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ANALYSIS OF EFFICIENCY OF IMPLEMENTATION OF INVESTMENT PROJECTS IN THE REPUBLIC OF KARAKALPAKSTAN

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Abstract: The article considers the analysis of the factors influencing investment activity in the Republic of Karakalpakstan, the current state of investment activity, indicators of the impact of selected factors and the econometric analysis of the effectiveness of investment projects.

Keywords: investment, investment projects, gross domestic product, econometric models, regression equation, outcome factors.

At the current stage of development of the country's economy, the analysis of the investment climate, sources of investment resources, methods of development, as well as the renewal of fixed assets and, in particular, the efficiency of investment activities is very important. plays a role. Today, investment is seen as a key driver of economic growth, in which foreign investment in particular plays a key role in economic development, providing modern development technologies, the latest production processes, production methods, tools and management skills. With this in mind, the study of the specifics of investment processes and their results is a topical issue today.

The investment process is a very multifaceted process, influenced by many factors of great scientific and practical importance. From a practical point of view, the identification of such factors, the mechanism of their impact on investment activity and investment efficiency serves as a basis for the development of science-based investment policy and more effective management of the investment process.

There are wide opportunities for investment activities in the territory of the Republic of Karakalpakstan. A favorable environment for the development of competitive business and strengthening the financial position of the real sector of the economy are of great importance in the development of the region. Investment projects in the region include the Action Strategy for the five priority areas of development of the Republic of Uzbekistan for 2017-2021 [1] and the Concept of socio-economic development of the Republic of Uzbekistan until 2030, as well as the President of the Republic of Uzbekistan In accordance with the Resolution "On measures" [2]. It should be noted that the attraction of foreign investment in relation to domestic investment in the development of the country's economy is a topical issue today, and it should be noted that the work to create a favorable investment climate to attract foreign investment includes the following key areas:

- Attracting investors and investments for the region, financial and legal support to investors;
- providing investors with sufficient information, infrastructure development and creation of favorable conditions;
- Improving investment legislation, reducing administrative barriers.

Factors influencing investment activity can be understood as the cause of the driving force of the process, the phenomenon that determines its nature or its individual characteristics. It should be noted that most of the scientific literature has different views

on the coverage of investment activities and factors influencing investment efficiency. We can also see that the factors have been classified according to certain criteria. In particular, the classification is based on the scale of the impact, the focus on the impact, the nature of the origin, and other criteria. So, today it is important to conduct more extensive scientific research in the continuation of these tasks.

Based on world statistics, we can often cite economic factors as the main factors influencing investment efficiency, as well as observe that political and social factors are also taken into account. In addition, naturally occurring factors, including those that are not related to human activity, affect the investment activity by the nature of its occurrence [6]. In the context of the Republic of Uzbekistan, it is expedient to generalize the literary sources, taking into account their specific features, as well as to identify the main factors influencing the effectiveness of investments on the basis of personal research of the authors.

At the organizational level, the investment decision-making process is a multi-criteria process based on many factors. Naturally, the impact of these factors on investment decisions by individual organizations can vary significantly. In general, all investors want the transparency and reliability of data in any country, region or market, thereby preventing them from making negative investment decisions due to market uncertainty, lack of data and other risks.

Today, the development of investment activities in the regions requires sufficient analysis in this regard for the effective implementation of investment projects. Investment projects can be analyzed using different models. Recently, there has been a growing interest in the economy in the method of econometric modeling, which consists of quantitative expression of laws using econometric models [4,5]. Through these methods, it is possible to analyze the factors influencing the development of investment projects and their entire life cycle. It is also important to emphasize the importance of forecasting by applying this method to the investment design process.

Investment demand will play an important role in the implementation of investment activities. Investment demand can be understood as the demand of investors for funds to restore and increase their capital. It should be noted that in determining the demand for investment, more attention should be paid to other factors that affect investment activity, mainly economic factors. In this regard, cost-effectiveness factors are identified separately for each problem that needs to be addressed. They differ from each other for each enterprise management subsystem according to their technical and economic characteristics for each sector of the economy. All the diversity of efficiency factors in an enterprise can be classified according to a number of criteria [3]. Today, it is important to emphasize the importance of making investment decisions based on econometric analysis in improving the economic efficiency of investments within the state and organizations.

From an economic point of view, the source of income, profit, efficiency is some of the resources available for use. Any efficiency factor only creates the conditions to get a useful result. Real income will be available when a resource reserve is available or formed. Therefore, in addition to the main factors influencing the implementation of investment activities during the study, it is advisable to conduct an analysis of the effectiveness of the implementation of specific investment projects in certain regions. As a result of conducting economic analysis of the implementation of investment projects,

it is possible to determine the impact of certain factors affecting investment. In this sense, the study aims to study the econometric analysis of the factors affecting the volume of gross regional product of the Republic of Karakalpakstan on the basis of structural changes.

The study selected factors for investment in investment projects (ILI), employment in the Republic of Karakalpakstan (ADB) and literacy rate (ASD), which affect the change in the gross regional product (GRP) of the Republic of Karakalpakstan. The total correlation coefficients of the initially selected factors relative to the specific and outcome factors are determined (Table 1).

