific literature, being an important concept for private companies and financing governments, but not for scientists. The concrete components of the CBA are aspects from different disciplines: economic and financial analysis, investments, financial accounting, strategic management, etc. In order to realise a professional CBA, the specialist has to proses knowledge from all economic fields, and a great synthesis and forecast capacity.

The objective of the CBA is to identify and quantify (or give monetary value) all possible impacts of the action or project under discussion in order to determine the appropriate costs and benefits. In principle, all impacts should be assessed: financially, economically, socially, environmentally, etc. Traditionally, costs and benefits are assessed by analysing the difference between the "project" scenario and the alternative to this scenario: the "no project" scenario (so-called "incremental approach"). Next, the results are aggregated to identify net benefits and determine whether the project is timely and deserves to be implemented [3]. Thus, CBA can be used as a decision-making tool to assess the usefulness of investments to be funded from public resources.

3. Aims of the research

Mainly, in the context of preparation and evaluation of the projects funded by the European Regional Development Fund (ERDF) and the Cohesion Fund (CF), the European Commission asks to carry out the CBA:

(1) To determine whether the project deserves to be co-financed

The aim is to answer the following questions: Does the project contribute to the achievement of the objectives of the European Union's regional policy? Encourages economic growth and stimulates employment? The rule is simple: if the company's net project benefits (benefits minus costs) are positive, then the company benefits from the project because its benefits outweigh the costs. The project should therefore receive assistance from the Funds and be co-financed. If not, the project will be rejected. This decision is made using economic analysis of the cost-benefit analysis.

(2) To determine whether the project requires co-financing

In addition to being economically viable, a project can also be financially profitable, in which case it should not be co-financed by European funds. In order to verify whether a project should be co-financed, a financial analysis of the cost-benefit analysis is used: if the financial value of the investment (project revenue minus project costs) without the contribution of European funds is negative, then the project can be co-financed. In this case, the EU contribution must not exceed the amount of money that makes the project profitable, so that over-financing does not occur.

CBA is needed to justify that a project that integrates in the context of EU regional policy objectives is economically feasible and requires the contribution of the Funds to become financially feasible.

4. Research Methods

This article is an empirical research regarding the concept of CBA, and its application in the practice of the public and private organisations from Romania. At the basis of this research is the national and European legislation in the matter of financing projects, feasibility studies and CBA.

The main samples of research are the CBA realised for attracting non-reimbursable found from EU by public and private organisation, effective beneficiaries of this founds. Of course, CBA can be made by all kind of organisations, in all stages of their business: launching, stability, development, and decline, the method being considered important in evaluating the business health.

5. General methodological approach

When an application for funding from CF and ERDF is being prepared and submitted, the results of all stages of the cost - benefit analysis are required only for major projects. Major projects are defined as operations that perform precise and indivisible tasks and whose total costs exceed the following values:

- EUR 25 million for projects in the environment sector
- EUR 50 million for projects in other sectors

For projects not exceeding the values presented above, according to GD 28/2008, the economic analysis, as a stage of the cost-benefit analysis, is not mandatory. However, for small projects not subject to European Commission [1] approval, the relevant management authority may decide that the results of the economic analysis be evaluated in the project selection process.

This was the situation in period 2007-2015 when all organizations (private or public) had to annex to the project request an CBA, in order to benefit from a financing from the Sectorial Operational Program to Increase Economic Competitiveness (POSCCE 2007-2013). The CBA was mandatory for investment projects exciding 100,000 Eur.

The steps proposed for the CBA in the context of the preparation of the investment projects are as follows:

1. Identifying the investment and defining objectives;
2. Analysis of options;
3. Financial analysis;
4. Economic analysis;
5. Sensitivity analysis;
6. Risk analysis;
7. Presentation of the results.

Next we will present some of them.

5.1. Identifying the investment and defining objectives

The core strategic documents for implementing the actions to be co-financed from CF and ERDF are the National Strategic Reference Framework and the relevant Operational Programs. Like all Member States, Romania has prepared the National Strategic Reference Framework (NSRF) in line with the Community Strategic Guidelines on Cohesion, which presents the strategic dimension of the funds in line with the priorities of the European Union. NSRF is the document that defines the strategy chosen by

Romania to contribute to the fulfilment of these priorities, as well as the list of operational programs that ensure its implementation.

