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THEORETICAL ASPECTS OF EVALUATING SOCIAL-ECONOMIC EFFICIENCY OF INVESTMENTS IN PUBLIC SERVICES

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ТЕОРЕТИЧЕСКИЕ АСПЕКТЫ ОЦЕНКИ СОЦИАЛЬНО-ЭКОНОМИЧЕСКОЙ ЭФФЕКТИВНОСТИ ИНВЕСТИЦИЙ В ОБЩЕСТВЕННЫЕ УСЛУГИ

The article focuses upon theoretical approaches to evaluating efficiency of investment projects in regard to public life taking into account all elements of public services provision system. The methodology proposed is based on calculation of social-economic and budget efficiency investments. Payment of social efficiency is based on accounting lower prices caused by cost savings arising as a result of investments, and improving service quality. Calculation of budget efficiency of savings assumes costs for providing public services over budget investment to economic efficiency of public services.

INVESTMENTS OF PUBLIC SERVICES; ECONOMIC EFFICIENCY; SOCIAL EFFICIENCY; BUDGET EFFICIENCY; BUDGET.

В статье обоснованы теоретические подходы к оценке эффективности инвестиционных проектов в сфере общественной жизни, с учетом всех элементов системы предоставления государственных услуг. Предлагаемая методика основана на расчете социально-экономической и бюджетной эффективности инвестиций. Оплата социальной эффективности основывается на учет более низкие цены в результате экономии средств, возникающих в результате инвестиций, и повышение качества услуг. Расчет бюджета экономии средств бюджета предполагает расходы на предоставление государственных услуг по бюджетной инвестиций экономической эффективности государственных услуг.

ИНВЕСТИЦИИ ГОСУДАРСТВЕННЫХ УСЛУГ; ЭКОНОМИЧЕСКАЯ ЭФФЕКТИВНОСТЬ; СОЦИАЛЬНАЯ ЭФФЕКТИВНОСТЬ; БЮДЖЕТНАЯ ЭФФЕКТИВНОСТЬ; БЮДЖЕТ.

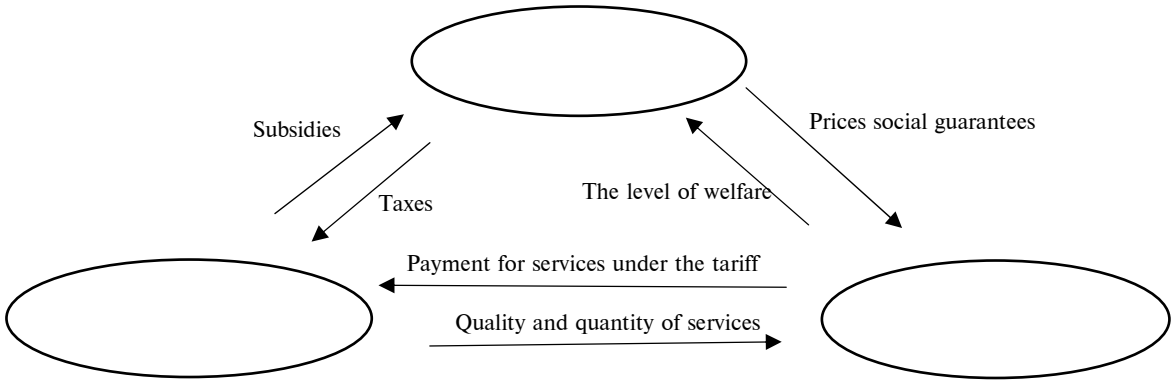
The relevance of the issue chosen is motivated by the fact that at the present stage in order to ensure economic growth it is necessary to achieve significant gains in efficiency of organization management and to increase efficiency of its economic activity. It is necessary to consider that enterprises of public services operate within a particular economic area created by the government, and also to take into account high social significance of public services requiring to include efficiency of consumer services.

