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Vojin Golubovic[1], M. M. Mukhamedova[2], A. N. Xembayeva[3], A. S. Kulembayeva[4]
[1]University of Donja Gorica, Montenegro
[2,3,4]Toraigyrov University, Republic of Kazakhstan, Pavlodar.

RISK ANALYSIS OF A SOCIAL INVESTMENT PROJECT

Social projects are characterized by a low level of income from implementation, but they have a very pronounced social return in favour of the welfare of the population of the region, city, district. However, such projects are also subject to risks, which level needs to be determined in order to take various corrective actions on projects. Such activities can be: conducting additional market research, choosing alternative areas for construction, choosing another contractor, etc. Also, for each project, several examinations are made, which are aimed at identifying risks based on the expert opinions of specialists, a number of indicators are calculated, one of which is budgetary and social efficiency. In the article, we will consider the main causes of project risks, types of risks, current methods for assessing the risks of social projects, and describe the boundaries of risks that affect the choice of risk management policy and monitoring system. consider The basic rules for identifying and assessing risks will be considered, as well as the rules for conducting economic appraisals of projects. Using the example of an investment social project, we will calculate indicators of sensitivity to changes in price, cost and sales volume, and also compile a matrix of profit changes under the influence of prices in relation to a certain level of risk.

Keywords: social projects, project risks, risk level, causes of occurrence, efficiency assessment, indicators of sensitivity.

Introduction

One of the problems of budget investment is the emergence of differences in the projects of republican and local purposes. They all differ both in tasks that solve a social problem, and in scale, amount of funding, complexity of organization, long-term character, etc.

The main risks of social investment projects are: the risks of non-compliance with the project implementation schedule, the risk of exceeding the amount of financing, the risk of low returns from project implementation, and others.

Comparing various social investment projects financed by the budget according to any different parameter, it is impossible to draw conclusions about the occurrence of risks when calculating efficiency and on the basis that it`s compared parameters differ from ordinary investment projects [1].

Some of the reasons for the risks of social investment projects are:

- the impossibility of determining the future development of events;
- incorrect assessment of future events due to lack of information, knowledge, skills, abilities, etc.;
- confidence in the correctness of the chosen path and unwillingness to take into account the realities;
- conscious formation of a distorted picture of the future, provided that the real forecast is known to a few;
- a fundamental reluctance to engage in forecasting the future development of events [1].

In the process of calculations, such risks may arise as formal and informal, in terms of the impact on the indicators of project items as exact and global, in terms of the level of impact on the result of the project as significant and insignificant, for the dependence on assumptions as dependent and independent. Hence, there is a need to use various methods for assessing the risks of investment projects of a social orientation, considering the results obtained in the totality.

Materials and methods

In the course of writing the article, materials of scientific articles, approved Rules and publications on the Internet were used. The study was based on methods such as a generalization of well-known risk assessment methods, a description of risk assessment methods existing in state practice, and, based on the calculations carried out for a social investment project, determining its feasibility.

Discussion results

In Kazakhstan, for the preparation and evaluation of budget projects and projects of public and private partnership, the Order of the Minister of National Economy of the Republic of Kazakhstan dated December 5, 2014 No. 129 was adopted. It is registered with the Ministry of Justice of the Republic of Kazakhstan on December 8, 2014 No. 9938 «On approval of the Rules for the development or adjustment, conducting the necessary examinations of the investment proposal of the state investment project, as well as planning, reviewing, selecting, monitoring and evaluating the implementation of budget investments and determining the feasibility of budget lending» [2]. For projects, experts prepare the Conclusion of economic expertise, Conclusion of industry expertise, expertise for a working design for construction.

To analyze budgetary efficiency, the difference between budget revenues and expenditures is calculated. The revenues to the budget include all taxes received in the future from the implementation of the project, rental income and other revenues. Outflows from the budget include the amount of investment in the project, the costs associated with the implementation of the project. At the same time, it should be taken into account that the budgetary efficiency of social projects may have a negative value due to the fact that the project is mainly aimed at solving social problems.