Operational Programs comprise Romania's priorities as well as how these priorities will be met. Each operational program includes general objectives and expected sectorial targets. It also identifies areas of priority intervention (priority axes), which in turn include specific objectives.

Once an action or problem has been identified, the objectives of the proposed action and the projects will be defined in coherence with the overall objectives and priority axes of the relevant operational programs, including the determination of the extent to which the proposed projects will contribute to the expected results of the program operational.

5.2. Analyzing options and choose the right alternative

For the submission of a project proposal to obtain co-financing from CF and ERDF, a complete feasibility study is required to justify whether the project includes the series of works, activities and services designed to achieve the above mentioned objectives. The results of the feasibility studies will be presented as part of the applications for funding under Article 40 (c) of Regulation 1083/2006 and GD 28/2008 [6].

The identification of the options aims at finding different alternatives to achieving the specific objectives (and standards, after completion) of the project, which were set out in the previous section. Typically, this identification is included in the technical part of the feasibility study. If this identification is correctly accomplished, it is not necessary to resume it in the CBA.

In GD 28/2008 [6], at least three options are to be considered:

- The zero option (variant without investment) represents the alternative of continuing the activity without any intervention.

- Medium option (minimum investment option) that includes all the realistic costs required for maintenance / maintenance plus a minimum investment cost or improvement to avoid or delay deterioration or to achieve a minimum level of compliance with security standards.

- The maximum option (maximum investment option) involves full implementation of the proposed investment in order to achieve the expected objectives.

In order to select the optimal alternative, options will be analysed as follows:

a) The strategic options identified will be analysed according to a series of mandatory criteria, based on technical considerations and / or national policies (the reason for choosing these criteria will be well justified

in the options analysis) and a short list of alternatives optimal and feasible (by eliminating inappropriate alternatives);

b) The hierarchy of optimal alternatives will be done using an economic analysis (in order to identify the alternative that ensures the achievement of the expected long-term cost objectives) or, depending on the characteristics of a particular sector or project, an analysis of the lower cost.

If it is to be used to select the optimal alternative, the simple lowest cost method, the following steps will still be taken:

(i) Analysing whether alternatives differ with respect to the possible external impacts on society, impacts that were not taken into account in the least cost analysis (eg traffic disruption to road rehabilitation)

(ii) If the expected impact of each of the alternatives envisaged can be demonstrated to be similar, then the lowest-cost alternative will be retained as the preferred option;

(iii) If differences in the external impact of alternatives are observed, the lowest cost methodology will be adjusted to incorporate the identified externalities. In order to establish a final hierarchy of alternatives, it will be necessary to monetize the identified external impact.

Analysis of the options thus achieved will lead to the identification of the alternative that ensures the achievement of the objectives set at a minimum total cost for the society. This is the alternative that will be evaluated in the CBA.

5.3. Financial analysis

The objective of the financial analysis is to calculate the financial performance of the proposed project over the reference period in order to establish the most appropriate funding system for it. This analysis refers to financial sustainability and long-term sustainability, financial performance indicators, and justification for the volume of EU assistance required.

More specifically, the financial analysis has to go through the following steps:

(i) Estimating project revenue and costs and their implications in terms of cash flow;

(ii) Determining the funding gap for the selected option and calculating accordingly the eligible costs that can be co-financed by the Funds;

(iii) Defining the project financing system and its financial profitability;

(iv) Verification of the expected cash flow capability to ensure the proper operation of the project and the fulfilment of the investment and debt service obligations.

The analysis consists of a series of tables illustrating the project's financial flows, detailed on total investment, operating and revenue costs, funding sources and cash flow analysis for financial sustainability.

The methodology to be used is the Reflected Cash Flow Analysis, which uses an incremental method that compares the "project" scenario with the "no project" scenario alternative.

The incremental method is applied as follows:

1. Preparing cash flow projections of the operation (in terms of expected revenues and costs, and other investments planned or required for each year of operation) in the absence of the proposed project (scenario "without project"). If the proposed project is completely new, the "no project" scenario is a "no operations" scenario.

2. Similar cash flow projections are prepared in the light of the proposed project and its impact in terms of operations (project scenario). The project promoter shall consider the whole investment plan, to take account of changes in operating and maintenance costs and adjust prices (if relevant), taking into account the willingness to pay for services.

3. Cash flow for investment is the difference between the cash flow in the "project" and "non-project scenarios" scenarios. If the proposed project is completely new, the "no project" scenario is the basis for the incremental cash flow.

