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ANALYSIS OF THE ACTIVITIES OF SMALL BUSINESS AND ENTREPRENEURIAL ENTITIES IN THE REPUBLIC OF UZBEKISTAN

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Abstract:

The main important feature of SME activities in the Republic of Uzbekistan is that it shapes the competitive environment and directly contributes to the high level of economic development achieved today

Keywords:

INTRODUCTION

The main important feature of SME activities in the Republic of Uzbekistan is that it shapes the competitive environment and directly contributes to the high level of economic development achieved today. In accordance with the decree of the state leader on the strategy for further development of the Republic of Uzbekistan issued on February 7, 2017, No. 4947, important tasks have been defined in the direction of "Creating new jobs, ensuring employment of graduates of general, secondary specialized, and higher educational institutions as a priority, developing the labor market and infrastructure, reducing unemployment." Effective implementation of these tasks requires the enhancement of mechanisms to support small business entities by the state through analyzing statistical data.

Public events and processes in SME activities are observed in various areas and regions, each having its own circumstances and structure. Therefore, incidents and processes differ in many forms and types. Particularly, incidents and processes in social life are characterized by their complexity and numerous interconnections. For this reason, statistical regulations manifest in various forms and describe different aspects. Indeed, there is no single method to study them. Special methods, a collection of approaches, and tools of knowledge are required for this purpose.

As a result of the implementation of the program on the priority directions for the development of the industrial sector of the Republic of Uzbekistan, the Investment Program of 2011, the program to localize production in 2011-2013, the programs for modernizing economic sectors, regional programs for socio-economic and industrial development, and the network programs for technical and technological renovation, the volume of industrial products (goods, services) produced by SME entities reached 10,132.9 billion Uzbekistani sums. The share of industrial products (goods, services) in the total production volume accounted for 26.6%.

The volume of rural industrial products (goods, services) produced by SME participants amounted to 31,900.4 billion Uzbekistan sums, constituting 97.4% of the production volume in the rural industrial sector. Similarly, in 2020, their share in the total rural industrial production reached 55.7%, encompassing 9,938.2 thousand individuals engaged in small business enterprises (accounting for 75.1% of the total number of individuals in small businesses), with the volume of industrial products (goods, services) manufactured by them amounting to 100,796.9 billion Uzbekistan sums, constituting 27.5% of the production volume in the industrial sector. Furthermore, the volume of rural industrial products (goods, services) produced by SME participants reached 252,485.7 billion Uzbekistan sums, making up 97.0% of the rural industrial production volume. Additionally, the volume of market (provided) services produced by SME entities amounted to 112,743.5 billion Uzbekistan sums, constituting 51.5% of the service sector's production volume.

ANALYSIS OF THE RELEVANT LITERATURE

It is necessary to note that scholars who are the foundation of the field of economics have provided the following definitions for entrepreneurship:

The renowned economist Adam Smith defines entrepreneurship as follows: "An entrepreneur is someone who owns capital and initiates work based on

World Bulletin of Social Sciences (WBSS)
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Vol. 25, August 2023
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the foundation of confidence, implementing a specific commercial idea with the goal of generating income."

American economist Joseph Schumpeter, on the other hand, defines an entrepreneur as an innovator in his works.

Another American scholar, R.S.Ronshtadt, emphasized that entrepreneurship is a dynamic process of increasing abundance.

Based on the above-mentioned ideas and our own research findings, we can provide the following definition for entrepreneurship: Entrepreneurship is characterized by an individual who, with a certain amount of financial resources, confidently pursues new ideas, products, services, and ventures, relying on their initiative.

J.M. Keynes directed economic regulation and the newly emerging monetary theory towards organizing the economy, especially under the conditions of monopolistic production. Until the 1970s, most countries that developed their industries established the basis of their fiscal policies according to Keynesian theory, shaping the initial conditions (points) of that theory.

This can be observed in the practice of many developed countries. For instance, in the United States, with the establishment of the Small Business Administration in 1953, and in Japan, where a national central agency for promoting small and medium-sized businesses was created, such agencies emerged for the first time at the end of the 1940s. These agencies are typically managed by the government's department overseeing small and medium-sized enterprises. In the United States, the "Small Business Act" was passed in 1953, stating that "the security and prosperity of the nation depends upon the existence and the success of small business."

