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THE APPLICATION OF THE PREDICTION METHODOLOGY IN A STRATEGIC MANAGEMENT ANALYSIS OF THE ACTIVITIES OF RICE-BREEDING FARMS

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Abstract. The article explores the issues of forecasting financial results in strategic management analysis. Using econometric models, it predicts net sales, gross (marginal) profit, profit from core (operating) activities, equity and liabilities as factors affecting financial results in specialized rice-growing clusters and farms. Based on the results obtained, scientific proposals and practical recommendations for promising development goals have been developed.

Key words: cluster, farming, financial result, effective factor, influencing factors, forecasting, econometric modeling.

UDC: 658.1

Introduction

During the years of independence, a number of activities and measures aimed at the development of farms have been implemented in the Republic of Karakalpakstan. Strengthening the financial results of farms is a crucially important issue for the Republic of Karakalpakstan.

In this regard, it is essential to study the factors impacting financial results of these market subjects by evaluating the financial results of farms in the republic and to create multi-factor econometric models for their forecasting in the short and long-term run. A multifactor econometric model helps to study the influence of a number of factors on the resulting factor [1, p.118; 2, p.145].

Literature Review

The economic analysis of agricultural production has benefitted from considerable advances over the past decades (see, e.g. Chavas, Chambers and Pope, 2010for a recent survey), and a comprehensive survey of the major contributionsto this field is outside the scope of the present paper. We therefore restrictour attention to a selection of topics: the modelling of markets and trade,structural and dynamic aspects of production, environmental impacts ofproduction decisions, and risk issues. It is important to mention that thepaper reflects a fairly personal (and therefore necessarily partial) view fromeach co-author on the major advances in the field, in terms of methodology orissues addressed, as well as future challenges and possible solutions [3, p.2].

Modeling is a universal method of scientific knowledge. It is necessary to make constant settlements to achieve high results in agriculture. To do this, mathematical modeling methods are used. For example, how many fertilizer insure, the amount of water supply, the state of the plant, the inspection of the plant, and so are the similar distribution of water coming from a irrigation source. Water distribution planning is carried out taking into account economic indicators that optimize the entire system of the whole system and a mathematical model is developed [4, p.29].

Russian economist T. Parkonova said: "The comprehensive approach in the study of market conditions covers the use of different sources of information, complementary sources of information; combination of retrospective analysis with forecasting materials

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describing market conditions; jointly use different methods of analysis and prediction" [5, p.2].

I.Ansoff's views in this direction are: "Strategic decisions apply mainly to the foreign market, not to internal problems, but also for goods that produce, as well as companies. [6].

Factors affecting the selection of the strategy ensures the success of the strategic analysis. The effective implementation of the strategy depends on factors such as to feel deep and objective and objective enterprises, as well as objectively assess material, labor and financial resources.

The strategy is related to victory. The strategy is not a detailed designed plan or cracks program; this is a topic of human or organization's efforts and decisions, the general direction, and ensuring conformity" [7, p. 19].

Methodology

Such research methods as analysis and synthesis of scientific knowledge, systematic approach, comparison, classification, grouping, absolute and relative quantities of statistical and financial analysis have been widely used in this article.

Analysis and results

Based on the research objectives the following factors have been selected for the multifactor econometric model: as a resultative factor - net profit of "Juz-basy" farm, thousand UZS - (Y), and influencing factors - net income from sales, thousand UZS - (X1), gross (marginal) profit, thousand UZS, (X2), operational profit, thousand UZS, (X3), equity of the farm, thousand UZS, (X4) and liabilities of the farm, thousand UZS, (X5).

Table 1

Descriptive statistics on factors affecting the financial results of "Juz-basy" farm

	Y	X1	X2	X3	X4	X5
Mean	3093.953	74840.34	8976.046	6323.177	91029.93	2083.936
Median	2385.350	66789.20	4925.400	2748.735	93309.46	1313.020
Maximum	9917.330	144603.9	36348.75	21391.64	110446.1	7950.000
Minimum	1024.560	40123.80	2541.840	1845.210	66842.15	510.0000
Standard Deviation	2283.686	28873.86	10110.36	6503.486	12677.66	2292.275
Skewness	1.914494	1.153934	2.005176	1.282288	-0.433574	1.965911
Kurtosis	5.531161	3.342784	5.300177	3.035700	2.091022	5.044356
Jarque-Bera	24.57925	6.351047	24.93602	7.674706	1.841219	22.91171
Probability	0.000005	0.041772	0.000004	0.021551	0.398276	0.000011
Sum	86630.68	2095530.	251329.3	177049.0	2548838.	58350.21
SumSq. Deviation	1.41E+08	2.25E+10	2.76E+09	1.14E+09	4.34E+09	1.42E+08
Observations	28	28	28	28	28	28

We conduct descriptive statistics on the factors included in the multifactor econometric model. This is because all factor distributions must follow a normal distribution. If it does not comply with the normal distribution, then it is necessary to turn to econometric models with curves (parabola, hyperbola, logarithmic, etc.). The results of descriptive statistics on the factors affecting the financial results of "Juz-basy" farm are presented in Table 1 below.

The average value (mean), median, maximum and minimum values of each factor can be seen from the data of Table 1. In addition, the values of the standard deviation of each factor (std. dev. (Standard Deviation) - the coefficient of standard deviation shows how much each variable deviates from the average value).

Skewness is a coefficient of asymmetry, and if it is equal to zero, it means that the distribution is normal and that the distribution is symmetrical. If this coefficient is significantly different from 0, then the distribution is asymmetric (that is, not symmetrical). If the coefficient of asymmetry is greater than 0, that is, positive, then the normal distribution

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graph for the studied factor is shifted to the right. If it is less than 0, that is, it is negative, then the normal distribution graph for the studied factor is shifted to the left.

