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THE SOCIAL ASPECT OF THE INVESTMENT EFFECTIVENESS ANALYSIS

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Abstract

The aim of this paper is to highlight and to point out the importance of the evaluation of the investment project regarding the social aspect. The authors explore aspects of social cost-effectiveness assessment of the investment project, i.e. the impact of the investment on the overall economy, which depends heavily on the size and nature of the project and the amount of funds involved. This is why it is necessary to create economic and financial evaluation of investment projects from the viewpoint of society, or total economy, with special emphasis on the analysis and evaluation of the contribution of investment to regional development. Methodological planning and evaluation of return on investment, with special emphasis on the socio-economic dimension of investment, in the paper and associated with that considers the problems of divergence of private and social costs. The paper also points to the importance of a clear definition of the overall investment project in the very beginning of its economic and financial analysis, which is crucial for a proper assessment of the social effectiveness due to "cover up" social benefits and costs that may not be subject of direct trade off. The basic hypothesis of the paper stems from the stated and can be explicated as: adequate analysis and assessment of the social aspect of the effectiveness

of the investment project significantly contributes to the regional economic development.

Key words: social and private costs, investments, regional development

1. INTRODUCTION

Cost-effectiveness study of an investment project, that could be considered an economic study from the point of the very project, has for its goal better and more precise estimation of the movement of incomes and costs through duration of the investment project and it indirectly reflects position and role of the project on the market and it is based on market prices of inputs and outputs. Every project, every investment at the same time influences whole economy in broader and narrower meaning of the entity. Namely, economic, financial, ecologic, social, demographic and other effects of an investment are moving in concentric circles on social-economic life of the community. Strength and influence of these investment effects primarily depend on character and size of the very investment, as well as on quality and size of the economic context. Therefore, besides the study of the cost-effectiveness of the very investment project, it is also important to carry out an economic study from the whole economy point, i.e. to make a complex study of the social cost-effectiveness.

The influence of an investment to the economy is defined, in broadest sense, as a relation between profit and costs, and in this way investment project and its borders are clearly defined. At the beginning of the analysis of an investment project it is necessary to clearly and precisely define the project itself, because profit and costs may have, and very often do have, different appearances and at the same time they may be and do not have to be part of market exchange, so they can easily slip analyst attention. Cost-effectiveness study (profitability study) of an investment project is quite complex and hard work, demanding high precision and gradual work, which consists of three main steps: 1) identification of benefit and costs, 2) evaluation of benefits and costs, 3) application of adequate investment criteria and methods of evaluation.

Generally speaking, each comprehensive economic-financial study of an investment project should comprise evaluation of the profitability from three aspects: profitability of the very investment, which has to give an answer of the economic sense of the very investment; then profitability of the investment from the investor's point of view, and finally profitability of the investment from the social point of view, where the broadest influences of the project are being observed and evaluated.

The purpose of this research is to point out the importance and necessity of conducting detailed, professional and fair cost-effectiveness study of an investment project, as a basis of a quality and long-term sustainable regional development.

The aim of this research is to contribute achieving of universal awareness of the importance of making profitability studies as an indispensable part of each investment project.

In order to obtain the aim and purpose of this research, we set out starting hypothesis that can be expressed as follows: evaluation of the social profitability of an investment project is indispensable part of each investment elaborate on profitability and is an essential condition of a long-term, well-balanced and sustainable development.

2. DIVERGENCE OF PRIVATE AND SOCIAL COSTS

Main reason for special cost-efficiency study of an investment is necessary from the social point of view, lays in differentiation of private and social costs which sometimes completely contradict each other. The importance of this statement can be supported by following statement: *divergence of private and social costs is one of the most important reasons for intervention in free market economy*¹ (Lipsey, p. 433).

This brings us to the logical question: how to establish intensity, measure and modalities of the intervention in 'free market' and why Smith's 'invisible hand' should be guided? In order to give at least partly satisfactory answer, we have to define basic terms in this part of research: 'private costs' – 'social costs' inspired by considerations from the above mentioned book (Lipsey, 1975).