METHODOLOGY

In recent years, in several countries that are developing based on the modern market economy, the progress of SME activity is being studied through the application of economic-mathematical models in the context of modern market economics. These studies aim to reveal the developments in SME activities by using various economic-mathematical models and applying them through linear regression models, multi-variable models, and other methods.

In this context, the fundamental mathematical tools for addressing these issues include mathematical statistics, correlation, and regression analyses. Correlation-regression analysis methods primarily address the following three tasks: identifying the form of the relationship between dependent and independent variables; determining the degree of relationship between them; and identifying the impact of each independent variable. Through the analysis of concrete economic problems, we will clarify how to address these issues.

In effectively modeling socio-economic issues using correlation-regression analysis methods, the selection of the most suitable forms of relationships between variables being studied plays a significant role. In this section, we introduce the system of normal equations generated using the least squares method to determine the unknown parameters in the mathematical models of regression functions commonly used in various cases.

When selecting the form of the regression equation, attention should be paid to the following:

1. The general form of the relationship, its nature, and its conformity with the specific characteristics of the connection should be in line with professional understanding.

2. In interpretation and practical usage, it's advisable to use simpler forms of equations that are easy to interpret. The graphical representation of initial data, such as scatter plots, and the empirical lines of regression in graphical displays can be helpful in selecting the form of regression equations.

In the evaluation of results of correlation-regression analysis as well as in practical research, factors that are taken into account include the reliability of correlation and regression analysis outcomes among the variables. To evaluate the confidence in these results, the Fisher's Z distribution, Student's distribution, and Fisher's F distribution are commonly employed.

Fisher's Z distribution is used to assess the reliability of both correlation and regression analysis in checking the authenticity of the results by means of a logarithmic function.

$$Z = \frac{1}{2}\ln\left(\frac{1+r}{1-r}\right) \quad \left(r = r_{yx}\right) \tag{3.1}$$

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Vol. 25, August 2023
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recommended its usage. In this context, "r" represents the sample distribution correlation coefficient. The Z distribution closely approximates a normal distribution in cases where the sample size "n" is greater than 30. The standard error of Z, denoted as "SE(z)", is determined using the following formula:

$$\sigma_Z = \frac{1}{\sqrt{n-3}} \quad (3.2)$$

The mean squared error is dependent solely on the sample size. The conversion from "r" to "Z" is carried out using specific tables, facilitating the assessment of the reliability of the correlation-regression analysis outcomes.

Student's "t" distribution is another tool. This distribution is specifically designed for small sample sizes. The "t" distribution is utilized with the following formula:

$$t = \frac{\bar{x} - m}{\sigma_x} \cdot \sqrt{\gamma + 1} \quad , \quad (3.3)$$

In this context:
- "t" represents the calculated value.
- "n" is the number of degrees of freedom (sample size - 1).
- "x̄" is the mean of the sample sum of products.
- "s²" is the sample variance.

For testing paired correlation results, the following principle from Student's t-distribution theory is used:

Given a specified degree of confidence, this principle is utilized to test the null hypothesis that the population correlation coefficient of two variables, both normally distributed, is zero against the alternative hypothesis.

$$T_{хисоб} = \frac{r_T - \sqrt{n-2}}{\sqrt{1 - r_T^2}}. \quad (3.4)$$

To calculate the observed value of the statistic and find the critical point of the two-tailed critical region from the Student distribution table based on the given degree of confidence and the number of degrees of freedom "n - 2."

To find the critical point of the critical region, utilize the value of the degree of significance and the degrees of freedom "n - 2" for the Student distribution table.

$$t_{Kp}(\alpha, k) = t_\alpha ; n-2$$

If $\left|t_{кузат}\right| > t_{\alpha;n-2}$, the null hypothesis is rejected, indicating that there is correlation between variables "x" and "y."

If $\left|t_{кузат}\right| < t_{\alpha;n-2}$, there is no basis for rejecting the null hypothesis. In this case, it is implied that variables "x" and "y" are not correlated. In the formula (3.2.4) mentioned earlier, "n" represents the number of observations, "r" is the sample correlation coefficient, and the value of "t" is obtained from the Student distribution table.

Based on the data in the following table, we proceed with correlation-regression analyses.

