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Research Article

THE IMPACTING FACTORS ON SMALL BUSINESS GROWTH

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ABSTRACT

In this study, we have shown the influence of small business development in the Republic of Uzbekistan. Scientists related to the research reviewed and the results achieved by them were briefly covered. Then correlation-regression analysis method was applied in econometric modeling, and the ARIMA modeling process was used for the forecasting process. Research data was obtained from the portal of the Statistical Committee of the Republic of Uzbekistan and was implemented in the calculation process. s, determination (R^2), correlation coefficients ($r_{y/x}$), Durbin-Watson test (DW), and Fisher criterion (F-distribution) tests were used during the data analysis.

KEYWORDS

Small business, model, entrepreneurship, gross domestic product, Cobb-Douglas production function, AR model.

INTRODUCTION

Small business and entrepreneurship play an important role in the development of the

economy of our country and the well-being of the population. Today, small business and

entrepreneurship account for 55% of the gross domestic product, and 75% of the population employed in economic sectors are engaged in business entities. However, in 2000, the share of this sector in the GDP was 31 percent, and the corresponding share in employment was less than the current figure by about 1/3.

Developed services show that by supporting small businesses, they get innovative income from, and provide employment to the country's population. Statistical data shows that small business entities are the double top part of the development of the economy of management companies of the world. For example, there are about 17 million small businesses in the United States. Small businesses produce more than 50% of the gross national product.

In all sectors of the economy, except for agriculture, the rate of collection of small businesses is small by standard.

The statistical data of the European Business Association also show that small businesses are actively developing and operating effectively in the countries of the European Union. In Europe, it is 70% to 90% of all enterprises. More than half of the population of EU countries work in this field.

Small business is developing most actively in Germany. The contribution of small businesses to the country's economy is almost 100 percent of the total gross domestic product. More than the population of working age is employed at the expense of small business entities. More than 1,000 small German enterprises have become world export leaders.

Taking into account the high level of adaptability of small businesses to changes in the market economy of the world, scientific research is being conducted to support small businesses by the state, in particular, to increase the efficiency of investment in this sector. Also, by increasing the volume of investments made by small business entities, priority is being given to the scientific research being carried out in order to improve the indicator of the investment attractiveness of the industry and to create a favorable business environment for small business entities in the country.

LITERATURE ANALYSIS

During the literature review, we reviewed many studies aimed at understanding the phenomenon of small business growth. They mainly classified different approaches related to growth and

expressed the need to clarify the models. Dobbs and Hamilton divided the approaches to the study of small business growth into six broad groups: stochastic, descriptive, evolutionary, resource-based, learning, and deterministic. Also, initially, stochastic models assumed that there are many factors that influence growth and that there are no specific factors that have a dominant effect that explains the realization of growth.

Small business growth is viewed as a random phenomenon and cannot be predicted using a set of variables. In contrast, deterministic models aim to identify a set of internal and external variables that can explain small business growth by developing over time and identifying certain growth-related characteristics, strategies, and practices. In addition to these models, research has also developed life cycle models that explain business growth through the stages it goes through in its evolutionary development. In this context, growth and development are discussed taking into account the principle of life cycle development. Each of the individual stages that a business goes through in its development has its own characteristics and has its own impact on the growth of the business.

In their review of the research, Jennings and Cash note that there is a strong base of empirical research that often shows that male and female business owners differ in some fundamental ways:

- social and human capital;
- motivations;
- goals and success criteria;
- directions of growth;
- strategic choices;
- use of financial capital.

Entrepreneurial skills are based on components deeply rooted in a person's background (characteristics, personality, relationships, social role, and self-image), as well as through work experience or training and education (skills, knowledge). includes skills that can be acquired. Accordingly, there are grounds for further study of the specific powers exercised by female entrepreneurs. Indeed, recent reviews of the literature have recognized that there are many gaps in knowledge about women entrepreneurs and their businesses.

Also, transition countries show the unique characteristics of entrepreneurship: an unstable and hostile environment for business creation, a different institutional environment, a lack of traditions and experience of entrepreneurial activity, and a different context of cultural and social heritage. In addition to these characteristics, Kosovo presents a complex situation of extreme socio-economic environment as a result of its limited and transitional characteristics. Therefore, it can show a unique way of developing entrepreneurship and increase our knowledge on the subject.

METHODOLOGY

During our research, we used the data obtained from the Statistical Committee of the Republic of Uzbekistan. Also, in the study, the classical linear regression model (CLRM) of the entire small business, determination (R^2), correlation coefficients ($r_{y/x}$), Durbin-Watson test (DW) and Fisher's criterion (F-distribution) of empirical probability estimates We will look at the data.