Private costs measure opportunity expenses of resources that are used by certain firm, which are based on alternatives it has on its disposal. If there is no alternative to these resources from the firm's point of view, the value of private cost equals zero. Calculation of the private cost is based on market value of the production factors obtained in certain period of time and on the price that could be obtained for selling these factors owned by the firm on the market.

Social costs are measured as opportunity cost of the whole society of these resources that are used by the firm in its business and development. Opportunity cost is defined and determined with the availability of the alternative resource. In case when a firm is using (spending) resource(s) for which, from the social-interest point of view, there is an alternative use, than social cost equals the value of the resources in its best alternative use.

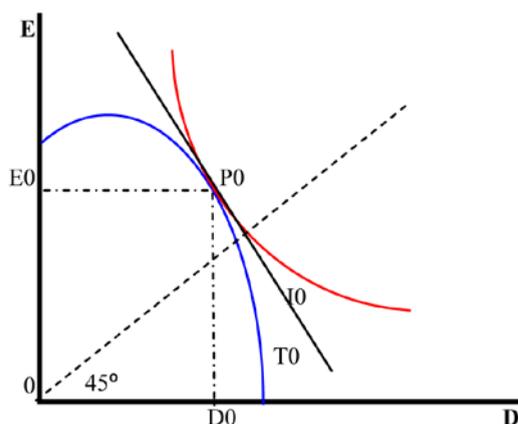
Basic problem is how to make peace between the two i.e. cut down or at least significantly lessen divergence between social and private costs, i.e. social and private interests. Smith's thesis on harmonizing these two interest on a market where maximizing of private interest would automatically and to the best contribute to general social interests did not survive the test of global capitalism on one side and growing awareness of the importance of social interest on the other. In case when divergence of social and private costs can be clearly

determined and measured it is possible to conciliate or cut down divergence by introducing taxes, contributions, supports or compensations. In case when social cost is higher than the private, disproportion can be removed by introducing additional or higher taxes or contributions, while in opposite case same role of conciliation is granting supports or compensations. From the previous definition, i.e. explanation we came to already mentioned necessity of intervention in so called free market. On the other hand, practically unsolvable case appears when it is impossible to establish divergence of the costs, thus not being possible to measure it quantitatively. In such cases it is impossible to conciliate (cut down) possible divergence between costs by simply introducing taxes or granting supports and incentives, since the size, value and direction of the divergence are not known. There is an additional problem, since often social costs generate private benefit, or in other words: private benefit spends social resources without adequate or any compensation whatsoever, thus generating large social costs. From the above mentioned it is obvious that intervention in market does not mean only state intervention (taken in broadest sense of the matter) in favor of social and against private interest, but also vice versa, depending on the direction of the divergence. After all, taken from the long-term point of view, cutting down the divergence between social and private costs is interesting to the firm's prosperity and realization of its goals, as well as interesting to the society as whole, since existence of constant and strong contradiction between social and private interest brings no good to anyone. Eliminating the divergence between private and social costs means conciliation of social and private interest, which is necessary condition for long-term and steady economic development to everyone's benefit.²

3. DEFINING OF THE SOCIAL PROFITABILITY OF AN INVESTMENT PROJECT

In this part of the research we would try to expose basic methodology for studying social profitability of investment projects, with necessary theoretical explication.

Basic definition observes efficiency as a contribution of a separate element to the goal function and by accepting this general definition we can say that social profitability of a given investment project could be defined as a level of contribution of an investment to development goals. Off course, development goals are multiple and different and they could be complementary, neutral or even contradictory to each other. For the purpose of this research we shall disregard the fact that in long-term all the goals are closely connected and we shall observe this problem on the short-term basis, so that an arbitrary division in social and economic goals can be done. Accordingly, definition of social efficiency (profitability)³ is optimal contribution of the investment to social and economic development goals. Such a wanted optimum between social and economic goals is illustrated by the following graph (Graph 1)



Graph 1: Optimal combination of choice between different goals

Source: *Problems of Economic Development and Economic System of Yugoslavia – Economic Institute – Zagreb, Informator Zagreb, 1982 (p. 120).*

Marks on the Graph have following meanings: E economic goals, D social goals, I0 social indifference curve, T0 social possibilities curve, P0 intersection of the curves I0 and T0, where condition of balance between marginal rate of substitution and marginal rate of transformation is reached, so there is a tangent on both curves. Tangent inclination on curves I0 and T0 in the point P0 is marginal rate of substitution and marginal rate of transformation, which means that in this point an optimum solution is reached, i.e. social optimum⁴. (Problems of Economic Development and Economic System of Yugoslavia, p.121)⁵

For clearer and easier distinction of market and social efficiency, it is necessary to define elements of the efficiency (profitability) evaluation of an investment project, so this is done in the following table (Table 1).