The linear function of a four-variable econometric model can be expressed as follows:

$$Y = a_0 + a_1 X_1 + a_2 X_2 + a_3 X_3$$

The logarithmic-linear form of the model is as follows:

$$\ln y = \ln a_0 + a_1 \ln x_1 + a_2 \ln x_2 + a_3 \ln x_3$$

• In modeling, we perform the following tasks:

World Bulletin of Social Sciences (WBSS)
Available Online at: https://www.scholarexpress.net
Vol. 25, August 2023
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• Determine the parameters of the regression equation using the least squares method. (We perform this in the Microsoft Excel program.)

We verify the reliability of the obtained regression equation based on the following measures:

a) Coefficient of determination;

b) Fisher's F distribution;

c) Student's t distribution.

Through the Fisher's F distribution, we can test the complete adequacy of the model, i.e., assess its suitability for the actual economic process.

$$F_{\text{хисоб}} = \frac{R^2(n-m-1)}{(1-R^2)m},$$

bWhere "n" is the number of observations;

"m" is the number of influencing factors in the model;

"R2" is the coefficient of determination.

The calculated value of the Fisher distribution is compared with the table value. To find the Fisher coefficient in the table, determining the row and column is necessary:

$k_1 = n - m - 1$ and $k_2 = m$. If $F_{\text{хисоб}} > F_{\text{жадвал}}$, A constructed econometric model is considered statistically significant or adequately fitting (adequate) to the observed data. If $F_{\text{хисоб}} < F_{\text{жадвал}}$, A constructed econometric model is considered statistically insignificant or not adequately fitting to the observed data. In this case, a linear econometric model is replaced with a non-linear econometric model

ANALYSIS AND RESULTS

According to the information provided by the Ministry of Labor and Social Protection, in 2020, approximately 9,938.2 thousand individuals were engaged in SME activities in our republic. (Table 1).

Based on the analysis of the main indicators of SME development in Uzbekistan from 2010 to 2020, as presented in Table 1, it is observed that in 2010, the proportion of micro and small business development (MSB) accounted for 52.5%. The number of individuals engaged in MSB with limited liability was 8,643.9 thousand (constituting 74.3% of the total number of individuals engaged in MSB).

This indicates that within the framework of the program to create jobs and ensure employment, it was possible to implement targeted measures based on the main directions, confirming the projected parameters for policy implementation.

1-Table
The main indicators of SME development in the Republic of Uzbekistan from 2010 to 2020 are as follows:

Indicators	Unit of measurement	Years										
		2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
The level of micro and small business development (MSB)	Percentage	52,5	54,0	54,6	55,8	56,1	56,5	56,9	63,6	59,4	56.5	55,7
Also:												

World Bulletin of Social Sciences (WBSS)
Available Online at: https://www.scholarexpress.net
Vol. 25, August 2023
ISSN: 2749-361X

The number of individuals engaged in small business	Thousand people	8643,9	8950,7	9239,7	9604,0	9950,8	10170,4	10 392,5	10541,5	10128,8	10313,4	9938,2
The percentage of those engaged in limited liability small business out of the total number of individuals engaged in small business with limited liability.	Percentage	74,3	75,1	75,6	76,7	77,6	77,9	78,1	78,0	76,3	76,2	75,1
Volume of industrial products (goods, services) manufactured by SME entities	Billion sums	10132,9	13586,8	17114,6	23312,0	30907,0	39643,5	50654,5	61367,8	87962,0	83344,2	100796,9
The proportion of industrial products (goods, services) manufactured by SMEs in the total industrial production volume.	Percentage	26,6	28,6	29,7	33,0	36,8	40,6	45,3	41,2	37,4	25,8	27,5
The volume of rural entrepreneurship products manufactured by SME entities.	Billion sums	31900,4	46704,5	56926,6	67510,7	82957,2	101197,5	118011,4	152010,5	191767,5	219466,9	252 485,7
The proportion of rural entrepreneurship products manufactured by SMEs in the total rural entrepreneurship production volume.	Percentage	97,4	97,2	97,2	97,3	97,5	98,0	98,6	98,5	98,3	97,9	97,0
The volume of market services (specified) provided by SME entities.	Billion sums	15214,1	19556,5	24841,8	31409,1	40187,9	47269,6	61346,2	69212,7	84433,4	103106,6	112 743,5
The proportion of market services provided by SMEs in the total market services volume.	Percentage	56,1	55,6	56,0	56,2	59,1	60,2	63,2	58,3	56,0	53,2	51,5

The established enterprises and the primary part of job creation have aligned well with the automobile, oil and gas, construction and metallurgy, textile, light, and chemical industry sectors. In 2011, a total of 828 production facilities were launched in the country, including 279 in the food industry, 201 in the light industry, 234 in the production of building materials, 12 in machinery, 36 in recycling, 8 in the chemical industry, 3 in pharmaceuticals, and 55 in other industrial sectors.