The Cobb-Douglas production function is one of the widely used functions in economic modeling and forecasting. This function represents the

relationship between the volume of practical factors of production (labor and capital) and the volume of output. Alternatively, if you look at the factors involved in the model, you can see that it fits the Cobb-Douglas function.

ARIMA models are one of the most widely used methods for forecasting economic and social indicators.

ANALYSIS AND RESULTS

Based on the impact of several factors on the development of small business and private entrepreneurship in our country, we will analyze the results by creating econometric models and data analysis. In the course of the study, we used the total size of the total amount of construction industry as the main factor, in relation to GDP (billion soums) - Y , and the amount of construction industry (billion soums) as an influencing factor - X_1 , the amount in construction (billion soums) - X_2 , amount of investment (billion soums) - X_3 , number of people employed in KBXT - X_4 , amount of exports (thousands of US dollars) - X_5 , amount of imports (thousands of US dollars) - X_6 , amount of trade (billion soums) - was chosen as X_7 .

We performed data and econometric analysis of all variables on the basis of 2000-2021 data provided by the State Statistics Committee. As a result, in the period of 22 years, the total volume

of GDP was 104,729.6 billion soums on average and the highest amount was 403,288.6 billion soums (Figure 1).

Variable	Obs	Mean	Std. Dev.	Min	Max
Y	22	104729.6	123500.1	1009.236	403288.6
x1	22	29967.95	38039.16	244	121719.2
x2	22	15666.33	22528.7	149	77762
x3	22	27302.95	55544.28	114.8	244962.6
x4	22	8250.171	2047.485	4467.1	10541.5
x5	22	2069981	1461503	224305	4714757
x6	22	4972508	4134249	672099.3	1.50e+07
x7	22	48944.81	59366.15	760.3318	204787.4

Figure 1. Brief descriptive statistics of data

Based on the results of the research analysis, you can see that all influencing factors are strongly related to the main factor.

	Y	x1	x2	x3	x4	x5	x6	x7
Y	1.0000							
x1	0.9968	1.0000						
x2	0.9754	0.9735	1.0000					
x3	0.8527	0.8498	0.9167	1.0000				
x4	0.7347	0.7045	0.6160	0.4452	1.0000			
x5	0.8053	0.7759	0.7129	0.5366	0.9148	1.0000		
x6	0.9477	0.9332	0.9167	0.7527	0.7924	0.8846	1.0000	
x7	0.9966	0.9939	0.9872	0.8858	0.7024	0.7718	0.9341	1.0000

Figure 2. Correlation analysis matrix

However, as a result of the pair correlation analysis, two influencing factors, i.e. the amount of investment (billion soums) - X3 and the number of people employed in KBXT - X4 are weakly connected with each other (Fig. 2). We will build a p-factor linear regression model.

. reg Y x3 x4

Source	SS	df	MS	Number of obs	=	22
Model	2.8326e+11	2	1.4163e+11	F(2, 19)	=	72.65
Residual	3.7040e+10	19	1.9495e+09	Prob > F	=	0.0000
				R-squared	=	0.8844
				Adj R-squared	=	0.8722
Total	3.2030e+11	21	1.5252e+10	Root MSE	=	44153

Y	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
x3	1.457535	.1937174	7.52	0.000	1.05208	1.86299
x4	26.71429	5.255174	5.08	0.000	15.71508	37.7135
_cons	-155462.9	42334.05	-3.67	0.002	-244069	-66856.66

Figure 2. Correlation analysis matrix

However, as a result of the pair correlation analysis, two influencing factors, i.e. the amount of investment (billion soums) - X3 and the number of people employed in KBXT - X4 are weakly connected with each other (Fig. 2). We will build a p-factor linear regression model.

$$Y = -155462.9 + 1.4575 * x3 + 26.7142 * x4 + \varepsilon$$

You can see that the shape of the constructed model is correct and significant when we conclude by Fisher's criterion. Based on the direct Fisher's p-value, the coefficient of determination is significant and $R^2=0.884$, which means that the model is close to the real value by 88%.

Also, if we analyze the parameters of the model in the t-critical student value, you can see that all the coefficients are reliable. Alternatively, if you look at the factors involved in the model, you can see that it fits the Cobb-Douglas function.