Table 1

Elements of the Market and Social Efficiency Evaluation

No.	Assessment Elements	Market Efficiency	Social Efficiency
1.	Efficiency Assessment Criterion	Effects of the Project to Firm's Profitability	Effect of the Project to Economic Development
2.	Scope of the Effects	Direct Effects of the Project	Direct and Indirect Effects of the Project
3.	Prices for Assessments Of the Effects	Market Prices of Inputs and Outputs Of the Project	Amended Prices of Project Inputs And Outputs
4.	Investor's Time Preferences	Individual Preferences	Social Preferences

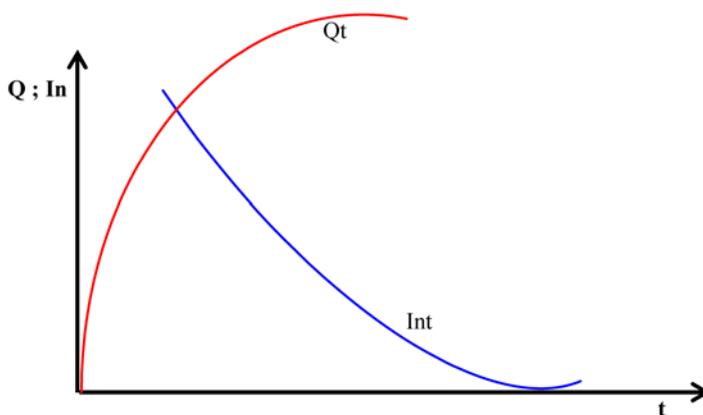
Source: According to: *Manual for Planning of Investment Projects - Bank Association of Yugoslavia, Economic Institute – Zagreb, Economic Press – Beograd, 1981 (p. 481)*

Based on distinctive criteria presented as above, we can create models for definition of basic elements for assessment of social efficiency of an investment project and its influence on development of a city, region or the whole society.

3.1. Investment Accelerator

The Principle of the Accelerator is long known, from the works of A. Aftalion, R. Hawtrey and especially J. M. Clark, who came to the conclusion that acquisition of train pool varies more in dependence of changes than of the level of train traffic activity, based on fluctuation of the train traffic in correlation to acquisition of trains.(Clark J.M.1917). J.M. Clark defined a simple principle of acceleration by relating capital funds (Kt) and production level (Qt) in a certain period of time, i.e.:

$$v = Kt/Qt \quad (1)$$



Graph 2: Simple Principle of the Accelerator

Source: Petrašinović P; Niketić R. – *Economic Models of Investment-BIGZ, Beograd, 1980 (p.71.)*

Mathematic definition of the Accelerator Principle (v) and its graphical explication (Graph 2) clearly shows that investments are proportional to changes in production, i.e. if there is a fall of production level or it is constant, significant fall in new investments occurs. Naturally, such a simple principle of acceleration could be strongly criticized⁶, but still it shows great importance of new investments for growth and development. Moreover, it shows that accelerator is inoperative at higher level of unused capacities that should definitively be considered when planning new investments in accommodation capacities in Dubrovnik-Neretva County.