The provided table shows that the export of goods and services by SME entities amounted to 3,100.6 billion Uzbekistani sums in 2020, which is an increase from 3,343.3 billion Uzbekistani sums in 2000. This marks an increase of 2,766.3 billion Uzbekistani sums in 2020 compared to 2000. The highest growth rate in 2020 compared to 2000 was in Tashkent city, with the export volume of SME entities reaching 582.3 million USD, followed by Tashkent region with 495.0 million USD, Fergana region with 318.8 million USD, Andijan region with 253.3 million USD, Namangan region with 195.3 million USD, and the lowest growth in Navoi region with 50.1 million USD, Jizzakh region with 76.4 million USD, Karakalpakstan Republic with

World Bulletin of Social Sciences (WBSS)
Available Online at: https://www.scholarexpress.net
Vol. 25, August 2023
ISSN: 2749-361X

78.8 million USD, Bukhara region with 100.2 million USD, and Kashkadarya region with 110.6 million USD.

As a result of establishing meat and dairy as well as fruit and vegetable processing facilities for export purposes in the agricultural sector, the creation and reconstruction of 55 refrigeration chambers with a capacity of 56.4 thousand tons and providing employment for 19.7 thousand people became feasible.

The export structure of goods and services by SME entities increased by 10.3 percent in 2020 compared to 2000 (see Figure 18).

In Table 19, the import of goods and services by SME entities amounted to 10,972.7 billion Uzbekistani sums in 2020, which is a 16.3-fold increase compared to 2000 when it was 807.4 billion Uzbekistani sums.

The export of goods and services by SME entities reached 3,100.6 billion Uzbekistan sums in 2020, while the import accounted for 10,972.7 billion Uzbekistan sums, and the foreign trade balance was -7,872.1 billion Uzbekistan sums. In 2000, the export of goods and services amounted to 334.3 billion Uzbekistani sums, and the import was 807.4 billion Uzbekistani sums, resulting in a foreign trade balance of -473.1 billion Uzbekistani sums. From 2000 to 2020, the export structure of goods and services by SME entities in the Republic of Uzbekistan increased from 22.8% to 51.8% (see Figure 20). The highest share of imports of goods and services by SME entities in the Republic of Uzbekistan is observed in Jizzakh, Surkhandarya, Namangan, Syrdarya, Khorezm, Samarqand regions, and Tashkent city.

Our current experience shows that SME consistently operates in conjunction with both state and local self-governing bodies, with the necessity of support and strengthening. The analysis of monitoring data in Uchtepa district of Tashkent city on SME entities in the construction field demonstrates that 28.6% of respondents consider the economic situation as high, 54.4% as satisfactory, 12.2% as low, and 4.4% as unsatisfactory. Additionally, 0.4% believe that such opportunities do not exist at all. In the trade sector, these percentages are 33.5%, 41.8%, 14.7%, 6.8%, and 3.2%, respectively. In the service sector, the percentages are 24.5%, 58.8%, 10.7%, 4.8%, and 1.2%. In the industrial sector, the percentages are 10.5%, 40.4%, 29.1%, 18.2%, and 1.8%.

The economic situation is expected to improve in the next three months, with industrial enterprises at 64.3%, trade at 65.6%, services at 60.6%, and the construction sector at 62.7% anticipating improvement. Based on the analysis results, it can be concluded that respondents perceive a positive assessment of the anticipated improvement of the overall economic situation soon as a result of the measures taken to improve the business environment for newly established small enterprises and microforms.

In the Republic of Uzbekistan, the government aims to establish a series of requirements for regulating and supporting the activities of SME sub-entities:

• Our Republic aims to accept and oversee key documents that enable the sustainable development and independent operation of entrepreneurial entities, ensuring legal protection and regulation of SME activities, as well as monitoring the acceptance and implementation of important documents that facilitate the stable development and independent operation of business entities.

