# ECONOMETRIC ASSESSMENT OF THE EFFICIENCY OF REAL INVESTMENTS IN THE ACTIVITY OF SMALL BUSINESS SUBJECTS ON THE BASE OF SCENARIOS

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**Abstract:** In the article, an econometric assessment of the trends in the formation of the financial potential of investment activities of small business entities operating in Namangan region, the institutional conditions for ensuring the effectiveness of their investment activities, and the effectiveness of real investments in the activity of small business entities was carried out based on scenarios.

**Key words:** economics, small businesses, investments, efficiency, real investments, econometric assessment.

In the process of large-scale reforms implemented in the new Uzbekistan, special attention is paid to the formation and development of a wide system of opportunities for the further development of small business and private entrepreneurship. In doing so, it is necessary to rapidly increase the volumes and scopes of real investments and, in this way, private entrepreneurship and small business, which determine the improvement of the well-being of the population of our republic, provide employment to the population, form a middle class in the society and produce exportable goods. It is planned to turn it into a leading sector that produces and brings foreign exchange earnings necessary for our economy. President of the Republic of Uzbekistan Sh. Mirziyoyev chaired the meeting of the video selector on the discussion of measures to further expand investment attraction "...in the last six months of this year, 3.6 billion dollars worth of investments have been absorbed in the networks. Due to this, a total of 50,000 new jobs and an additional income of 1 trillion soums were created in the mentioned regions. But in some regions and sectors, this indicator is low, the investment environment is unsatisfactory. Additional tasks were set to accelerate 1,500 projects in investment programs and to absorb more than 12 billion dollars of foreign investments [1]. In order to effectively solve these tasks, it is required to pay great attention to the implementation of real investments by its subjects in the development of small business and private entrepreneurship.

The mechanism of state regulation of entrepreneurship provides for its comprehensive support by the state. The state support of entrepreneurship is to create favorable conditions for all business entities engaged in entrepreneurship according to its socio-economic content and to develop entrepreneurship in harmony with other spheres of society's life. On the other hand, small and medium-sized businesses cannot develop successfully without such support. This is especially true for real investments in the mazku sector. This is not for nothing, because in the new conditions of state administration, these forms act as a structural factor of the economy. Large enterprises, which are the core of any industry, always embody the results of structural changes and in this sense represent the stable, "conservative" beginning of the economy.

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[1] On July 11, 2023, under the chairmanship of President Shavkat Mirziyoyev, a video selector meeting was held to discuss measures to further expand investment attraction . https://president.uz/uz/lists/view/6477

Small business enterprises prepare the ground for the establishment of new types of production and markets for new products, mastering scientific and technical discoveries for the first time, that is, introducing innovative achievements, performing revolutionary activities, structural changes naturally occur with the entrepreneurship of businessmen. is starting. Serious structural national economic changes occur faster and more effectively the higher the level of social conflict. Here, too, the role of small business enterprises is important, which are able to mobilely provide the population with new jobs when large enterprises are closed or reorganized.
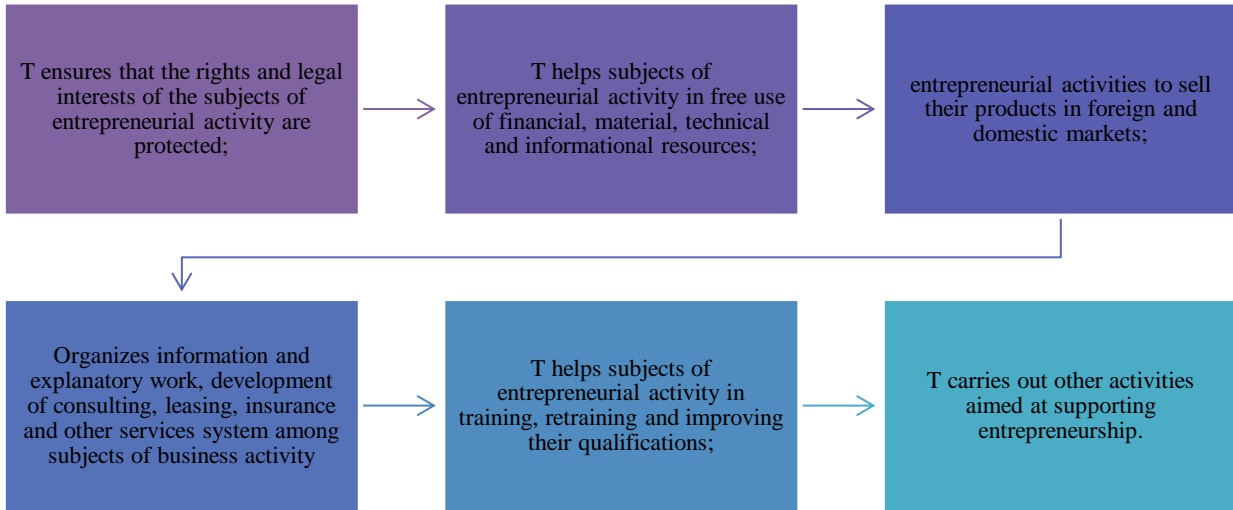
Small business enterprises in many ways increase the viability of large enterprises and their competitiveness. The high profitability of large-scale production is associated with the mass production of products and the stability of product types. At the same time, the acceleration of scientific and technical progress sharply reduces the possibilities of making constant adjustments to the technical and economic parameters of production that respond to market changes.