The financial projections of the project will be prepared on the basis of a financial model that follows the principles:

- The reference period is the maximum number of years for which forecasts are provided. Projections for the future of the project must be made for a period close to the economic lifetime of the project and long enough to cover the medium and long-term impact.

- The update financial rate is used to calculate the present value of the cash flow in the analysis, each year, to take into account the value of money in time [4]. This is intended to reflect the opportunity cost of capital, which can be considered as the revenue that would have been obtained from the best alternative for the project.

- Macroeconomic input (inflation and exchange rate for each projection year) will be based on relevant statistical sources.

For projects deemed to be revenue generating, in line with Article 55.1 of Regulation 1083/2006, the maximum level of EU co-financing will be determined on the basis of the "funding gap" concept.

5.4. Economic analysis

The objective of the economic analysis is to demonstrate that the project has a net positive contribution to society and therefore deserves to be co-financed by EU funds. For the selected alternative project benefits must exceed the project costs and, more specifically, the actual value of the project's economic benefits must exceed the current cost of the project.

The starting point in the economic analysis is the cash flow calculated for the financial analysis in which two types of corrections are introduced. These corrections are reflected in the cash flow:

(i) Tax adjustment and price conversion

(ii) Monetization of externalities.

Tax adjustments are necessary for those elements of financial prices that are not related to the content of opportunity costs of the resources involved. From this point of view, corrections will include deduction of indirect taxes (eg VAT), subsidies and simple transfers (eg payment to social security contributions). In particular, the investment costs for beneficiaries who are not registered as VAT payers (and for which VAT is not recoverable) must include VAT in the financial analysis. This, however, will be excluded from the economic analysis. However, the book prices must include direct taxes.

Once tax adjustments are taken into account, it is necessary to ensure the use in economic analysis of prices that adequately reflect the economic value of the resources envisaged. Conversion of project cost to market prices into book prices involves detailing project costs on different categories as shown below, applying a specific treatment for each case.

The objective of the risk and sensitivity analysis is to evaluate the performance of the project's profitability indicators. In this sense, the first part of the analysis (sensitivity analysis) seeks to identify the critical variables and their potential impact on the change of the profitability indicators, the second part (risk analysis) aims to estimate the probability of these changes that have taken place, the results of this analyses expressed as the estimated average and standard deviations of the indicators.

The relevant performance indicators to be considered for risk and sensitivity analysis are RRF / C and VNAF for financial analysis, RRE and VNAE for economic analysis, which will be calculated in all cases after the EU contribution.

6. Result presentation

After the analysis is completed, the conclusions of the CBA will be presented in a document that has at least the following chapters:

1. Identification of the investment and definition of objectives

The objective of the project will be linked to the objectives of the relevant Operational Program, as agreed with the European Commission (EC) [5]. Also, the main features of the proposed action and / or project will be highlighted and the results of the demand analysis will be presented.

2. Analysis of options

On the basis of the previously identified demand, the alternatives studied and the comparison will be highlighted and the technical comparison will be completed by the economic and financial analysis that logically leads to the recommended option.

3. Financial analysis

Details of the financial projections and the conclusions of the analysis on the application of the polluter pays principle, availability, financial sustainability, and profitability indicators (RRF / C, VNAF, RRF / K and VNAF) will be provided, which will be considered all cases, before and after the EU contribution.

4. Determination of the co-financing rate

The funding gap R, the VD decision value, and the recommended EU grant will be presented successively.

5. Tariffs and payment capacity of consumers

If relevant, the proposed tariffs and availability documentation for project beneficiaries will be presented, especially for middle and low income households [2].

6. Economic Analysis

The project benefits, cost correction of the project with economic prices will be identified and quantified in monetary terms and VNAE, the B / C and RRE ratio (for major investment projects only) will be calculated.

7. Risk and sensitivity analysis

It will include information on critical variables, switching value in each case, relevant factors and measures related to changes in these critical variables, as well as estimating the probability distribution for financial profitability indicators or, if not, their simple value in optimistic scenarios and pessimistic.

7. Conclusions

As a general conclusion, we can say that EU needs to assure of the validity and sustainability of its investments, materialised in the financing founds offered to public and private organisations that want to make investments in their country. On the other hand, the companies are using

the same instruments to prove the importance and credibility of their needs and feasibility of their actions. In the middle is the CBA, which satisfies both parts of the project, investor and beneficiary.

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