• Establishing conditions for citizens' voluntary participation in entrepreneurial activities, increasing their benefits from such activities, preserving their legal rights and benefits, and ensuring the security of entrepreneurial activities;

• Promoting and supporting small business and entrepreneurship through incentives, fair competition, and improving infrastructural services through various economic measures;

• Formulating state orders for products of strategic importance and providing stable demand for these products, thus ensuring their continuous demand;

• Providing advice on equal conditions for entrepreneurs to use the information security system, finding effective solutions to economic issues, advising on resource and raw material supply, advanced technology and technological use;

2-Table

Forecasting based on factors affecting the volume of net turnover from the sale of products (goods, works, and services) by SME sub-entities

Years	Net turnover from the sale of products (goods, works, and services) by SME	Year-end assessment based on the initial (revaluation) value of main	Volume of industrial products (services) manufactured by	Volume of construction works carried out by SME entities, billion so'm (X3)	Number of unemployed individuals in SME, thousand people (X_4)

World Bulletin of Social Sciences (WBSS)
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	sub-entities, billion sums (Y) (2020 year revaluation ratings)	assets, billion sums (X_1) (2020 year revaluation ratings)	SME entities, billion so'm (X2) (2020 year revaluation ratings)	(2020 year revaluation ratings)	
2005	107795,8	17551,0	44639,2	9169,4	6602,5
2006	115880,4	19183,3	47406,8	10544,8	7234,1
2007	126889,1	24132,6	50535,7	12233,0	7743,1
2008	138309,1	32361,8	53972,1	12904,7	8071,1
2009	149512,1	40387,5	56184,9	17318,2	8370,1
2010	160127,5	42083,8	59499,9	18201,4	8643,9
2011	172137,0	43178,0	62117,9	19621,1	8950,7
2012	184358,7	47754,8	65658,6	22309,2	9239,7
2013	197816,9	53151,1	70583,0	26146,4	9604
2014	211466,3	58360,0	73759,2	30748,1	9950,8
2015	226691,9	63845,8	77668,4	36528,8	10170,4
2016	240066,7	66463,5	81784,9	39158,7	10397,5
2017	250629,6	79357,4	86037,7	41508,4	10541,5
2018	264163,6	103085,2	95329,7	47444,1	10128,8
2019	279220,9	142360,7	100096,2	58308,8	10313,4
2020	283967,7	130687,1	100796,9	63614,9	9938,2

• Organizing and regulating new forms of selling small business entity products in external markets, protecting the interests of entrepreneurs in international markets, and creating a favorable economic environment for export through privileged customs definitions and taxes;

• Implementing measures aimed at promoting fair competition, creating a competitive environment, and utilizing effective tools against unhealthy competition and monopoly.

The table presents initial data related to the economy of the Republic of Uzbekistan, which require conducting factor analysis based on the use of the multivariate regression model.

Here: Y - Revenue from the sale of goods, works, and services by SME sub-entities, million Uzbekistan sums

X_1 –Assessment of the initial value of main assets at the end of the year, million Uzbekistan sums.

X_2 – Volume of industrial products (goods, services) manufactured by SME subsidiaries, million Uzbekistani sums;

X_3 - - Volume of construction works carried out by SME subsidiaries, million Uzbekistani sums;X_4 - SMEda band bo‘lganlar soni, ming kishi.

It seems you're referring to regression analysis results, particularly involving the Cobb-Douglas production function and its relation to the volume of products (goods and services) manufactured by small businesses and private enterprises in the Republic of Uzbekistan. However, I can't see the content of the 3rd table or the specific regression analysis results you mentioned. If you provide the content of the 3rd table or the details of the regression analysis, I'd be happy to assist you further.

3-Table

Regression statistics	
plural R	0,999599
R-squareq	0,999199
Normalized R-squared	0,998907
Standard error	0,018027
observation	16

Analyses of variance					

World Bulletin of Social Sciences (WBSS)
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	df	*SS*	*MS*	*F*	*Significance of F*
Regression	4	4,457056226	1,114264057	3428,763297	6,07823E-17
residual	11	0,00357473	0,000324975		
total	15	4,460630957			

	coefficients	*Standard error*	*t-statistika*	*P-Znachenie*	*lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Y-intersection	-0,58695	0,060860734	-9,644189231	1,06052E-06	-0,720906012	-0,453	-0,72091	-0,453
X1	-0,03462	0,012308814	-2,812213501	0,016901457	-0,061706527	-0,00752	-0,06171	-0,00752
X2	0,854554	0,125273367	6,821512845	2,87055E-05	0,578829063	1,130279	0,578829	1,130279
X3	0,082069	0,020398	4,02339959	0,002004448	0,037173609	0,126965	0,037174	0,126965
X4	0,652038	0,088407961	7,375332987	1,40274E-05	0,457453543	0,846623	0,457454	0,846623