The giants of the assembly industry are helped to maintain their advantages and adapt to new requirements by small business enterprises, which quickly adapt the assortment of component products to the advances in science and technology. In addition, the number of such enterprises must exceed the direct needs of assembly plants, because full competition will exist only on such a basis. This is one of the main conditions for successful cooperation between small and large enterprises. The results of the research show that such relations are insufficient in our economy. All this proves that it is impossible to develop the economy without focusing on business entities.

The Republic of Uzbekistan, as an independent state, currently guarantees equal rights to all entrepreneurs and creates equal opportunities to operate, use material, technical, financial, labor, information, natural and other resources. State support of entrepreneurship is carried out on the basis of Section V. State support of entrepreneurial activity of the Law of the Republic of Uzbekistan "On Guarantees of Freedom of Entrepreneurial Activity" , in which the development of state entrepreneurship [2]in order to create favorable organizational and economic conditions for:

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[2] Law of the Republic of Uzbekistan " On guarantees of freedom of entrepreneurial activity" dated 25.05.2000 No. 69-II in the new version, https://lex.uz/docs/31846

**Figure 1. The goals of creating favorable organizational and economic conditions for the development of entrepreneurship**

These provisions of the law were the starting point for encouraging the establishment of small business enterprises. Thus, if we pay attention to the data of the Statistical Agency in the presence of the President of the Republic of Uzbekistan, it is observed that in 2022 the number of newly established small business entities has increased in all sectors of the economy compared to 2010 (Table 1). If we pay attention to the indicators of the table, in 2022, the highest rate of increase compared to 2010 will be trade ( increased by 29,450 units to 34,384) and industry (increased by 13,147 to 16,191) sectors. It can be observed that the total number of newly established small business entities in the republic has increased to 71621 due to this positive result.

**Table 1**

**The number of newly established small business entities in the sector of the economy[3]**

*(together)*

| Networks | 2010 | 2015 | 2020 | 2021 | 2022 | Change from 2022 to 2010 (+,-) |
|---|---|---|---|---|---|---|
| TOTAL | **18556** | **26896** | **93214** | **98886** | **90177** | 71621 |
| village , forest and fish economy | 2405 | 2351 | 14969 | 11710 | 12018 | 9613 |
| industry | 3044 | 5841 | 18596 | 19285 | 16191 | 13147 |
| construction | 1681 | 2850 | 6009 | 6330 | 4795 | 3114 |
| trade | 4934 | 7136 | 35213 | 38459 | 34384 | 29450 |
| transport and storage | 1485 | 1293 | 2397 | 2642 | 3355 | 1870 |
| to live and eating according to services | 2082 | 2403 | 5637 | 6621 | 5812 | 3730 |
| information and contact | 754 | 806 | 1917 | 2521 | 2617 | 1863 |

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[3] Uzbekistan Republic President Present Statistics Agency information based on the author by Created table

| | | | | | | |
|---|---|---|---|---|---|---|
| health storage and social services | 320 | 486 | 1450 | 1760 | 1498 | 1178 |
| another types | 1852 | 3730 | 7026 | 9558 | 9507 | 7655 |

However, in 2022, compared to 2021, the total number of newly established small business entities in the republic decreased by 8,709. In this regard, the enterprises whose activities were terminated at the highest level decreased by 4,075, 3,094, and 1,535, respectively, corresponding to trade, industry, and construction sectors. This can be explained mainly by the fact that now the task is to pay attention to the quality of the products being produced, not the quantity, which has led to the cessation of activities of the enterprises that cannot withstand the competition.