Formerly authors have been examining these issues from a variety of angles: economic security, risk management, training, improving efficiency of budget expenditures [4, 6, 11–13].

Considering organization system of public services production, it is necessary to advert the objectives and actions of each of its elements [5]:

- direct producer;
- end-users;
- local authorities.

It is a company – a service provider that is the main subject in generation system of public services (Figure). Economic behavior of enterprises causes the response of other participants in the system. Consumers purchasing services meet their needs fully or partially depending on the level of their ability to pay, the amount and quality of services provided. Local governments perform their functions of the implementation of their mandates. They compensate the company the costs incurred – subsidies and provide grants for the public if the level of income does not allow the consumer to acquire necessary volume of services. Having all the necessary powers of attorney, local authorities set tariffs for basic services in order to protect consumers from increase of services' cost by enterprises. Such an approach allows showing interdependence and interaction of subjects of public sector – elements of the production system and consumption of services (Figure).



Interdependence and interaction of subjects of public sector – elements of the production system and consumption of services

Therefore in order to determine efficiency of public services production within the model presented above it is necessary to conduct comprehensive analysis of efficiency considering all elements service delivery system.

In these terms, determining efficiency of the system is narrowing down to calculation of three types of efficiency: economic, fiscal and social. Using only the indicator of economic efficiency does not allow to judge about the efficiency of the model as a whole. High social importance of public service requires to have in mind efficiency of consumer services, and provision of services using the funds of budget determines the necessity of calculation of budget efficiency [8].

Economic efficiency is considered to be as efficiency for the manufacturer and it involves evaluation of financial and economic activities of enterprises producing public services. As a rule, difficulties in determining cost efficiency do not occur because of using conventional evaluation methodology [2, 9, 15].

Budget efficiency is that of the system from local authorities' side. The main thing for them is the most complete fulfillment of liabilities assigned in accordance with the law at least costs [1]. In the system of public services production budget efficiency shows the influence of enterprise performance providing services on incomes and expenditures of the local budget.

From the consumers' viewpoint, system efficiency evaluation represents social efficiency. There is no unambiguous definition of the concept of «social efficiency» that causes certain problems in its definition. In broad sense social efficiency is satisfaction of population needs.

Social efficiency as well as the budget one is connected to enterprise performance providing services. From that side it shows social consequences of the company for the population in general, which are expressed in changing the level and quality of life. Social efficiency includes public importance and public utility of enterprise performance.

The social significance of enterprise performance is social-economic consequences of enterprise performance for the population in general, including consequences defined by percentage of the population which is guided by profits from sales. Social utility of enterprise performance is the degree of willingness of the population of the city to benefit from sales of the enterprise or organization, which is reflected in creating new products or their improvement provided for the public, as well as in the economic development of the city or improving environmental conditions. By the improvement of efficiency of goods, works and services we mean reducing their costs and, as a result, decreasing tariff, improving their quality, ensuring continuity of supply, expanding the target audience having access to them.

Social efficiency calculation can be represented as the ratio of the volume of consumer services to the costs of its acquisition. However when calculating social efficiency it should be considered whose needs a service satisfies.

By individual consumption we deal with self-interest of each consumer who is interested in satisfying his needs [8]. Entering into a direct relationship with the manufacturer the consumer effects on economic entity performance. Thus social efficiency is transformed into the economic one.

Methods of evaluation of the economic, budget and social efficiency of investment programs, performing production of public goods. It has been found that company is the main subject in production of public services – a manufacturer of services, economic behavior that affects and causes responses of other participants in the system.

Each of the subjects of the system has its own requirements to the quality of services provided. On the one hand, the level of customer satisfaction is a key indicator of the efficiency of services provided, because it can evaluate the level of services, i. e. social-economic indicators. On the other hand, manufacturers refer to the criterion of efficiency of technical and economic indicators.