. reg LY LL LK time

Source	SS	df	MS	Number of obs	=	22
Model	75.2065975	3	25.0688658	F(3, 18)	=	1053.28
Residual	.428414775	18	.023800821	Prob > F	=	0.0000
				R-squared	=	0.9943
				Adj R-squared	=	0.9934
Total	75.6350123	21	3.60166725	Root MSE	=	.15428

LY	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
LL	2.322778	.3252648	7.14	0.000	1.639422 3.006134
LK	.1845332	.1626477	1.13	0.271	-.157177 .5262434
time	.1331291	.0541349	2.46	0.024	.0193958 .2468624
_cons	-13.54337	2.721465	-4.98	0.000	-19.26095 -7.82578

Figure 4. Regression analysis result

In this context, if we take the total size of the KGBT, the amount in relation to GDP as Y, the amount of investment (billion soums) - X3 as K and the number of people employed in KGBT - L as X4, we will build the model improved by J. Tinbergen.

We used the improved form of the Cobb-Douglas production function by J. Tinbergen. We took the impact of scientific and technical development at the level of g on economic growth in t periods and expressed it in the following form.

$$Y = A \times K^m \times L^{(1-m)} \times e^{g \cdot t}$$

As can be seen from this equation, the relationship between production, two costs and scientific and technical progress is nonlinear. However, this model is linearized by natural logarithm:

$$\ln Y = \ln A + \alpha \cdot \ln K + \beta \cdot \ln L + g \cdot t \cdot \ln e$$

$$= B + \alpha \ln K + \beta \ln L + \omega \cdot t, \quad \text{бунда } B = \ln A \text{ ва } g = \omega$$

Thus, the written model B, α, β, and ω parameters are linear and therefore it is a linear regression model. It should be noted that the variables Y and

K, L were non-linear, but after natural logarithm, these variables became linear. Briefly, equation (7) is a log-log, binomial log, or log linear model.

However, if we look at the results of Figure 4, the investment amount (billions of soums) K has an unreliable coefficient based on the t-student

criterion. Taking this into account, we use the Cobb-Douglas function improved by R. Solow.

. reg LY LL LK

Source	SS	df	MS	Number of obs	=	22
Model	75.0626571	2	37.5313285	F(2, 19)	=	1245.90
Residual	.572355208	19	.030123958	Prob > F	=	0.0000
				R-squared	=	0.9924
				Adj R-squared	=	0.9916
Total	75.6350123	21	3.60166725	Root MSE	=	.17356

LY	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
LL	2.351587	.3656918	6.43	0.000	1.586186	3.116989
LK	.5713078	.0466381	12.25	0.000	.4736931	.6689224
_cons	-15.53331	2.923233	-5.31	0.000	-21.6517	-9.414909

Figure 5. Regression analysis result

As a result of the above regression analysis, our model was created in the following form:

$$Y = (1,79461E - 07) * K^{0,5713078} * L^{2.351587}$$

. reg LY LL LK

Source	SS	df	MS	Number of obs	=	22
Model	75.0626571	2	37.5313285	F(2, 19)	=	1245.90
Residual	.572355208	19	.030123958	Prob > F	=	0.0000
				R-squared	=	0.9924
				Adj R-squared	=	0.9916
Total	75.6350123	21	3.60166725	Root MSE	=	.17356

LY	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
LL	2.351587	.3656918	6.43	0.000	1.586186	3.116989
LK	.5713078	.0466381	12.25	0.000	.4736931	.6689224
_cons	-15.53331	2.923233	-5.31	0.000	-21.6517	-9.414909

Figure 6. Regression analysis result

If we analyze the constructed model, the coefficient of determination is equal to 0.99, the value of Fisher's criterion is 1245.9, which means that the selected model form is correct and significant, and all the coefficients found are t-student criterion. reliable on.

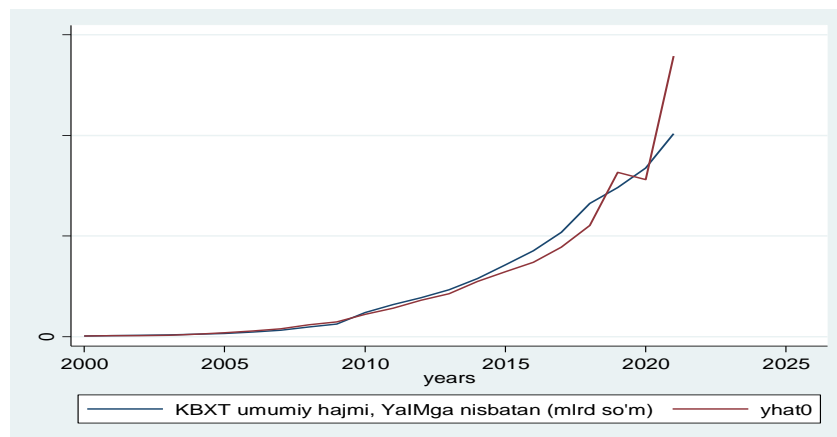


Figure 7. The total volume of GDP, the amount in relation to GDP and the estimated Y value of the constructed model

If we compare based on the graph, the calculated Y value of the model is 99 percent close to reality based on probability.