Based on the purpose of the research, we will carry out an econometric analysis of the efficiency of the use of investments in the limited liability company "EXTRA LUX BETA PLYUS" operating in Namangan region as a research object. For this, initially, it is intended to consider the impact of investments on the volume of products produced by "EXTRA LUX BETA PLUS" limited liability company based on 2 scenarios . output volume - production costs spent by small business entities in the region, which affects the change of Y(1) - X1, the amount of investment in the fixed capital of small business entities - X2 and the use of production capacities of small business entities - X3 factors were selected.

In order to carry out an econometric analysis of the change in the volume of products produced by "EXTRA LUX BETA PLUS" limited liability company, the correlation coefficient of the selected factors and the level of interdependence between the factors is determined in relation to the resulting factor (Table 2).

**Table 2**

**Correlation coefficient of factors affecting the change in the volume of products produced by the limited liability company "EXTRA LUX BETA PLUS" according to the 1st scenario**

| | $Y(1)$ | $X1$ | $X2$ | $X3$ |
|---|---|---|---|---|
| $Y(1)$ | 1 | | | |
| X1 | 0.997796 | 1 | | |
| X2 | 0.91203 | 0.705778 | 1 | |
| X3 | -0.86606 | -0.74799 | -0.56382 | 1 |

If we pay attention to the values of the table, the volume of products produced by the limited liability company "EXTRA LUX BETA PLUS" - production costs for Y(1) - X1 ( $r_{Y(1),X1} = 0.997796$ ) and small the volume of investment in the fixed capital of business entities - X2 ( $p_{Y(1),X2} = 0.91203$ ) is correctly connected in strong density. It was found that the productive factor and the factor of the use of production capacity of small business entities - X3 ( $r_{Y(1),X3} = 0.91203$ ) are strongly inversely connected. According to the correlation values between the selected factors, between the factors $r_{x1, x2} < 0.8$ Multicollinearity does not exist by default.

This indicates that the influencing factors have been correctly selected and the future process can be continued. To continue the process, since the measurement units of the factors are different, we can logarithmize them according to the base to bring them to a homogeneous indicator, and the regression equation between the observed relationship can be continued through the EViews program (Table 3 ).
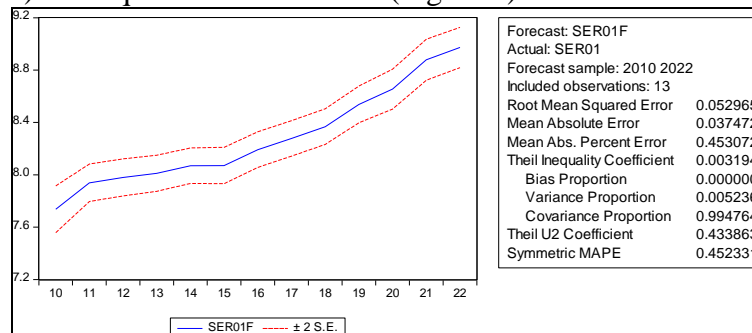
**Table 3**

**Multifactor regression equation of the volume of products produced by "EXTRA LUX BETA PLUS" limited liability company according to scenario 1**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| LNX1 | 0.210071 | 0.070816 | 2.966420 | 0.0158 |
| LNX2 | -0.438907 | 0.229948 | -1.908722 | 0.0486 |
| LNX3 | 3.082662 | 0.301834 | 10.2131 | 0.0000 |
| C | -3.414497 | 1.335193 | -2.557306 | 0.0308 |
| R-squared | 0.979273 | There is a mean dependent | | 8.283517 |
| Adjusted R-squared | 0.972364 | SD dependent | | 0.382916 |

According to the calculation results, based on the values in the coefficient column of Table 3, the following equation is created:

$$Y(1) = 0.21 LnX1 + 3.0826662 X3 - 0.44 LnIChX2 - 3.4 \quad (1)$$

If we pay attention to the significance of the parameters of the regression equation 1 determined by the criteria of t-Statistic, a=0.05 and df= 9 with the equality of $t_{Jad} = 1.8331129$ , production costs – X1 ( $t_{X1} = 2.9664 > t_{Jad} = 1.8331129$ ) and the use of production capacity X3 ( $t_{X3} = 10.2131 > t_{Jad} = 1.8331129$) parameters are significant, resulting in the insignificance of the factor of investment in the remaining fixed capital. However, considering that all these parameters are significant according to r=0.05, retrospective qualitative criteria of whether these factor parameters are actually significant or not MAPE ( Mean Absolute Percentage Error ) and TIC (Tail inequality coefficient ) are required to be checked (Figure 2).