When describing and assessing risks, the Financial and Economic Justification of projects describes: project risks, risk management and mitigation methods. It is also advisable to develop a risk map, conduct an expert risk analysis, assess the risks of changes in the profitability of the project under the influence of indicators and determine the feasibility of the project [2].

One of the indicators for determining the risk level of an investment project is the calculation of net present value (NPV). If NPV is greater than zero, then the project should be accepted; if NPV is less than zero, then the project should be rejected. If the NPV is zero, the project is neither profitable nor unprofitable, however, such projects are not always rejected, as they allow them to maintain market share or increase the number of jobs [3].

It is also necessary to calculate the payback period and the internal rate of return of the project and discounted payback period (DPP), the period at which the project income covers the invested investments [3].

The most effective is to determine not only the value of the net present value and the internal rate of return, but also their changes under the influence of such indicators as price, cost, number of sales.

In tables 1-3, we give an example of a change in the main indicators of a social investment project, the discount rate is set at 9.75 %.

The social project focused on the region was taken as a basis, the cost of investments is more than 800 million tenge. The volume of implementation of the project cannot be exceeded due to the limited area, the prices are social and not high, the payback period of the project is long.

Table 1 – Indicators of sensitivity to price changes

Indicators	Change in selling price, %							
	-30	-20	-10	0	10	20	30	40
NPV, thousand tenge	-246163	-111119	23926	158970	294015	429060	564104	699149

IRR, %	6,1	8,2	10,1	11,8	13,4	15,0	16,4	17,8
DPP, years	Not payback	Not pay-back	20	16	14	12	11	10

Table 2 – Sensitivity of indicators to changes in sales volume

Indicators	Change in sales volume, %					
	-40	-30	-20	-10	0	
NPV, thousand tenge	-381207	-246163	-111118	23926	158970	
IRR, %	3,6	6,1	8,2	10,1	11,8	
DPP, years	Not pay-back	Not pay-back	Not pay-back	20	16	

Table 3 – Sensitivity of indicators to changes in cost

Indicators	Cost change, %							
	-30	-20	-10	0	10	20	30	40
NPV, thousand tenge	274881	236244	197608	158970	120334	81697	43060	4423
IRR, %	13,2	12,8	12,3	11,8	11,3	10,8	10,3	9,8
DPP, years	14	15	15	16	17	18	19	20

The analysis shows that with a change in price and sales volumes, the change in project efficiency indicators is almost equal, the project remains profitable only if the price or sales volume decreases by only 10 %, with a further decrease, the project becomes unprofitable. By increasing the price by 40 %, we will reduce the discounted payback period from 16 to 10 years, while NPV will increase to 540,179 thousand tenge.

With an increase in cost even by 40 %, the project still makes a profit, when a decrease in cost entails an increase in performance and a decrease in the payback period. The project is sensitive to a price reduction of 20 percent or more, increasing the risk of a shortage of budget funds allocated for the project [4].

Based on the calculated data, we will compile a risk matrix and present it in Table 4. In the matrix, everything is highlighted in colours, where red is a high level of probability, yellow is a medium level of probability, and green is a low level of probability [5].

Table 4 – The risk of changes in profits from the project under the influence of price
In thousand tenge

Probability of change	Threats				Opportunities	
0,9					158970	23926
0,7					294015	

0,5		-111119		429060		
0,3		-246163		564104		
0,1			-381208	699149		
	low	medium	high	high	medium	low

The planned net profit of the project is 111,906 thousand tenge. The probability of a decrease in profit by 111,119 thousand tenge and 246,163 thousand tenge refers to the medium level of risk, and a decrease by 381,208 thousand tenge to a low level of risk and has a low probability of occurrence. While an increase in profit to 158,970 thousand tenge is more likely than an increase to 429,060 thousand tenge, 564,104 thousand tenge and up to 699,149 thousand tenge.