3.2. Basic Criterion of the Study

Evaluation of the very investment from the social point of view - the same methods are used to evaluate social efficiency of an investment project like when evaluating efficiency of the project itself:

1. Method of Net Present Value (NPV)
2. Method of Internal Rate of Return (IRR)

Important difference between the two is that data for evaluation are extracted from previously composed, so called social-economic flow of the investment project⁷ which is an approximation of the effects of the project to creation of the social wealth⁸.

a) Net Present Value (social) of an investment project can be determined by following formula:

$$DNSV = \sum_{n=0}^t NPDT_n^d \frac{1}{(1+rd)^n} \quad (2)$$

Whereas: $NPDT_n^d$ = net incomes of social-economic flow

rd = social discount rate

n = years (periods) of duration of the investment project

b) Internal Rate of Return (social) or economic rate of the income of an investment project is determined by following formula:

$$0 = \sum_{n=0}^t NPDT_n^d \frac{1}{(1+rd)^n} \quad (3)$$

Whereas: $NPDT_n^d$ = net incomes of social-economic flow

rd = social discount rate

n = years (periods) of duration of the investment project

c) Social Discount Rate which represents discount rate in so called economic study of a project is a result of time preference of a society considering a choice between social benefits and costs in future periods and in present time. One of the important roles of this rate is in optimal allocation of production elements from the society's point of view. Since in every investment project a certain grade of risk exists, we should consider it when determining social discount rate. Although there are various approaches to determine social discount rate, one of the most commonly used is taking pondered average interest rate on long-term loans, which could be determined by following formula:

$$rd = \alpha k^P \quad (4)$$

Whereas: k^P = average interest rate to long-term loans

α = risk premium

If there are different interest rates on loans, then k^P

$$k^P = \frac{\sum_{i=0}^n K_j^s}{\sum_{i=0}^n K_j^s} k_j^s \quad (5)$$

Whereas: K_j^s = amount of a loan

k_j^s = applicable interest rate

j = a loan

3.3. Influence of an Investment Project to the Regional Development

In previous studies of social efficiency, consideration was directed to influence of an investment to the whole society, i.e. the influence was considered on a national level. Of course, distribution of the influence should not have to be equally distributed and some investments does not have to have primary national influence, which leads to influence of and investment project on a regional level, because it reflects new development opportunities for a certain region. In such context, location and size of an investment project plays a very important role.

When studying social efficiency of an investment project, it is very important to establish if it is a project of a national or a regional character project. In first case, we should consider so called spillover effect of the project, and in second case, when estimating social efficiency, the whole study should be observed just like it is a project of a national importance, but with limited, regional reach. Generally taken, regardless of the above distinctions, each project, regardless of its size and importance, has certain influences on its narrower and broader environment, so that each investment project is at the same time national and regional.

4. AN EXAMPLE OF SOCIAL ECONOMIC-FINANCIAL EFFICIENCY STUDY - PROJECT OF BUILDING OF CENTRE FOR SELECTIVE FORMS OF TURIZM IN NERETVA VALLEY

Step one: What do we want of the project

Selective touristic forms as a subject of theoretical and scientific research appeared in works of Zadar humanistic school in 1990-years of last century and they were also studied in Dubrovnik University up to 2006 (Lukovic, 2006). It appeared as a result of need for turning from mass tourism of extremely seasonal character with an aim of contributing to Croatian tourism in times of its opening to foreign markets and getting acquainted with fresh touristic motives.

Thus, selective forms of tourism are counter-balance to mass tourism, representing a different development concept, where a tourist is recognized as an individual. Individual tourist is in the centre of a research, which is basis for offering tourist attractions and creating a tourist offer that can satisfy new and dominant forms of tourist demand in the best way.

In 2012 Dubrovnik-Neretva County created Tourism Development Strategy for the period of 2012-2020. Preliminary analysis of the situation established following:

1. The town of Dubrovnik has a dominant economic role in the County, comprising 58% of tourist traffic and 70% of total income from tourism; unfortunately, other parts of the County, apart from very close surroundings, do not get tourism synergy from the force of the Dubrovnik as a centre.
2. The whole area of the County is attractive, but geographically fragmented and without adequate connection to the centre.
3. This is a part of Mediterranean with exceptional attraction potential, with various subregions of different history and partially different cultural features

Strategy defines six consistent touristic clusters, where Dubrovnik, Korčula and Pelješac stand out as more developed. In Neretva Valley, where the role of tourism is not very important, for the first time is to be evaluated in touristic sense.

Step two: Development of project options.