| | |
|---|---|
| Forecast: SER01F | |
| Actual: SER01 | |
| Forecast sample: 2010 2022 | |
| Included observations: 13 | |
| Root Mean Squared Error | 0.052965 |
| Mean Absolute Error | 0.037472 |
| Mean Abs. Percent Error | 0.453072 |
| Theil Inequality Coefficient | 0.003194 |
| Bias Proportion | 0.000000 |
| Variance Proportion | 0.005236 |
| Covariance Proportion | 0.994764 |
| Theil U2 Coefficient | 0.433863 |
| Symmetric MAPE | 0.452331 |

**2 . Results of retrospective quality criteria regression parameters 1**

Based on the data presented in Figure 2, it can be noted that MAPE= 0.453 , which in turn means that MAPE= 0.453 <10 % forecast accuracy is high and TIC=0.003 2 <1 because the coefficient tends to zero so much 1 - the significance of all the parameters of the regression equation is derived. Now, based on the properties of the logarithm, the regression equation 1 created above is multiplied and the following equation is created according to it:

$$Y(1) = \frac{X1^{0,21} * X3^{3,082662}}{X2^{0,44} * e^{3,4}} \quad (1^*)$$

Now the significance of the 2*-regression equation is a=0.05 and k1= 9 ; k2= 3 taking into account that $F_{Jad} = 0.258896$ with Fisher's criterion, the Fisher value was determined from the equality of $F_{his} = 141.74$ based on the condition $F_{Jad} < F_{his}$. Since the 2*-regression equation is equal to DW=1.809, the absence of autocorrelation means that the equation is reliable and adequate.

If we interpret the regression equation (1*), if the production cost is increased by 1.0% If the volume of production by "EXTRA LUX BETA PLYUS" limited liability company increases by 18.6% and the level of utilization of production capacity by 1.0%, the production volume of the enterprise will be 431.0 mln. it was determined that it will increase to soums. But according to the results of the model, if the volume of investments in the fixed capital of the enterprise is increased by 1.0%, the production volume of the enterprise will be 38.9 mln. decrease to soum, which, in turn, means that the company is saturated with investment. If we conclude from the result, small business entities operating in Namangan region should revise the cost estimates, develop the direction of internal and external investments and measures aimed at the full use of the company's capacities as much as possible.

Studies on the use of production capacity indicate that the lack of electricity in the region is the biggest problem in this regard, and in this regard, it is recommended to use alternative energy resources, to replace the existing capital equipment with new energy-saving technologies.

According to the 2nd scenario, the volume of products produced by the limited liability company "EXTRA LUX BETA PLUS" - the net income from the sale of products of small business entities to the change of Y(1) - X1, the volume of investment in the fixed capital of small business entities - An econometric analysis of how it affects the number of total items - X3 in X2 and small business entities is carried out. For this, the correlation coefficient between the initially selected factors is determined to determine whether they are correctly obtained (Table 4).

According to the results presented in the table, the change in the volume of products produced by the resulting small business entities Y(1) - relative to the net income from the sale of products - X1 ( $p_{Y(1),X1} = 0.967269$ ), investment in fixed capital size - X2 ( $r_{Y(1),X2} = 0.91203$ ) and total items in small business entities - X3 ( $r_{Y(1),X2} = 0.872195$ ) factors are all strongly correlated between factors $r_{x1,x2} < 0.8$ multicollinearity does not exist by default. This, in turn, means that it is possible to proceed to the stage of determining the next regression equation.

**Table 4**

**Correlation coefficient of factors affecting the change in the volume of products produced by "EXTRA LUX BETA PLUS" limited liability company according to the 2nd scenario**

|       | Y(1)     | X1       | X2       | X3 |
|-------|----------|----------|----------|----|
| Y(1)  | 1        |          |          |    |
| X1    | 0.967269 | 1        |          |    |
| X2    | 0.91203  | 0.576726 | 1        |    |
| X3    | 0.872195 | 0.702438 | 0.763992 | 1  |

Research shows that small businesses and private enterprises operating in the republic today are the drivers of economic sectors and their development trends are determined through many linear and non-linear equations, in particular, exponential, graded, logarithmic, exponential, binomial and linear. it is possible to determine through functions. Based on this, at first all factors are logarithmized

according to the basis of considering that they have different gender composition and can be continued through the EViews program (Table 5).