The principle of economic efficiency should not be the main one and purpose of enterprise performance in public sphere. Herein increasing production efficiency can be achieved both by savings in operational costs and by making better use of existing capital. The most important factor in improving efficiency is a scientific and technical progress. Computer-aided manufacturing, the widespread introduction of advanced technologies, the creation and use of new materials help reduce labor and material costs, as well as an increase in production. In addition, production efficiency depends directly on cost-cutting drive. Resource conservation must become a crucial source for satisfying growing demand for fuel, energy and raw materials. Increasing production efficiency mainly depends on better use of fixed assets. Therefore increasing production efficiency is possible through the implementation of activities under the investment program of the company [14].

Project efficiency evaluation is basically necessary to determine the potential attractiveness of the project, feasibility of its adoption. It shows impersonal acceptability of the investment project from the viewpoint of economic efficiency, depending on financial capacity of its participants. In evaluating project efficiency we should take into account its social significance (social and economic efficiency), considering the scale of the investment project. Economic, social and environmental impacts of the projects influence the entire public. That is why project efficiency can be subdivided into two types: public (social and economic), which is necessary for the evaluation of socially significant projects; commercial, which evaluation is carried out in almost all the projects being implemented.

Public efficiency considers social-economic impact of investment project implementation for the whole society including both the direct costs of the project and the results of the project and the «externalities» – social, economic, and others [6].

Table presents indicators of social-economic and fiscal efficiency of the investment project in the field of public services. Calculating economic efficiency of the project it is widely used the following theoretically proved summarized indicators – NPV, IRR, PI, DPP.

To calculate social efficiency authors are invited to make additional components in the formula for calculating NPV, IRR, PI, DPP, taking into account cost savings of the population as a result of implementation of the investment project at the enterprise (OD) (watch Table). Cost savings of the population may occur as a result of the following factors:

– reduction of tariffs or prices for public services enterprises as a result of improving technology and economies of production costs;

– reduce the cost of consumers as a result of improving the quality of services, such as troubleproof, accidentfree and on-time provision of services.

The financing of such investment projects carried out by local authorities is assumed in the context of realization of public services.

If the present net value of the project is positive (NPV > 0), this means that the investment project will reimburse the cost of original budget of local governments, provide excess discounted economic benefits obtained as a result of saving production costs of public enterprises and social cost savings of the population, over the original budget expenditures.

Internal rate of return IRR is that discount rate at which the value of economic and social effects is equal to budget investment. In these conditions it is assumed that the discount rate is equal to the minimum value, i. e. risk-free rate of return, as all public services have social effects, which have qualitative nature and cannot be changed into monetary units. The value of IRR is compared with a set discount rate r. Moreover if the IRR > r, the project provides positive NPV. If IRR < r, the budget costs exceed economic and social impact measured.

Indicators of social-economic and fiscal efficiency of the investment project in the field of public services