Building of the centre for selective tourism forms in Neretva Valley, as a possible project for development of tourism in Neretva Valley, was considered regarding:

1. Location
2. Type and size of the object.

Cities of Metković, Ploče and Opuzen were chosen as possible locations. Smaller units of local administration (Zažablje, Kula Norinska, Slivno and Pojezerje) were not considered because of the lack of the basic social infrastructure, and dislocation from the main urban development direction, being Ploče port area – agricultural Opuzen – borderline and commercial centre of Metković.

Next part of the evaluation considered choice of the type and size of the object. This choice was done on basis of one main and two auxiliary criteria:

a) Basic criterion for choosing the object for investment was possibility for obtaining of alternative funding sources. Namely, as it is very complex investment, which is partly social and partly economic infrastructure, where social efficiency is subject to evaluation, it was rationally to prepare a project for co-funding from EU Programmes. Since project was prepared before Croatia was admitted to EU, it was prepared in accordance with terms, priorities and measures of the Adriatic Cross-Border Cooperation which was financed from 2. Component of IPA.⁹ This criterion, at the same time, comprised focusing on an existing object for reconstruction, instead building of a new object. Maximization of the value, i.e. positive economic and social effect for given funds, should always be in the centre of public politics. In times when public funds are specially restricted and fiscal environment challenging, advantage should be given to possibility of reconstruction of existing usable objects instead of building new ones.

b) Auxiliary criteria for choice of the object are:

1) microlocation (good connection with local social infrastructure; good infrastructural connection, comprising all types of connections and means of transportation).

2) possibility of upbringing of facilities and connecting of basic activity of the centre to rendering supporting services that would make work and projects of the centre visible: promotions, exhibitions, manifestations, congresses....

Analysis of project options considering used criteria resulted in final choice of Community Culture House in Ploče.

3) Checking of options by using risk analysis

When choosing a project option it is necessary to identify and analyze potential risks, which can be connected to the project, and to define ways of avoiding or diminishing of such risks.

Risk identification comprises evaluation of events or circumstances on when, where, why and how realization of positive effects of the project could be prevented, diminished or postponed. Risks most commonly connected to investment projects are the ones connected to design and execution of the project, characteristics of the micro location, operative risks, market risks, force majeure, and risks connected with project (sub) contractors. Depending on the size and type of the project, evaluations of the probability of an unwanted event are done, and risk matrix is set up.

Step three: analysis of social effects of the chosen project option.

Aim of the project

In accordance to Strategy of Regional Development of Dubrovnik Neretva County and Strategy of Tourism Development of Dubrovnik Neretva County, the aim is to set up supporting institution for development of tourist entrepreneurship and related activities in tourist cluster of Neretva.

The project is expected to have positive influence on development of tourist offer in the Neretva Valley, by developing web platform, active presentations and campaigns on tourist potentials of the cluster, establishing of cross-border cooperation (Italy, BiH), education, work-shops and cooperation in realization of key development initiatives defined in the project.

Identification of the Project

Establishing of the centre for selective forms of tourism in Neretva Valley is project of public department – local and regional government. The project should be funded by II. Component of IPA Cross-Border Cooperation 70%, while remaining 30% would be national obligation of funding as per IPA regulations.

Preliminary evaluation showed as feasible investment solution comprising following:

- a) Reconstruction of presentation centre and hall
- b) Furnishing of centre for multimedia activity
- c) Furnishing of two office spaces

Project and ways of involving of partners were in accordance with actual Operative program for regional competitiveness, strategic priorities of Adriatic Cross-Border Cooperation, together with selected priority thematic areas of EU for the period 2014-2020.

Feasibility Study

Analysis of feasibility was done based on data from Strategy of Regional Development of Dubrovnik Neretva County, Strategy of Tourism Development of Dubrovnik Neretva County and local development strategy of Local Action Group Neretva.