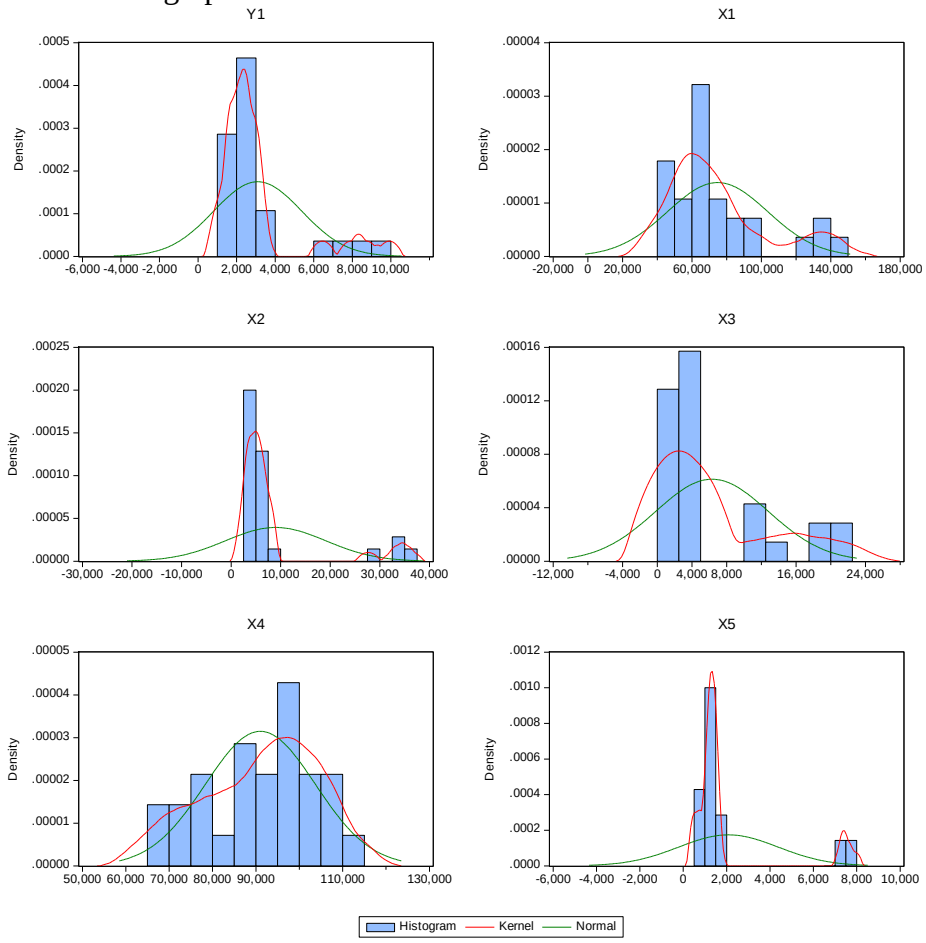

Figure 1. Graphs of normal distribution functions of factors

Graphs of normal distribution functions of all factors are presented in Figure 1 below.

It can be seen from Figure 1 that all factors obey the normal distribution law. It can be seen that the graph of the distribution function is shifted to the right, as the kurtosis coefficient of factor X4 alone has negative values, the "left curve" in its graphs is longer than the "right curve".

As all other factors Y, X1, X3 and X5 have positive kurtosis coefficients, the "right tail" in their graphs is longer than the "left tail", and it can be seen that the graph of the distribution function is shifted to the left.

These shifts mainly indicate changes in the dynamics of the studied factors. In some years, some factors demonstrated a sharp increase, while others did not change significantly. In general, all the studied factors obey the law of normal distribution.

In addition, the values of kurtosis coefficients of all factors except the X4 factor are greater than 3. It can be seen from the normal distribution graph that their density functions calculated from the normal distribution are steeper than the theoretical normal distribution function graphs.

The graph of normal distribution on the financial results of "Juz-basy" farm is shown in Figure 2 below.

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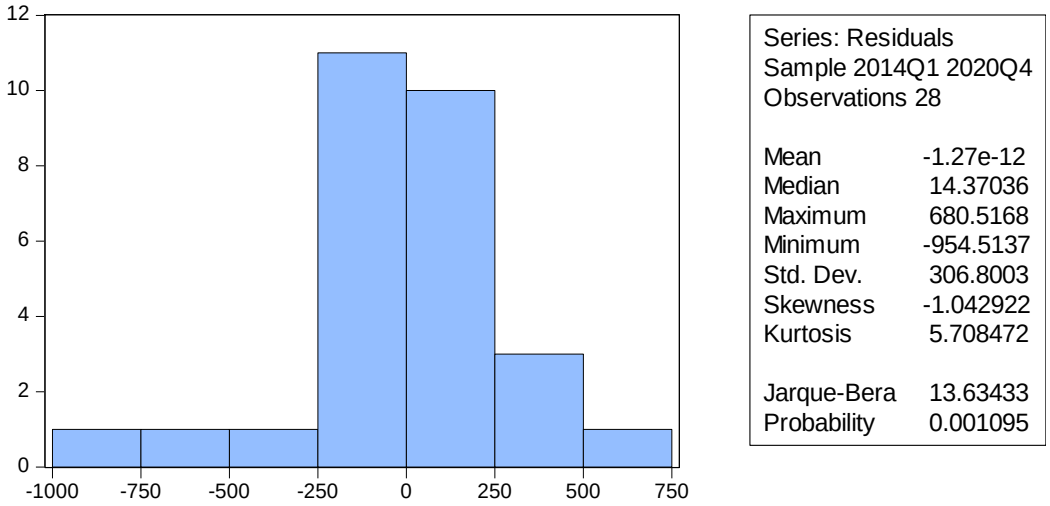

Figure 2. Checking whether the resultative factor obeys the normal distribution law

The Jarque-Bera test is used to test whether the outcome factor (Y) obeys the normal distribution law. This criterion is a statistical criterion that tests the errors of observations to a normal distribution with moments of the third moment (asymmetry) and fourth moment (kurtosis) and $S=0$ and $K=3$.

It can be clearly seen from Figure 2 that the resulting factor obeys a normal distribution. This is confirmed by the calculated parameters and criteria, that is, the calculated Jarque-Bera coefficient is equal to 13.6343 and its probability is less than 0.05 (prob=0.001095).

In order to select the factors for the multi-factor econometric model, which is based on the factors affecting the financial results of the "Juz-basy" farm, it is necessary to conduct a correlation analysis between the factors. To achieve this aim, special and pair correlation coefficients are calculated between factors. The matrix of individual and pairwise correlation coefficients between the factors is presented in Table 2 below.

It can be seen from this table 2 that private correlation coefficients show how strong are the relations between the resultative factor (Y - financial results of "Juz-basy" farm) and the factors affecting it. Thus, private correlation coefficients show that there are various connections between the resulting factor - the financial results of "Juz-basy" farm (Y) and the influencing factors.