Economic efficiency	Social and Economic Benefits	Budget efficiency
$NPV = \sum_{t=0}^{T} \frac{Дt}{(1+r)^t} - \sum_{t=1}^{T} \frac{Kt}{(1+r)^t};$ $\sum_{t=0}^{T} \frac{Дt}{(1+IRR)^t} = \sum_{t=0}^{T} \frac{Kt}{(1+IRR)^t};$ $PI = \frac{\sum_{t=1}^{T} \frac{Дt}{(1+r)^t}}{\sum_{t=1}^{T} \frac{Kt}{(1+r)^t}};$ $DPP = \frac{\sum_{t=0}^{T} \frac{Kt}{(1+r)^t}}{\sum_{t=0}^{T} \frac{Дt}{(1+r)^t}} T$ $Д_t$ – cost savings from enterprise investment project in period t; K_t – capital investments in the period t; r – The discount rate; T – the useful life of the equipment	$NPV = \sum_{t=0}^{T} \frac{Дt}{(1+r)^t} + \sum_{t=0}^{T} \frac{Дн}{(1+r)^t} - \sum_{t=0}^{T} \frac{Kt}{(1+r)^t};$ $\sum_{t=0}^{T} \frac{Дt}{(1+IRR)^t} + \sum_{t=0}^{T} \frac{Дн}{(1+IRR)^t} = \sum_{t=0}^{T} \frac{Kt}{(1+IRR)^t};$ $PI = \frac{\sum_{t=1}^{T} \frac{Дt}{(1+r)^t} + \sum_{t=1}^{T} \frac{Дн}{(1+r)^t}}{\sum_{t=1}^{T} \frac{Kt}{(1+r)^t}};$ $DPP = \frac{\sum_{t=0}^{T} \frac{Kt}{(1+r)^t}}{\sum_{t=0}^{T} \frac{Дt}{(1+r)^t} + \sum_{t=0}^{T} \frac{Дн}{(1+r)^t}} T$ $Д_t$ – cost savings from enterprise investment project in period t; $Д_п$ – cost savings from the public investment project in period t; K_t – capital investments in the period t; r – The discount rate	$NPV = \sum_{t=0}^{T} \frac{Д_б + Э_{бс} + Р_б}{(1+r)^t}$ $Д_б$ – local budget revenues in connection with the implementation of the investment program; $Э_{бс1}$ – budget savings by reducing costs due to realization of investment program, paid for from the budget; $Р_б$ – expense of the local budget for the implementation of the investment program; r – The discount rate; T – the useful life of the equipment
$r = r_f + r_{риска}$ r_f – risk-free rate of return; $r_{риска}$ – risk premium, %	$r = r_f$	

Profitability index or profitability (PI) shows relative efficiency of the project, or discounted value of the total social and economic effects of the project, based on the unit cost of investment. If PI > 1, the project is effective, i. e. save production costs and social benefits of the project exceed original budget investments, thereby ensuring positive value NPV.

Discounted payback period (DPP) is the minimum time interval from the start of the project, beyond which the integral effect becomes is non-negative in the future. In other words, this is the period (measured in months, quarters, or years), from which the initial investment costs associated with the investment project are covered by the total operating economies and social benefits.

Identification of budget efficiency of implementation of the investment project in the social sphere is made by selecting indicators from feasibility study of the investment project which are considered when calculating budget efficiency.

The value of NPV in calculating the budget will demonstrate the excess of discounted budget revenues as a result of enterprise performance and discounted budget savings over the cost of the local budget for implementation of the investment project (Table).

By revenues of the regional (local) budget in connection with the implementation of the project we imply additional tax and non-tax earnings in the regional (local) budget caused by usage of the investee.

Factors of budget savings from implementation of the investment project can be as follows:

– budget savings by reducing operating expenses – because of realization of the investment project – paid using budget funds, public subsidies and subsidies to the enterprise;

– budget savings by eliminating potential costs of the regional (local) budget for removal of negative environmental and social impacts that may occur in case of refusing to implement the investment project.

As budget savings by reducing operating costs can be considered the difference between operating costs of the local budget for the

operation of the investee prior to implementation of the investment project, and the cost of the local budget after starting implementation of the investment project for five years.

As budget savings by eliminating potential costs of the regional (local) budget for removal of negative consequences in case of non-implementation of the investment project can be considered such potential costs as:

– to eliminate the consequences of potential accidents, natural disasters;

– to provide material assistance to victims, costs of payment of fines and compensation;

– to additional costs for purchase of goods and services on the side at higher prices.

To conclude authors have examined the theoretical aspects of efficiency evaluation of the investment enterprise providing public services. Authors have proposed to use three directions to evaluate efficiency: economic, social and budget.

Social efficiency of the project investment is that due to modernization and reconstruction of existing production, net cost of service products will decrease, and consequently, it will be a decrease in economically justified tariffs or prices; at the same time it will be improved the quality of services provided for society. Budget efficiency is explained by excess of budget savings for public services over budget investments in improving economic efficiency of enterprises. Therefore it is necessary to carry out comprehensive analysis of efficiency, taking into account all elements of provision of services.

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