Following tables (Tables No.2,3 and 4) comprise final calculations of financial feasibility of the investment project, analysis of evaluated economic benefits and costs with calculated social discount rate (according to equation No.4) and, finally, calculation of net economic (social) present value (according to equation No.2) and internal rate of social (economic) return (according to equation No.3), which amounts:

- Social Discount Rate	6,70%
- Net Economic (social) Present Value.....	4,35 mil.Kn
- Internal Rate of Economic (social) Return.....	11%

Evaluation of the Financial Viability of the Project Table 2

Evaluation of Economic (measurable social) Benefits and Costs of the Project Table 3

5. SUMMARY

Divergence of social and private costs, i.e. collision of general and individual interests is by all means one of disregarded problems, which should be once more returned into the focus of interest. Individual investments may be profitable by themselves, they may bring significant profit to investors and financiers, but it does not automatically mean that they are socially effective and that they have positive influence on the whole society. Resulting from the above mentioned, aim and purpose of this research is to point out the importance of conducting general analysis of social efficiency of an investment project and that such evaluation must be an essential part of each investment project. Besides theoretical evaluation of the above mentioned problems, this research also shows reduced process of analysis of social economic-financial efficiency at an example of project of making Regional centre for selective forms of tourism. From this research all of the positive effects of this investment to the regional development are clearly visible, regardless of its specific character.

In analytics of economic-financial efficiency social discount rate of 6,7% was applied, whereas net social economic present value of the project was 4,3 mil. kunas, meaning that such idea of an investment project should in ten year period accumulate this amount expressed in present value.

Internal rate of return (social), i.e. economic rate of return of investment project amounts 11%, meaning that social investment should bring a year's interest at this exact average rate. At the example of investment in Centre for selective forms of tourism we showed that such a specific and non typical investment could have very positive economic, financial and social effects on long term sustainable development, thus confirming introductory hypothesis of the research.

Only one of the possible approaches of the investment valuation has been put in focus in this paper, and the basic elements of investment profitability of specific investment have been calculated from the social point of view. Of course, it is quite possible that this investment, with respect to the private investor, might not be profitable what primarily depends on investor's preferences and financial objectives. Accordingly, it again points out the fact that, when talk about "investment profitability" or investment effectiveness it is inevitable to point out to whom is that investment is worthwhile, ie., from which point of view.

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NOTES

¹ Translation by I. Šperanda.

² Often used expressions such as: creating of 'anti-entreprenur climate', or removing of all of the 'administrative obstacles' as symbols of slowing of economic development, i.e. supporting investments are an expression of pamphleteering approach to the problem and at the same time not understanding its essence.

³Hereby the term efficiency is understand as efficient, efficacious and accordingly, profitable

⁴Marginal rate of substitution (MRS) = dE/dD , on curve I_0

⁵There is no room to possible scruples because of the title and contents of the mentioned 'Zbornik..' where mentioned research was published in. Simply, at that time the subject and problems of social development were much more often and more seriously taken, than recently.

⁶For more details see: Kuznets S. 'Relation Between Capital Goods and Finished Products in the Business Cycle'-Economic Essays in Honor of W. Mitchell, pp. 209-269. NY, 1945..

⁷Details on contents, concept and ways on composing social-economic flow see in 'Planning of Investment Projects' – (book III; part IV), edition Economic Institute – Zagreb, 1993.(pp. 53-113), also see in 'Planning of Investment Projects Manual' – Economic Institute – Zagreb – Yugoslav Bank Association, Beograd 1981 (pp. 527-587).

⁸Mentioned relations were adjusted and derived according to: 'Planning of Investment Projects' – (book III, part IV), edited by Economic Institute – Zagreb, 1993 (pp. 112-133).

⁹Projects of building of social and economic infrastructure could have been more generously and simple financed from III. Component of IPA – Regional Development, but Dubrovnik-Neretva County was not among acceptable areas of financing. From this component projects planned in ten counties with lowest development index could have been financed, but DN County was not among them. Further development of the project could be co-financed either through European Regional Development Fund (Infrastructure) or through European Social Fund (activities such as strengthening of the capacities, organizing work-shops, educations and the like). Details on contents, concepts and ways of composing of social-economic flow see in 'Planning of Investment Projects' – (book III, part 4) by Economic Institute – Zagreb, 1993 (pp 53-113), also see 'Planning of Investment Projects Manual' – Beograd 1981 (pp. 527 -587)