Table 1

Correlation coefficient of factors influencing changes in the gross regional product of the Republic of Karakalpakstan

	YHM	ILI	AIB	ASD
YHM	1			
ILI	0,883339	1		
AIB	0,901513	0,664467	1	
ASD	0,945217	0,786658	0,794294	1

The table shows that all factors in the gross regional product of the Republic of Karakalpakstan, including investment in investment projects - ILI ($r_{YHM,ILI} = 0,88334$), employment in the economy - AIB ($r_{YHM,AIB} = 0,9015$) and the literacy rate of the population - ASD ($r_{YHM,ASD} = 0,9452$) is strongly correlated. If we pay attention to the degree of correlation between the selected factors, the correlation coefficient between them ($r_{x1,x2} < 0,8$) requires that the multicollinearity does not exist and the process continues.

The analysis of trends in the volume of gross regional product of the Republic of Karakalpakstan using exponential, hierarchical, logarithmic, exponential, binomial and linear functions shows that the linear function more accurately reflects the real practice. However, since the units of measurement of the selected factors are different, it is checked on the basis of qualitative criteria, along with the formation of a nonlinear equation by logging the factor indicators (Table 2).

Table 2

Regression equations and coefficients of factors influencing changes in the gross regional product of the Republic of Karakalpakstan

Dependent Variable: LNYHM

Method: Least Squares

Date: 08/21/21 Time: 08:44

Sample: 2009 2020

Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNILI	0.012792	0.055793	0.229284	0.0044
LNAIB	1.864095	0.991629	1.879831	0.0169
LNASD	15.27996	1.157637	13.19926	0.0000
C	-113.2686	7.350319	-15.41003	0.0000

R-squared	0.994959	Mean dependent var	8.732704
Adjusted R-squared	0.993068	S.D. dependent var	0.876104
S.E. of regression	0.072941	Akaike info criterion	-2.137137
Sum squared resid	0.042563	Schwarz criterion	-1.975501
Log likelihood	16.82282	Hannan-Quinn criter.	-2.196980
F-statistic	526.3164	Durbin-Watson stat	2.818962
Prob(F-statistic)	0.000000		

Based on the values of the coefficients given in the table data, the following equation is formed:

$$\text{LnYHM} = 0,013\text{LnILI} + 1,1861\text{LnAIB} + 15,3\text{LnASD} - 113,26864 \quad (1)$$

If we consider the significance of the parameters of the defined (1) -regression equation on the t-Statistic criteria, only a literacy rate of the population - ASD ($t_{\text{ASD}} = 13.2 > t_{\text{Жад}} = 2,306$) is significant from a $t_{\text{Жад}} = 2,306$ with $\alpha = 0.05$ and $df = 8$. the significance of the remaining parameters needs to be verified with retrospective quality criteria MAPE (Mean Absolute Percentage Error) and TIC (Tayl inequality coefficient) (Figure 1).

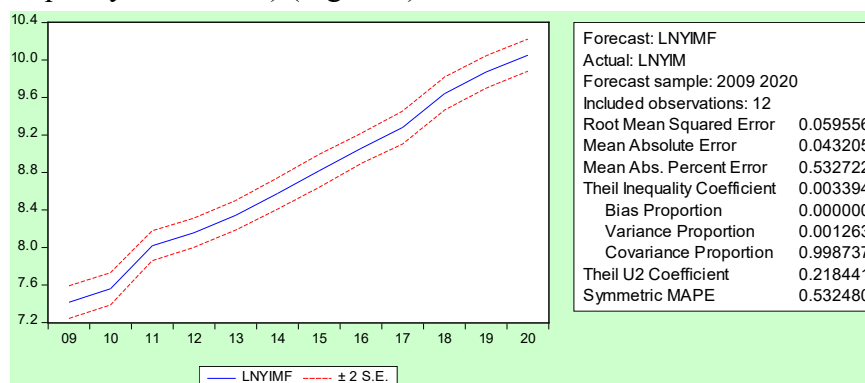


Figure 1. The result of retrospective qualitative criteria of the parameters of the regression equation

Based on the data in Figure 1, it can be noted that $MAPE = 0.533$, which means that the higher the forecast accuracy $MAPE = 0.533 < 10\%$ and the higher the forecast accuracy $TIC = 0.0034 < 1$, the greater the coefficient tends to zero (1) -regression equation the importance of all of the parameters. In order to simplify the rules of mathematics and computational processes, as well as to achieve the accuracy of the results, the above equation (1) -regression is potentiated and the following equation is formed accordingly:

$$YHM = \frac{ILI^{0,013} * AIB^{1,186} * ASD^{15,3}}{e^{113,26864}} \quad (2)$$

An economic interpretation of Equation (2), which is the result of the calculations, shows that if 1 billion soums are invested in the current investment project, the gross regional product of the Republic of Karakalpakstan will increase by an additional 0.046 billion soums. If the employment of the population in the economy is increased by 1%, the volume of gross regional product by an additional 0.83% and the literacy of the population in the region by a thousand people, there is an opportunity to increase by 2.18 billion soums.

In conclusion, it should be noted that it is advisable to pay special attention to the selected factors in the regions. This, in turn, will create the basis for the effective use of all available resources in the regions and the structural improvement of the regional economy on the basis of the rational use of these opportunities.

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