Also, the budget efficiency was calculated for the project, which amounted to 3,100 million tenge in the form of tax revenues. The positive social effect of the project is the creation of additional jobs, price containment for certain products and providing the population with products at a more affordable price. The more complex the project, the more risk assessment techniques need to be used. The level of risk of a social investment project can also be assessed using the assessment questionnaire, which is shown in Table 5.

Summing up the points obtained, the risk of the project can be attributed to one of the levels:

- high (50–65 %);
- medium (30–49);
- low (0–29) [6].

Table 5 – Scorecard for assessing the risk level of the project

Estimated indicators	Score
The organization has experience in the implementation of social projects for more than 3 years	1
The organization has experience in the implementation of social projects for 1-2 years	3
The first experience in the implementation of social projects for more than 3 years	5
The organization has been operating for more than 10 years	1
The duration of the organization is 5-7 years	2
The duration of the organization is 2-5 years	3
The duration of the organization is less than 2 years	4
Has no work experience	5
There were no violations during the implementation of the previous project	1
During the implementation of the previous project, violations were recorded such as late submission of documents, exceeding the limits within acceptable values	3

The organization did not implement the funded project	5
Reports and documents have been drawn up correctly	1
There were a number of complaints about the drafting of documents	3
Reports and documents sent for revision	5
There were no violations during the monitoring of the implementation of projects	1
During the monitoring of project implementation, minor violations were identified	2
Violations of medium risk were identified	3
High-risk violations were identified	4
Monitoring was not carried out	5
All types of work were carried out under the project	1
The organization has completed most of the work	2
The organization has completed a small part of the work	3
The organization did not complete most of the work	5
The financial part is made correctly	1
Most of the financial statements are correct.	2
The financial part has a number of violations	3
The financial part is written incorrectly	4
Maintaining accounting records meets the requirements	1
Bookkeeping has a number of violations	3
Accounting practices are grossly flawed	5
The project is being implemented within the budget	1
Project costs are out of budget, reasons explained	3
Project costs are out of budget, reasons not explained	5
The organization always responds to inquiries in a timely manner	1
The organization usually responds to inquiries	3
Organization rarely responds to inquiries	5
Total	

For the project we considered, the score on the score sheet was 34 %, which determines the risks for the project as «medium» [7].

Findings.

Thus, using the proposed risk assessment methodology for social projects, it is possible to characterize the project and make a decision in favor of corrective measures to reduce the level of risk. At the «low» risk level, the project is subject to approval for financing and an assessment is made of the fulfillment of the requirements of the contracts and the timeliness of its implementation [8].

The risk level of the project under consideration was set at the «medium» level [9]. At medium and high risk levels, it is necessary to apply various risk mitigation measures and a monitoring plan is drawn up, which includes:

- identification of factors that contributed to the increase in the level of risk, which pose a threat to the implementation of the project;

- taking corrective measures to reduce the degree of risks, constant monitoring of the elimination of comments related to the current activities of the organization, social investment project or financial reporting;

- assessment of the correction of comments and subsequent monitoring of the implementation of the project in the form of cameral or field control [10].

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2 Ob utverzhdenii Pravil razrabotki ili korrektirovki, provedeniya neobhodimyh ekspertiz investicionnogo predlozheniya gosudarstvennogo investicionnogo proekta, a takzhe planirovaniya, rassmotreniya, otbora, monitoringa i ocenki realizacii byudzhetnyh investicij i opredeleniya celesoobraznosti byudzhetnogo kreditovaniya [On approval of the Rules for the Development or adjustment, carrying out the necessary examinations of the investment proposal of the state investment project, as well as planning, consideration, selection, monitoring and evaluation of the implementation of budget investments and determining the appropriateness of budget lending]. – Prikaz Ministra nacional'noj ekonomiki Respubliki Kazahstan ot 5 dekabrya 2014 goda № 129. Zaregistrirovan v Ministerstve yusticii Respubliki Kazahstan 8 dekabrya 2014 goda № 9938