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Table 2

Matrix of individual and pairwise correlation coefficients between factors

Covariance Analysis: Ordinary
Date: 11/14/21 Time: 22:28
Sample: 2014Q1 2020Q4
Included observations: 28

Correlation						
SSCP						
Probability	Y	X1	X2	X3	X4	X5
Y	1.000000					
X1	0.950186	1.000000				
	5.487051					
	0.0000					
X2	0.858971	0.420183	1.000000			
	4.067136	1.98507				
	0.0003	0.0632				
X3	0.912470	0. 539710	0.087292	1.000000		
	5.028107	2.21976	0.809714			
	0.0000	0.0581	0.0154			
X4	0.781213	0.435605	0.103256	0.277986	1.000000	
	3.641918	2.467573	0.529332	1.475618		
	0.0012	0.0205	0.6011	0.1521		
X5	-0.640046	0.630310	0.070377	0.483715	-0.045148	1.000000
	-2.498735	2.596902	0.48046	0.433812	-0.230443	
	0.0191	0.0528	0.1052	0.0858	0.8196	

So, the strength of relationship between the financial result of "Juz-basy" farm - net profit (Y) and sales revenue (X1) is equal to 0.9502. This shows that there is a strong relationship between the financial result of the farm - net profit and sales revenue. Moreover, there is a strong relationship between the net profit of the farm (Y) and the profit from the core business (X3), that is, the private correlation coefficient between them is equal to 0.9125. There is also a close relationship between the net profit (Y) and its gross (marginal) profit (X2) of "Juz-basy" farm, that is, the correlation coefficient between these factors is equal to 0.8589.

There is a moderate relationship between the net profit (Y) and the equity (X4) of "Juz-basy" farm, that is, the correlation coefficient between these factors is equal to 0.7812.

It should be noted that there is an average inverse relationship between the net profit of "Juz-basy" farm (Y) and the liabilities of the farm (X5), that is, the correlation coefficient between these factors is -0.640046.

In addition to the correlations between the factors presented above, Table 2 also contains pairwise correlation coefficients, which show the correlation densities between the influencing factors (X1, X2, X3, X4, X5). The most essential thing here is that the influencing factors should not be closely related to each other. That is, there should be no multicollinearity between influencing factors. Multicollinearity is said to exist if the value of the pairwise correlation coefficient between two influencing factors is greater than 0.7. From the data of Table 2, it can be seen that the consistense of connection between influencing factors is not greater than 0.7. Judging by the pairwise correlation coefficients in the correlation matrix, there is no multicollinearity between the influencing factors.

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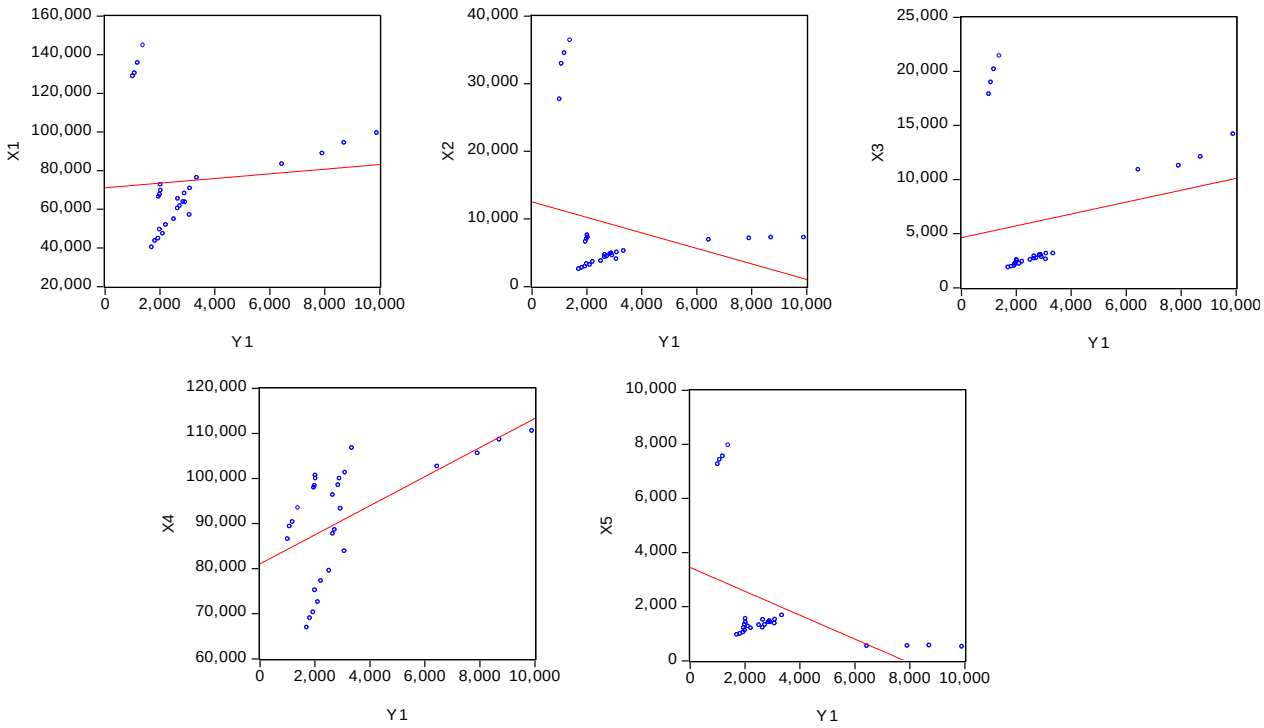

Figure 3. Forms of relation between the financial results of "Juz-basy" farm and the factors influencing it

In addition, in Table 2, coefficients for determining the reliability and probability of correlation coefficients have been calculated (values in the rows below the calculated correlation coefficients). At the bottom of each correlation coefficient is its estimated Student t-test value and probability. It is assumed that the calculated probability between the factors is not greater than 0.05.

For pairwise correlation coefficients, for example, the pairwise correlation coefficient between farm equity (X4) and farm liabilities (X5) is , and pairwise correlation coefficient is equal to $r_{X5,X6} = -0{,}0451$, $t = -0{,}2304$ and $\text{prob.} = 0{,}8196$.This indicates that there is a weak inverse relationship between these two factors and that the pairwise correlation coefficient is not reliable.

In order to verify the considerations stated above, let's look at their dot graphs to determine the relationship of each factor with the resulting indicator - the net profit (Y) of "Juz-basy" farm (Figure 3).

Visually in the graphs in Figure 3, it can be said that there is a positive relationship between the factors (X1), (X2), (X3) and (X4) influencing the resulting factor (Y) and an inverse relationship with the factor (X5).

Therefore, the correlation coefficients between the factors included in the multifactor econometric model on the financial results of "Juz-basy" farm (Y) meet the requirements of the Student t-criterion in terms of the calculated value and probability.

This indicates that we include all factors to the financial results of the financial results of the Juz-basyfarm (Y).