**Table 5**

**Results of the multifactor regression equation of the volume of products produced by "EXTRA LUX BETA PLUS" limited liability company according to the 2nd scenario**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| LNX1 | 0.941223 | 0.066808 | 14.08838 | 0.0000 |
| LNX2 | 0.008491 | 0.074558 | 0.113884493 | 0.0149 |
| LNX3 | 0.038203 | 0.110381 | 0.346100 | 0.0372 |
| C | 0.302107 | 0.389304 | 0.776020 | 0.0576 |
| R-squared | 0.997648 | There is a mean dependent | | 8.283466 |
| Adjusted R-squared | 0.996864 | SD dependent | | 0.382812 |
| SE of regression | 0.021436 | Akaike info criterion | | -4.599823 |
| Sum squared resid | 0.004136 | Schwarz criterion | | -4.425993 |
| Log likelihood | 33.89885 | Hannan-Quinn criterion. | | -4.635553 |
| F-statistic | 127.2674 | Durbin-Watson stat | | 2.182688 |
| Prob(F-statistic) | 0.000000 | | | |

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

$$LnY(1) = 0{,}94LnX1 + 0{,}0085LnX2 + 0{,}04LnX3 + 0{,}3 \quad (2)$$

Based on the results of the research, if we pay attention to the significance of the parameters of the 2nd regression equation according to the criteria of t-Statistics, $\alpha=0.05$ and df= 9 while $t_{Jad} = 1.8331129$ equals only the significance of the parameter of the factor X1 ( $t_{X1} = 14.088 > t_{Jad} = 1.8331129$ ) of the net income from product sales of small business entities . Retrospective quality criteria were MAPE <10 % and TIC <1 to test whether the remaining parameters were truly
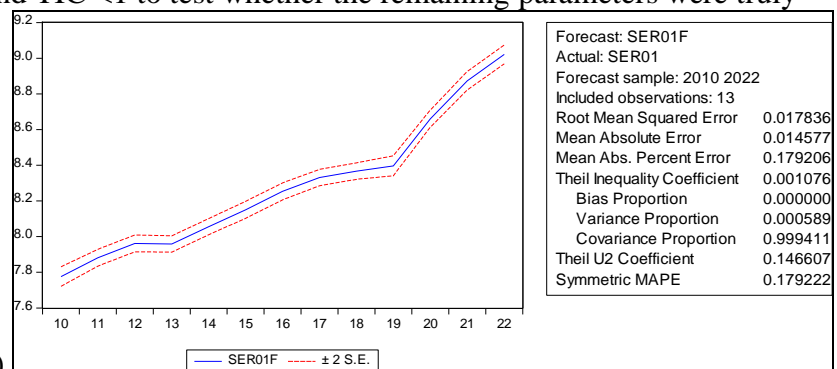


significant or not is used (Fig. 3).

**3 . 2. Results of retrospective quality criteria regression parameters**

Based on the data presented in Figure 3 , it can be noted that MAPE= 0.179 , which in turn means that the condition of inequality MAPE= 0.179 <10 % is fulfilled and TIC=0.00 1 <1 is high forecast accuracy, so all parameters of regression equation 2 are significant. Now the generated regression equation 2 is multiplied and according to it the following equation is generated:

$$Y(1) = X1^{0.94} * X2^{0.0085} * X3^{0.04} * e^{0{,}3} \quad\quad (2^*)$$

This 2*-regression equation is a=0.05 and k1= 9 ; When k2= 3 Taking into account that $F_{Jad}$ = 0.258896 , the Fisher value calculated from $F_{hys}$ = 33.899 indicates the significance of the 2*-regression equation under the condition $F_{Jad} < F_{hys}$ and DW= 2.18, since there is no autocorrelation, the equation is reliable and adequacy is derived.

According to the defined regression equation 2, if we increase the values of each of the selected factors, i.e., net income from sales, the volume of investments in fixed capital, and the number of employees in the enterprise, by 1.0 percent, then "EXTRA LUX BETA PLUS " the volume of products produced by the limited liability company is 82.5 mln. 6.8 million soums. soums and 3.5 mln. it was determined that it will increase to soum.

This means that each factor selected for increasing the production volume of the enterprise becomes important, and it is necessary to pay special attention to the issue of personnel in the enterprise, while emphasizing that increasing the labor force brings more income than other factors.

Thus, summarizing the results of all scenarios, investing in the capital of small business entities in the Namangan region is currently the most effective direction aimed at increasing employment in the sector, full operation of production facilities and, most importantly, efficient use of energy. it is possible to come to a reliable conclusion.

The process of forming the financial potential of investment activities of small enterprises is largely determined by their financial stability. The issue of making investment decisions in the financial activity of the enterprise is the basis of the economic strategy of the enterprise.

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