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Воин Голубович[1], М. М.Мухамедова[2], А. Н.Ксембаева[3], А. С.Кулембаева[4]
[1]Университет Донья Горица, Черногория
[2,3,4]Торайғыров университеті, Қазақстан Республикасы, Павлодар қ.
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ӘЛЕУМЕТТІК ИНВЕСТИЦИЯЛЫҚ ЖОБАНЫҢ ТӘУЕКЕЛДЕРІН ТАЛДАУ

Әлеуметтік жобалар іске асырудан түсетін табыстың төмен деңгейімен сипатталады, бірақ облыс, қала, аудан халқының әл-ауқатының пайдасына өте айқын әлеуметтік қайтарымы бар. Алайда, мұндай жобалар тәуекелдерге де ұшырайды, олардың деңгейін жобаларға қатысты әртүрлі түзету шараларын қабылдау үшін анықтау қажет. Мұндай іс-шаралар мыналар болуы мүмкін: нарыққа қосымша зерттеулер жүргізу, құрылысқа балама алаңдарды таңдау, басқа мердігерді таңдау және т.б. сондай-ақ, әр жобаға мамандардың сараптамалық қорытындылары негізінде тәуекелдерді анықтауға бағытталған бірнеше сараптама жасалады, бірқатар көрсеткіштер есептеледі, олардың бірі бюджеттік және әлеуметтік тиімділік болып табылады. Мақалада жоба тәуекелдерінің негізгі себептерін, тәуекел түрлерін, әлеуметтік жобалардың тәуекелдерін бағалаудың өзекті әдістерін қарастырамыз, тәуекелдерді басқару саясаты мен мониторинг жүйесін таңдауға әсер ететін тәуекелдердің шекараларын сипаттаймыз.

Түйінді сөздер: әлеуметтік жобалар, жобалардың тәуекелдері, тәуекел деңгейі, пайда болу себептері, тиімділікті бағалау, көрсеткіштердің сезімталдығы

Воин Голубович[1], М. М. Мухамедова[2], А. Н. Ксембаева[3], А. С. Кулембаева[4]
[1]Университет Донья Горица, Черногория
[2,3,4]Университет Торайгыров, Республика Казахстан, г. Павлодар
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АНАЛИЗ РИСКОВ СОЦИАЛЬНОГО ИНВЕСТИЦИОННОГО ПРОЕКТА

Социальные проекты характеризуются низким уровнем доходов от реализации, но имеют очень выраженное социальное воздействие в пользу благосостояния населения области, города, района. Однако такие проекты также подвержены рискам, уровень которых необходимо определять для принятия различных корректирующих мер в отношении проектов. К таким мероприятиям могут относиться: проведение дополнительных исследований рынка, выбор альтернативных площадей для строительства, выбор другого подрядчика и т. д. Также по каждому проекту проводится несколько экспертиз, которые направлены на выявление рисков на основе экспертных мнений специалистов, рассчитывается ряд показателей, одним из которых является бюджетная и социальная эффективность. В статье мы рассмотрим основные причины проектных рисков, виды рисков, современные методы оценки рисков социальных проектов, опишем границы рисков, влияющих на выбор политик управления рисками и систем мониторинга.

Ключевые слова: социальные проекты, проектные риски, уровень риска, причины возникновения, оценка эффективности, чувствительность показателей.

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Торайғыров университеті
140008, Павлодар қ., Ломов к., 64, 137 каб.

«Toraighyrov University» баспасы
Торайғыров университеті
140008, Павлодар қ., Ломов к., 64, 137 каб.
8 (7182) 67-36-69
e-mail: kereku@tou.edu.kz
www.vestnik.tou.edu.kz