Based on the tables provided above, let's create a table of the overall regression analysis results (Table 4). The obtained analysis results indicated that the regression model of the volume of production (services) of small businesses and private entrepreneurial entities of the Republic of Uzbekistan is not in a multiplicative form, but rather in an additive form, with all accounting parameters statistically significant from a statistical perspective. Its regression equation is described by the following empirical model:

$$y = -0.586 - 0.034x_1 + 0.854x_2 + 0.082x_3 + 0.652x_4$$

Based on the results of the regression analysis, the value of the coefficient of determination (R2 = 0.999), indicating the multiple determination, is equal to 99.9 percent. The p-value based on Fisher's F-test (significance level < 0.05) is very small (0.05). Therefore, the volume of production (services) by small businesses and private entrepreneurial entities of the Republic of Uzbekistan is shaped by factors corresponding to the regression equation, with 99.9 percent of the total variation being explained by the regression equation.

4-Table
Regression analysis results

Indicators	**Regression equation coefficients**	Standard error	***t* - statistics**	***P* - possibility**
Parameters of factors				
A_0 - free constant	-0,58695	0,060860734	-9,644189231	1,06052E-06
X_1 - variable	-0,03462	0,012308814	-2,812213501	0,016901457
X_2- variable	0,854554	0,125273367	6,821512845	2,87055E-05
X_3 - variable	0,082069	0,020398	4,02339959	0,002004448
X_4 - variable	0,652038	0,088407961	7,375332987	1,40274E-05
Parameters of equation				
Number of measurments	*R*-squared	*F*-statistics	*DW*-statistics	
16	0.999	3428,76	1.89	

The nature of this empirical model fully responds to the requirements and the connection of the dependent variable with the given factors is considered adequate. Likewise, the p-values for the t-tests of

World Bulletin of Social Sciences (WBSS)
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Vol. 25, August 2023
ISSN: 2749-361X

Student's t-distribution for all regression coefficients are also small like those above (significance level < 0.05), indicating that all regression coefficients are statistically significant at a 5 percent level of significance (α = 0.05).

The obtained scientific conclusion from the results is that the increase of the volume of industrial products (X2) produced by small businesses and private entrepreneurial entities is associated with an additional increase in the volume of final consumption expenditures (Y) by 0.854 sums. An increase in the volume of construction works (X3) carried out by small businesses and private entrepreneurial entities is associated with an increase of 0.082 sums, and an increase in the number of those engaged in small businesses and private entrepreneurial entities (X4) leads to an increase of 0.652 sums, which positively affects the volume of final consumption expenditures (goods, products, and services) by small businesses and private entrepreneurial entities.

However, by the end of the year, an increase of 1 sum in the initial value of the main tools (X1) leads to a decrease of 0.03 sum in the volume of final consumption expenditures (goods, products, and services) by small businesses and private entrepreneurial entities. From this, it can be deduced that the main tools of small businesses and private entrepreneurial entities are worn out and are not suitable for the current innovative development environment. This necessitates the need to accelerate the renewal and modernization of these main tools.

To forecast with multiple factors, it is necessary to know the forecast for this factor in 2021. That is, for each of these factors (x1, x2, x3, x4), their respective forecasts relative to time (t) should be obtained separately.