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Table 3

Multifactor econometric model parameters calculated according to the financial results of "Juz-basy" farm

Dependent Variable: Y
Method: Least Squares
Date: 11/14/21 Time: 22:28
Sample: 2014Q1 2020Q4
Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X1	0.041812	0.011929	3.505071	0.0005
X2	0.267583	0.055730	4.801429	0.0001
X3	0.457942	0.099857	4.585971	0.0001
X4	0.013862	0.003516	3.942548	0.0004
X5	-0.745222	0.263607	-2.827021	0.0098
C	-237.8958	820.2370	-0.290033	0.7745
R-squared	0.981952	Mean dependent var		3093.953
Adjusted R-squared	0.977850	S.D. dependent var		2283.686
S.E. ofregression	339.8806	Akaike info criterion		14.68247
Sumsquaredresid	2541413.	Schwarzcriterion		14.96795
Loglikelihood	-199.5546	Hannan-Quinn criter.		14.76975
F-statistic	239.3888	Durbin-Watson stat		2.049268
Prob(F-statistic)	0.000000			

In general, a multifactor econometric model has the following form:

$$y = a_0 + a_1 x_1 + a_2 x_2 + ... + a_n x_n + \varepsilon, \quad (1)$$

where y is the resulting factor, x_i – is influencing factors, ε – random error.

The "method of least squares" is used to determine the unknown $a_0, a_1, a_2, ..., a_n$ parameters in the multifactor econometric model (1).

We use the EViews program to calculate the unknown parameters of the multifactor econometric model based on the financial results of "Juz-basy" farm. The calculation results are presented in Table 20 below.

Using the data of Table 3 above, we present an analytical view of the multifactor econometric model on the financial results of "Juz-basy":

$$\ln \hat{Y} = -237{,}8958 + 0{,}0418X_1 + 0{,}2676X_2 + 0{,}4579X_3 + 0{,}0138X_4 - 0{,}7452X_5. \quad (2)$$

The calculated multifactor econometric model shows that if the net income from sales (X1) on "Juz-basy" farm increases by an average of one thousand UZS, the net profit (Y) of the farm increases by an average of 0.0418 thousand UZS. If the gross (marginal) profit of the farm (X2) increases by 1 thousand UZS, the net profit of the farm (Y) increases by 0.2676 thousand UZS on average. If the operational profit of the farm (X3) increases by an average of one thousand UZS, the net profit (Y) of the farm increases by an average of 0.4579 thousand UZS. If the equity of the farm (X4) increases by an average of one thousand UZS, the net profit of the farm (Y) increases by an average of 0.0138 thousand UZS. Finally, if farm liabilities (X5) increase by an average of one thousand UZS, the net profit of the farm (Y) may decrease by an average of 0.7452 thousand UZS.

To check the quality of the multifactor econometric model (2) constructed on the net profit of Juz-basy farm, we check the coefficient of determination. The coefficient of determination shows how many percent of the resulting factor is made up of the factors included in the model. The calculated coefficient of determination (R2 - R-squared) is equal to 0.9819. This shows that 98.19 percent (2) of the net profit (Y) of "Juz-basy" farm consists

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of the factors included in the multifactor econometric model. The remaining 1.81 percent (100.0-98.19) show that it is the effect of factors that have not been taken into account.

The fact that the standard errors of the factors in the multifactor econometric model (2) based on the net profit of ""Juz-basy" farm accepted small values also indicates that the statistical significance of the model is high.

F-criterion of Fisher is used to check the statistical significance of the multifactor econometric model (2) constructed on the net profit of "Juz-basy" farm or its relevance to the studied process. Fisher's calculated F-criterion value is compared with its value in the table. If $F_{hisob}>F_{jadval}$, then the multifactor econometric model (2) is said to be statistically significant, and it can be used to forecast the resulting indicator - the net profit (Y) of "Juz-basy" farm for future periods.

So, we find the tabular value of the F-criterion to check the statistical significance of the multifactor econometric model (2) based on the net profit of "Juz-basy" farm. For this, we calculate the values of the degrees of freedom $k_1 = m$ and $k_2 = n - m - 1$ and the significance level of α. Given the level of significance $\alpha = 0{,}05$ and the degrees of freedom $k_1 = 5$ and $k_2 = 28 - 5 - 1 = 22$, the table value of the F-criterion is equal to $F_{жадвал} = 2{,}71$. The calculated value of the F-criterion is F_{hisob}=239.39 and the table value is equal to F_{jadval}=2.71, and since the condition $F_{hisob}>F_{jadval}$ is fulfilled, the multifactor econometric model (2) can be called statistically significant and from it the net profit of "Juz-basy" farm (Y) can be used in forecasting for future periods.

Student's t-test is used to check the reliability of the calculated parameters of the multifactor econometric model (2) based on the net profit of "Juz-basy" farm. By comparing the calculated (t_{hisob}) and table (t_{jadval}) values of Student's t-test, we accept or reject the N0 hypothesis. To do this, we find the tabular value of the t-criterion based on the conditions of the selected reliability probability (α)and degree of freedom ($\text{d.f.} = n - m - 1$). Here n - number ofobservations, m - number of factors.

The table value of t-criterion is equal to $t_{жадвал} = 2{,}0739$ if reliability probability is equal to $\alpha = 0{,}05$ and degree of freedom is equal to $\text{d.f.} = 28 - 5 - 1 = 22$.

It can be seen from the calculations carried out on the creation of a multifactor econometric model that the calculated values of of the t-criterion for all factors included in the free term and multifactor econometric model are more accurate than the table value (Table 3). This means that all factors are reliable and allow them to participate in a multivariate econometric model.

We use the Darbin-Watson (DW) test to check the presence of autocorrelation in the residuals of the resultative factor (Y) according to the multifactor econometric model (2) based on the net profit of "Juz-basy" farm.

The calculated DW value is compared with the DWL and DWU in the table. If DW_{hisob}<DWL, they say, autocorrelation is existing in the resultative factor residuals. If DW_{hisob} is greater than DWU, the resultative factor residuals are said to be free of autocorrelation. The lower limit value of the Darbin-Watson criterion is DWL=0.86 and the upper limit value is DWU=1.94 DW_{hisob}=2,0493. Therefore, since DW_{hisob}>DWU, there is no autocorrelation in the residuals of the resultative factor ("Juz-basy" farm's net profit (Y)).

The absence of autocorrelation in the residuals of the resultative factor also indicates that the above-mentioned multifactor econometric model (2) can be used in forecasting.

(2) the actual (Actual), calculated (Fitted) values of the multifactor econometric model and the differences between them (Residual) are presented in Figure 4 below.

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It can be seen from Figure 4 that (2) the graph of the calculated values of the net profit of "Juz-basy" farm according to the multifactor econometric model is very close to the graph of its actual values, the differences between them are not too big.