. reg LK L.LK

Source	SS	df	MS	Number of obs	=	21
Model	87.0552478	1	87.0552478	F(1, 19)	=	2047.83
Residual	.807707113	19	.042510901	Prob > F	=	0.0000
				R-squared	=	0.9908
				Adj R-squared	=	0.9903
Total	87.8629549	20	4.39314775	Root MSE	=	.20618

LK	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
LK					
L1.	1.008556	.0222871	45.25	0.000	.9619085 1.055203
_cons	.2944899	.1891825	1.56	0.136	-.1014736 .6904534

Figure 8. The regression analysis result of the AR(1) model

Also, continuing the econometric modeling, we will find the future forecast values of the K and L variables involved in the model. In this case, we use n-order autoregression models (AR).

Based on the analysis result, all values of the AR(1) model are positive. Based on this, the form of the model was as follows:

. reg LL L.LL

Source	SS	df	MS	Number of obs	=	21
Model	1.29803765	1	1.29803765	F(1, 19)	=	2021.55
Residual	.012199886	19	.000642099	Prob > F	=	0.0000
				R-squared	=	0.9907
				Adj R-squared	=	0.9902
Total	1.31023754	20	.065511877	Root MSE	=	.02534

LL	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
LL						
L1.	.8996358	.0200089	44.96	0.000	.8577566	.941515
_cons	.9391927	.1796086	5.23	0.000	.5632677	1.315118

Figure 9. The regression analysis result of the AR(1) model

$$AR(1) = 0,2944899 + 1,008556 * L1.LK \quad (10)$$

If we pay attention to the result of the above regression analysis, the results of this model are also composed of positive values. When creating a lag model, it had the following form.

$$AR(1) = 0,9391927 + 0,8996358 * L1.LL$$

years	K	L	lb0	yhat2	ub0
2021	244962.7	10070.67	388510.8	557630.6	800368.7
2022	365681.8	10213.64	498271.5	724691.8	1054000
2023	547766.8	10344.01	637102	940515.8	1388428
2024	823359.4	10462.71	812452.6	1219373	1830101
2025	1241931	10570.65	1033696	1579802	2414419
2026	1879892	10668.72	1312644	2045921	3188826

Figure 10. Medium-term forecast values

Also, based on the above model 9, before finding the forecast value of the total volume of GDP, the amount compared to GDP, we can find the standard error of the forecast and the value of t -critical=1.7291328. Then we find the interval of change of forecast value. Based on the results of the analysis, the total size of the KBXT, compared to GDP, will most likely be 724,691.8 billion soums in 2022, and this figure will reach 2,045,921 billion soums by 2026.

CONCLUSIONS

Based on the research of the trends and problems of sustainable development of small business and private entrepreneurship in Uzbekistan, the following conclusions were drawn:

During the years of independence, as a result of the reforms aimed at the development of small business and private entrepreneurship in our country, including increasing the investment attractiveness of this sector, today the share of small business and private entrepreneurship in GDP is higher than the indicators of most countries with developed market economies;

As a result of the implementation of targeted state programs aimed at further strengthening the

participation of small business and private business entities in foreign economic activities and stimulating the supply of competitive products to the world market, more than half of the product exports in regions such as Khorezm, Namangan, Syrdarya, Samarkand, Surkhandarya and Bukhara part corresponds to the share of small business and private entrepreneurship.

Also, based on the results of the research, the total investment amount of KBXT (billion soums) will be 365,681.8 billion soums in 2022, and this indicator will reach 1,879,892 billion soums by 2026. and if the number of people employed in KBXT equals 10,213 in 2022 and 10,668 in 2026, the total size of KBXT, its amount about GDP, may increase to the above-mentioned amount. At the same time, there is a possibility that the total volume of GDP about GDP will change from 498,271.5 billion soums to 1,054,000 billion soums in 2022. The forecast value 2026 of the total volume of GDP about GDP may fluctuate between 1,312,644 billion soums and 3,188,826 billion soums.

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