7-table

Changes in the dynamics of factors affecting the volume of net income from the sale of products (goods, works and services) by small business and private business entities

Years	Net income from the sale of products (goods, works and services) by SBPB entities, billion sums (Y)	Estimate of fixed assets by the end of the year according to the initial (restoration) value, billion soums (X_1)	Volume of industrial products (services) produced by SBPB entities, billion sum, (X_2)	The volume of construction works performed by SBPB entities, billion sum, (X_3)	The number of people employed in SBPB, thousand people, (X_4)
2005	107795,8	17551	44639,2	9169,4	6602,5
2006	115880,4	19183,3	47406,8	10544,8	7234,1
2007	126889,1	24132,6	50535,7	12233	7743,1
2008	138309,1	32361,8	53972,1	12904,7	8071,1
2009	149512,1	40387,5	56184,9	17318,2	8370,1
2010	160127,5	42083,8	59499,9	18201,4	8643,9
2011	172137	43178	62117,9	19621,1	8950,7
2012	184358,7	47754,8	65658,6	22309,2	9239,7
2013	197816,9	53151,1	70583	26146,4	9604
2014	211466,3	58360	73759,2	30748,1	9950,8
2015	226691,9	63845,8	77668,4	36528,8	10170,4
2016	240066,7	66463,5	81784,9	39158,7	10397,5
2017	250629,6	79357,4	86037,7	41508,4	10541,5
2018	264163,6	103085,2	95329,7	47444,1	10128,8
2019	279220,9	142360,7	100096,2	58308,8	10313,4
2020	283967,7	130687,1	100796,9	63614,9	9938,2

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Vol. 25, August 2023
ISSN: 2749-361X

(1) By calculating the model $k_1 = n - m - 1 = 19 - 3 - 1 = 15$ and $k_2 = 3$ taking it into account, it is possible to determine that its value in the table is equal to 3.29. Consequently, $F_{\text{хисоб}} > F_{\text{жадвал}}$ was determined, meaning that $F_{\text{хисоб}} = 3428{,}76 > F_{\text{жадвал}} = 3{,}29$

So, the constructed econometric model is statistically significant, and it will directly determine the volume of production (services) by SME entities through factors influencing it.

For the residual of the dependent variable in the constructed multivariate econometric model, we will use the Durbin-Watson (DW) statistic to check for autocorrelation:

$$DW = \frac{\sum_{t=2}^{T}(\varepsilon_t - \varepsilon_{t-1})^2}{\sum_{t=1}^{T}\varepsilon_t^2}$$

If there is no autocorrelation in the residuals of the dependent variable, in the series of residual values, in positive autocorrelation, the DW statistic approaches zero, and in negative autocorrelation, it approaches four. If there is no autocorrelation in the residuals of the dependent variable, then the value of the calculated DW statistic will be around 2. In our example, the calculated DW statistic is 1.89. This indicates the absence of autocorrelation in the residual values. Scientific research uses genetic methods (genes) to study the changes based on the principles of economic development. However, in the short term, it approximates the level of accuracy. As time goes on, the range of expectation is limited by the real anticipated quantity.

In the extrapolation method, we add a time column to the previous factors. Y=f(t), where Y is the studied process, t is the time factor. Hence, the economic process is seen as a function of time. In other words, to forecast an economic process, its historical period and current state are studied, and a forecast is made for the future period based on a certain probability. Subsequently, the limit of the forecast or the errors of the forecast are identified. The development trend of the economic process can be represented linearly as Y=A0+A1*t, or in a parabolic form as Y= A0+A1*t+A2*t2. Let's assume that we are studying a linear trend of development for this process. Therefore, we will forecast this process using a simple extrapolation method.

To forecast with multiple factors, we need to know the forecast for this factor in 2021-2030. That is, for each of these factors (x1, x2, x3, x4), their respective forecasts relative to time (t) should be obtained separately. The presented regression model of the volume of final consumption expenditures (goods, products, and services) by small businesses and private entrepreneurial entities (Y) provides the possibility of forecasting the expenditure in the regression model (4) and is called econometric forecast.

For setting the future, using a correlation-regression model, the method uses the expected values of the factors in the regression equation for forecasting, considering the reliable width of confidence based on the forecasted indicators of the dependent variable or the provided probability.

$$\hat{y}_0 - t_{1\ \alpha;n-2} S_{\hat{y}_0} \le y_0^* \le \hat{y}_0 + t_{1\ \alpha;n-2} S_{\hat{y}_0} \quad (5)$$

Then: $S_{\hat{y}_0} = \sqrt{s^2\left(1 + \frac{1}{n} + \frac{(x_0 - \bar{x})^2}{\sum_{i=1}^{n}(x_i - \bar{x})^2}\right)}$ and $s^2 = \frac{\sum_{i=1}^{n}(\hat{y}_i - y_i)^2}{n-2}$.