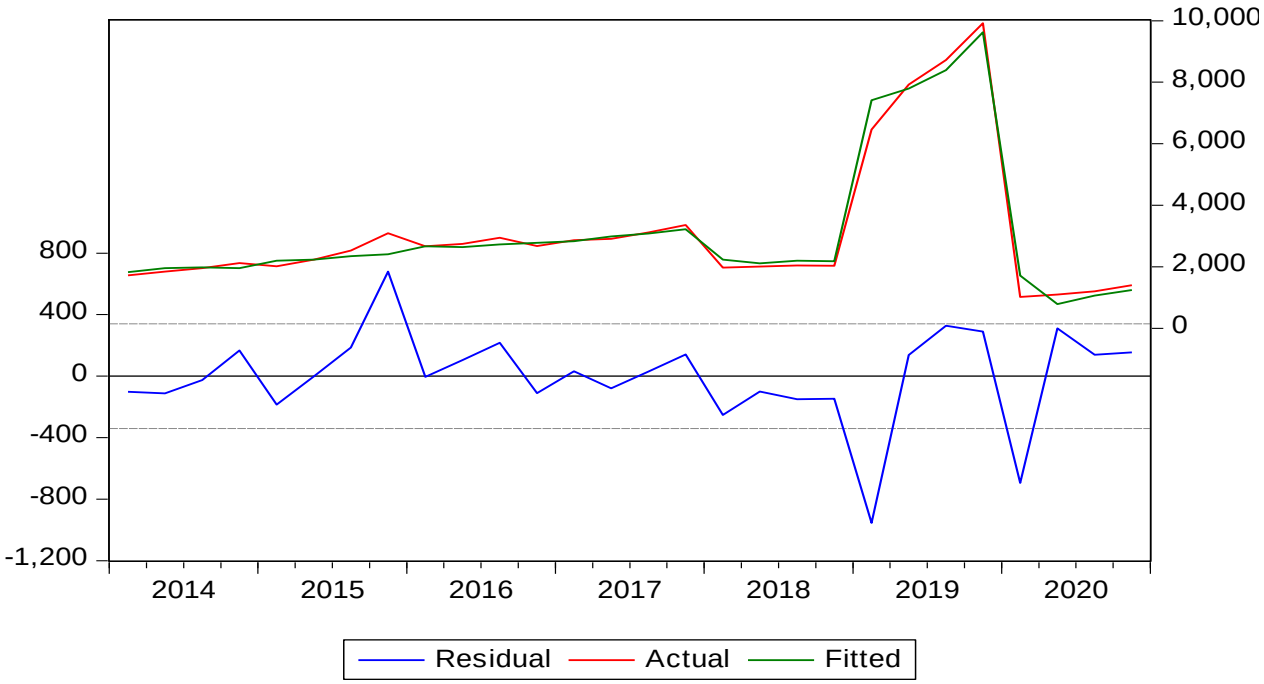

Figure 4. Graph of the actual (Actual), calculated (Fitted) values of the net profit of "Juz-basy" farm and the differences between them (Residual)

This is another proof that (2) the multifactor econometric model can be used to forecast the net profit of "Juz-basy" farm for future periods.

The coefficient of MARE (Mean absolute percent error) is estimated from the calculated (2) multifactor econometric model in forecasting the resultative indicator for future periods. If the value of the calculated MARE coefficient is less than 15.0 percent, the model can be used to predict the resultative factor, otherwise it cannot be used. The value of the MAPE coefficient on the net profit of "Juz-basy" farm constitutes 9.2159 percent (Figure 6).

This is less than 15.0 percent (MAPE=9.2159), that is, it is 9.2159 percent. Therefore, multifactor econometric model (2) can be used to forecast the net profit of "Juz-basy" farm.

Using these cases (2), we will make forecast calculations of the net profit of "Juz-basy" farm for future periods using a multi-factor econometric model.

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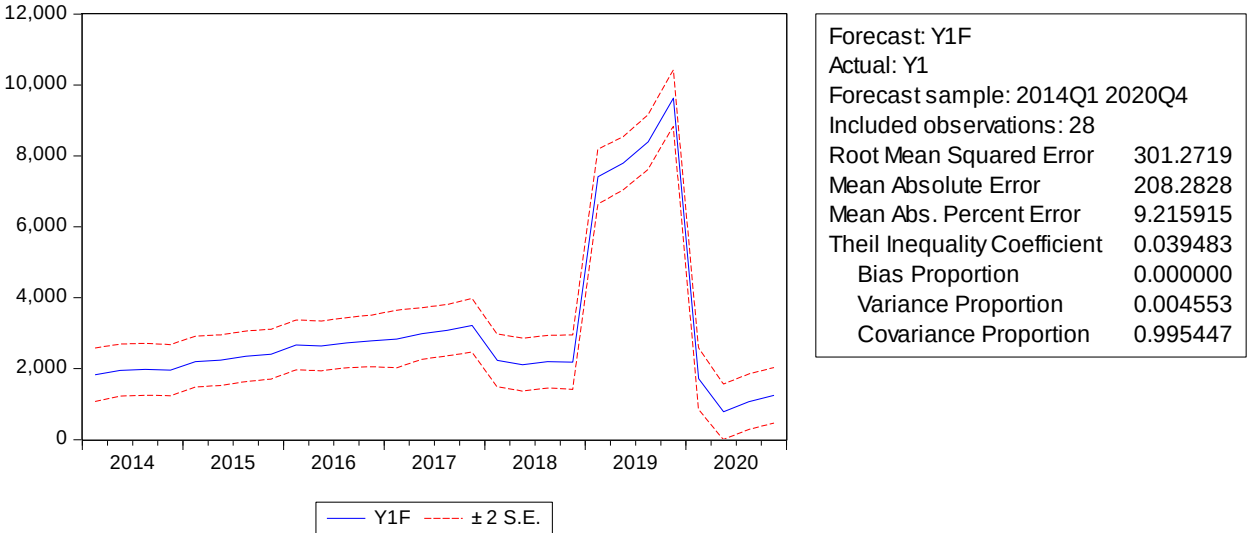