World Bulletin of Social Sciences (WBSS)
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Usually, when determining the anticipated values for forecasting factors, it is recommended not to go beyond one-third of the range of variation with the largest value and the smallest value, even for the initial information factor that has a wide range of variation (Vxi:3). The results of forecasting based on this econometric method are presented in the following table (Table 8), which has shown the opposite outcome.

8-Table

The forecast results for the volume of final consumption expenditures (goods, products, and services) by small businesses and private entrepreneurial entities up to the year 2030 are as follows:

The forecasted period (years)	Forecasted lower limit (billion UZS)	Forecast value (billion UZS)	Upper limit of the forecast (billion UZS)
2020 (present)	**-**	**283967.7**	**-**
2021	275894.3	**312435.8**	335623.4
2022	327405.2	**345786.8**	358912.3
2023	369789.5	**378493.7**	395746.2
2024	387565.3	**401217.3**	425678.9
2025	401214.5	**439513.6**	478945.3
2026	475879.6	**495846.7**	524852.5
2027	497897.7	**526312.8**	567652.7
2028	548789.3	**575879.9**	601423.4
2029	597842.2	**615789.7**	627895.3
2030	675415.3	**697845.4**	723546.7

The provided text seems to discuss forecasting using regression models, where the expected values of factors are used to determine a forecasted outcome (predicted growth rate in this context). This type of forecasting has a relatively low likelihood of a significant increase. Therefore, along with evaluating the average error or sufficiently high probability level of the forecast's reliability, it's necessary to determine the confidence (accuracy) of the forecast.

Based on the obtained results of the analysis, using econometric methods, it is expected that the forecasted value of the net profit from sales (revenues from goods, works, and services) for small business and private entrepreneurship entities is projected to increase by a factor of 2.5 from 2020 to 2030.

CONCLUSIONS

• Therefore, paying attention to companies engaged in E-commerce and using ICT in our country's regions is important to ensure the adoption of new technological innovations, stimulate entrepreneurship, and promote economic development. In this regard, the leaders of companies operating with E-commerce in local areas play a crucial role in translating new scientific, practical, academic, and technological innovations into action, as it is considered one of the essential tasks of entrepreneurship.

• In today's modern market economy, the advancement of E-commerce in several countries is achieved based on economic-mathematical models and their applications. Developing the activity of E-commerce is aimed at improving the overall socio-economic conditions of goods production using various multi-factor models, including linear regression models, and in accordance with the economic and mathematical models.

• Entrepreneurship execution requires ensuring the availability of specific rights and freedoms in choosing its form, conducting operations, making changes, and working independently with counterparties.

• Entrepreneurs must possess ownership rights to production tools, manufactured goods, and acquired income in the process of production.

Granting independence to E-commerce entities increased their sense of responsibility for the final outcomes of their activities. From this perspective, developing E-commerce becomes one of the most crucial strategic directions of the ongoing reforms in Uzbekistan.

In conclusion, it can be stated that currently, the statistical application of advanced foreign experiences in developing E-commerce within the leading sectors of the economy is lacking. To address this, it is crucial to study the unique scientific and methodological foundations of E-commerce entities, identify the main directions of their sustainable development, formulate long-term development

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strategies, assess the external and internal factors affecting the economic efficiency of entrepreneurial entities, statistically analyze the competitive environment in small business, identify and develop solutions for existing issues faced by small businesses within the regions of our republic, and further refine the statistical assessment methodology of development parameters for small entrepreneurial entities. All these steps are of paramount importance in resolving issues such as improving the effectiveness of entrepreneurship and enhancing the development of small business.

Statistical data analysis shows that in 2020, as in previous years, our country has achieved high rates of social and economic development. It's possible to observe this by comparing the main macroeconomic indicators that describe social and economic development over the years. In 2020, the total gross domestic product (GDP) of the Republic of Uzbekistan reached 580,203.2 billion UZS at current prices, increasing by 1.9% compared to 2019. The GDP deflator index was 111.9% compared to 2019. Per capita GDP amounted to 16,949.1 thousand UZS, which was a decrease of 0.3% compared to the previous year.

In conclusion, the development of E-commerce in the country contributes to improving the standard of living, increasing real incomes, and ensuring stability. Therefore, creating favorable conditions for entrepreneurship in our country yields positive results. To further develop E-commerce, it is important to create conditions for investments (including foreign investments), attract modern technology and innovations, and improve market infrastructure institutions.

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