Figure 5. Indicators of using the calculated model in forecasting

For this, we first create a trend model for each influencing factor. A trend model is a time-dependent function of an influencing factor and generally has the following form:

$$X_i = \beta_0 + \beta_1 \cdot t + \varepsilon \qquad (3)$$

The trend model for "Juz-basy" farm's net income from sales, thousand UZS - (X1) is as follows:

$$X_1 = 28776{,}9 + 3176{,}789 \cdot t \qquad (4)$$

$$R^2 = 0{,}8191,\ F_{\text{хисоб}} = 117{,}73,\ t_{\text{хисоб}} = 10{,}8505$$

The trend model for the gross (marginal) profit of the "Juz-basy"" farm, thousand UZS, (X2) is as follows:

$$X_2 = -3814{,}5094 + 882{,}1073 \cdot t \qquad (5)$$

$$R^2 = 0{,}8151,\ F_{\text{хисоб}} = 72{,}618,\ t_{\text{хисоб}} = 5{,}255$$

The trend model for the main (operational) profit of the "Juz-basy" farm, thousand UZS, (X3) is as follows:

$$X_3 = 2885{,}3429 + 635{,}0703 \cdot t \qquad (6)$$

$$R^2 = 0{,}7452,\ F_{\text{хисоб}} = 47{,}29,\ t_{\text{хисоб}} = 6{,}8768$$

The trend model of the equity of "Juz-basy" farm, thousand UZS (X4) trend has the following form:

$$X_4 = 74624{,}7771 + 1131{,}39 \cdot t \qquad (7)$$

$$R^2 = 0{,}6389,\ F_{\text{хисоб}} = 30{,}39,\ t_{\text{хисоб}} = 5{,}5126$$

The trend model of the liabilities of "Juz-basy" farm, thousand UZS (X5) has the following form:

$$X_5 = 236{,}3048 + 160{,}017 \cdot t \qquad (8)$$

$$R^2 = 0{,}7297,\ F_{\text{хисоб}} = 12{,}79,\ t_{\text{хисоб}} = 3{,}5764$$

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Table 4

Values of forecast calculations of the net profit of "Juz-basy" farm and the factors influencing it*

Years and quarters	Net profit of the farm is Y, thousand UZS	Net receipts from sales X_1, thousand UZS	Gross (marginal) profit X_2, thousand UZS	Operational profit (profit from core business) X_3, thousand UZS	Equity of the farm X_4, thousand UZS	Liabilities of the farm X_5, thousand UZS
2016.1	2665.77	60214.30	4265.17	2654.87	87612.31	1204.88
2016.2	2744.17	61377.40	4398.97	2701.51	88521.82	1309.17
2016.3	2944.39	63448.80	4539.12	2795.96	93245.24	1402.65
2016.4	2672.61	65245.40	4627.68	2874.60	96247.57	1502.70
2017.1	2864.93	63547.10	4762.55	2987.35	98452.11	1400.61
2017.2	2910.25	67926.60	4838.47	3012.71	99871.48	1451.35
2017.3	3114.28	70591.00	5012.33	3124.73	101253.28	1505.86
2017.4	3362.71	76030.30	5198.81	3127.37	106675.29	1663.74
2018.1	1978.42	66218.10	6578.29	2179.62	97824.51	1198.79
2018.2	2012.47	67360.30	6947.74	2208.81	98264.67	1316.87
2018.3	2045.84	69457.70	7225.23	2455.73	99954.23	1405.27
2018.4	2036.39	72458.00	7529.05	2531.68	100570.01	1539.07
2019.1	6458.21	83124.50	6858.31	10874.69	102546.76	525.00
2019.2	7929.79	88632.80	7069.87	11255.47	105492.26	537.00
2019.3	8721.66	94164.20	7180.16	12055.73	108541.88	550.00
2019.4	9917.33	99219.50	7171.97	14159.30	110446.09	510.00
2020.1	1024.56	128654.90	27634.83	17854.22	86452.18	7250.40
2020.2	1098.61	130188.60	32874.52	18934.86	89254.77	7418.90
2020.3	1205.82	135475.30	34450.16	20148.43	90251.29	7539.75
2020.4	1402.93	144603.90	36348.75	21391.64	93373.68	7950.00
2021.1	**5160.73**	**141203.81**	**21766.60**	**15531.73**	**107435.11**	**4404.19**
2021.2	**5274.03**	**145080.60**	**22648.71**	**16166.80**	**108566.50**	**4564.21**
2021.3	**5387.33**	**148957.39**	**23530.82**	**16801.87**	**109697.89**	**4724.23**
2021.4	**5500.63**	**152834.18**	**24412.92**	**17436.94**	**110829.28**	**4884.24**
2022.1	**5613.92**	**156710.97**	**25295.03**	**18072.01**	**111960.67**	**5044.26**
2022.2	**5727.22**	**160587.76**	**26177.14**	**18707.08**	**113092.06**	**5204.28**
2022.3	**5840.52**	**164464.55**	**27059.25**	**19342.15**	**114223.45**	**5364.30**
2022.4	**5953.81**	**168341.34**	**27941.35**	**19977.22**	**115354.84**	**5524.31**
2023.1	**6067.11**	**172218.13**	**28823.46**	**20612.29**	**116486.23**	**5684.33**
2023.2	**6180.41**	**176094.92**	**29705.57**	**21247.36**	**117617.62**	**5844.35**
2023.3	**6293.71**	**179971.71**	**30587.67**	**21882.43**	**118749.01**	**6004.36**
2023.4	**6407.00**	**183848.50**	**31469.78**	**22517.50**	**119880.40**	**6164.38**
2024.1	**6520.30**	**187725.29**	**32351.89**	**23152.57**	**121011.79**	**6324.40**
2024.2	**6633.60**	**191602.08**	**33233.99**	**23787.64**	**122143.18**	**6484.41**
2024.3	**6746.89**	**195478.87**	**34116.10**	**24422.71**	**123274.57**	**6644.43**
2024.4	**6860.19**	**199355.66**	**34998.21**	**25057.78**	**124405.96**	**6804.45**
2025.1	**6973.49**	**203232.45**	**35880.32**	**25692.85**	**125537.35**	**6964.47**
2025.2	**7086.79**	**207109.24**	**36762.42**	**26327.92**	**126668.74**	**7124.48**
2025.3	**7200.08**	**210986.03**	**37644.53**	**26962.99**	**127800.13**	**7284.50**
2025.4	**7313.38**	**214862.82**	**38526.64**	**27598.06**	**128931.52**	**7444.52**

The analysis of the trend models created between the influencing factors and the time factor shows that the statistical significance of all the calculated coefficients in the trend models (4) - (8) and the reliability of their parameters have been determined. So, we calculate the trend models (4) - (8) and put their calculated values into the multifactor econometric model (2), first we calculate the forecast values of the influencing factors, and then the

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forecast calculations of the resultative factor. As a result, we will have the values of the variables included in the multifactor econometric model of the net profit of "Juz-basy" farm (2) during the forecast period (Table 4) (Figures 6-11).

As it is obvious from the table, when determining the net profit of "Juz-basy" farm, which is the research object, and the values of forecast calculations of the factors affecting it, the net income from sales, gross (marginal) profit, operational profit, equity, liabilities of the farm have been subject to the econometric forecast for 2021-2025 based on the report data of 2016-2020.

At the end of 2016 the net profit constituted 2672.61 thousand UZS, in the 4th quarter of 2020 this indicator accounted for 1402.93 thousand UZS (an increase of 52.5% compared to 2016) and it is expected to be 7313.38 thousand UZS in the 4th quarter of 2025 (5.2 times increase compared to 2020). Net receipts from sales amounted to 65245.40 thousand UZS in the 4th quarter of 2016, and 144603.90 thousand UZS in the 4th quarter of 2020 (2.2 times increase compared to 2016). We can see that in the 4th quarter of 2025 this indicator constituted 214862.82 thousand UZS (148.5% increase compared to 2020).

In 2025 gross (marginal) profit of the farm is forecasted to be 38526.64 thousand UZS, main (operating) profit is expected to account for 27598.06 thousand UZS, equity - 128931.52 thousand UZS, liabilities of the farm are forecasted to amount to 7444.52 thousand UZS. Among the factors influencing net profit in the general development trend, the fact, that efficiency of such important indicators as the weight of net profit in net receipts (7313.38 ÷ 214862.82 × 100% = 3.4%), profitability the equity (7313.38 ÷ 128931.52 × 100% = 5,7%) demonstrates essentiality to strengthen economic deeds in this regard in the future.

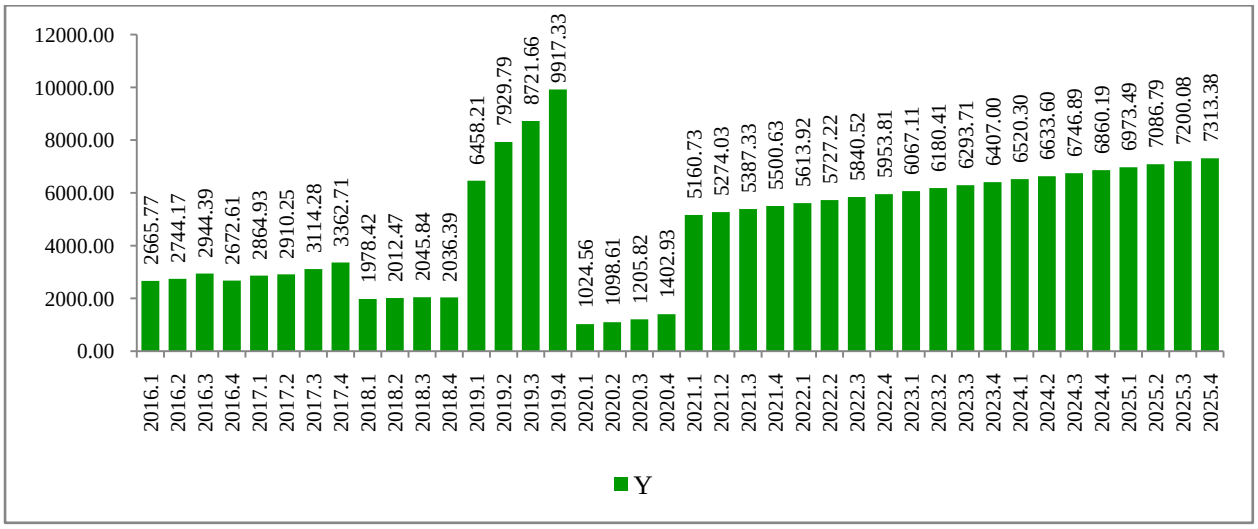

Figure 6. The dynamics of the net profit of "Juz-basy" farm in 2016.1-2020.4 and forecast values by quarters for 2021-2025, (thousand UZS)

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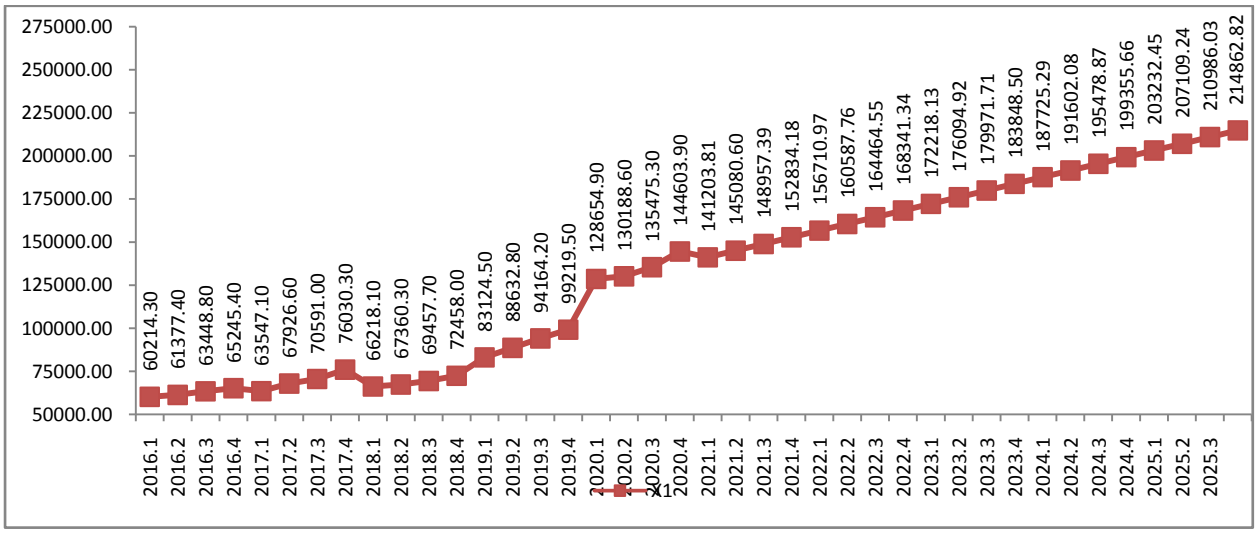

Figure 7. The dynamics of the net income from the sale of "Juz-basy" farm in 2016.1-2020.4 and forecast values by quarters for 2021-2025 (thousand UZS)

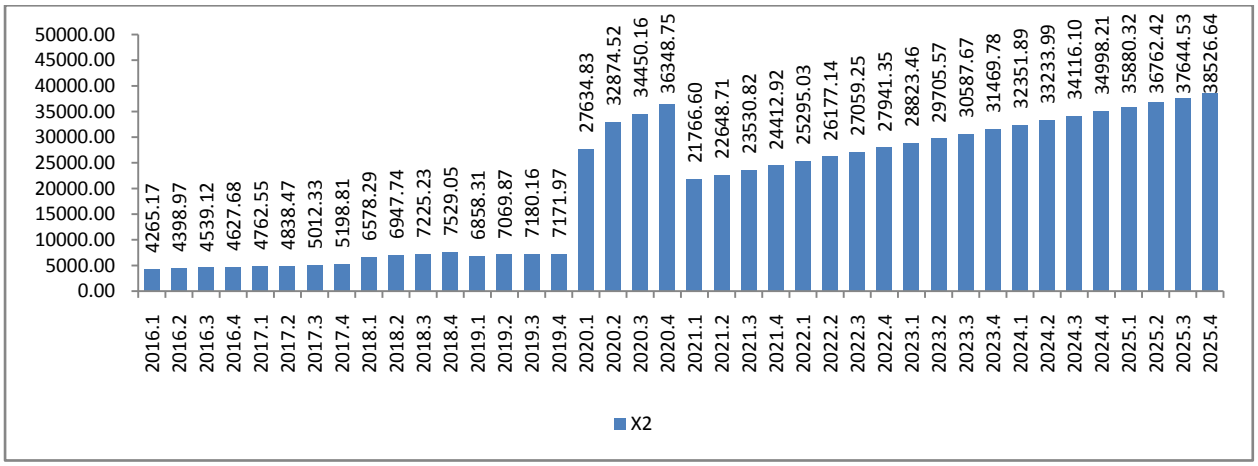

Figure 8. The dynamics of the gross (marginal) profit at "Juz-basy" farm in 2016.1-2020.4 and forecast values calculated by quarters for 2021-2025 (thousand UZS)

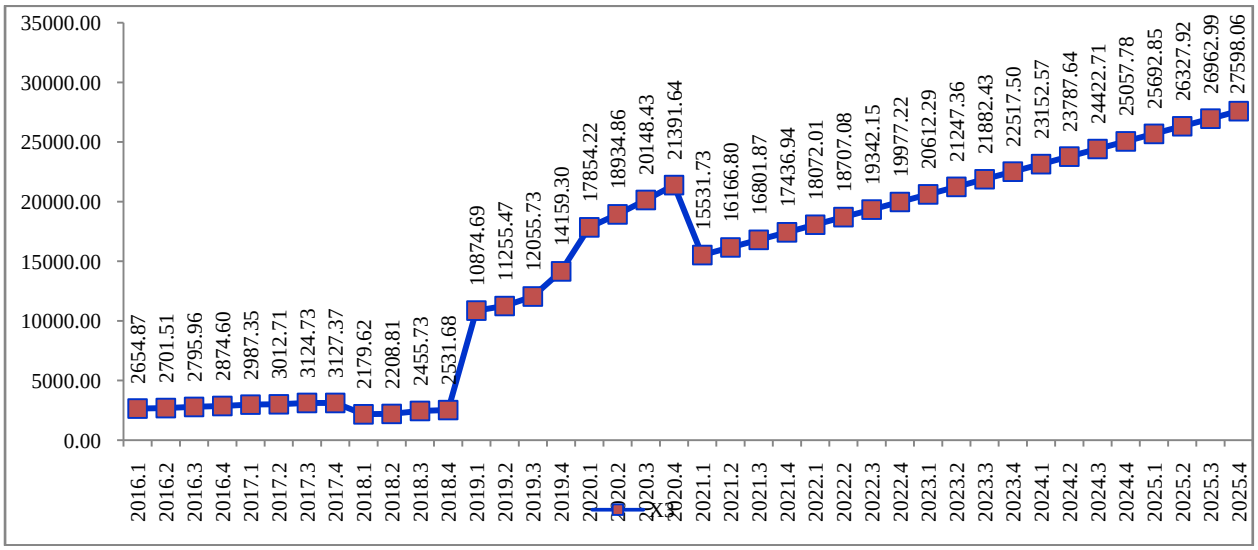

Figure 9. The trend of the core business (operational) profit of "Juz-basy" farm in 2016.1-2020.4 and forecast indicators calculated by quarters for 2021-2025 (thousand UZS)

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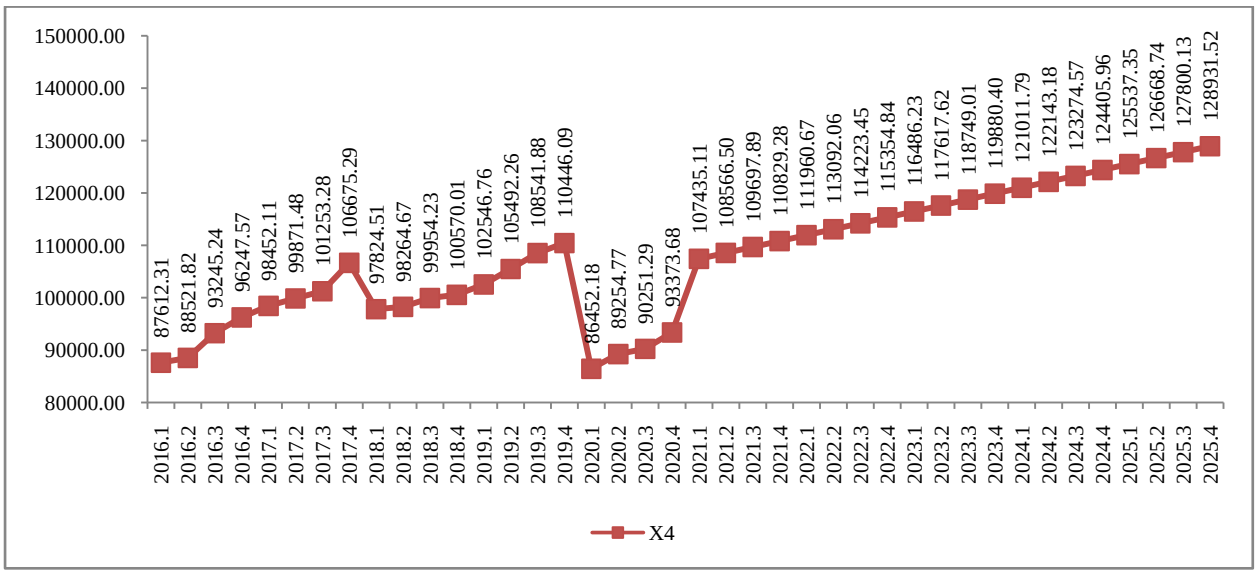

Figure 10. The trend of the equity of "Juz-basy" farm in 2016.1-2020.4 and forecast indicators calculated by quarters for 2021-2025 (thousand UZS)

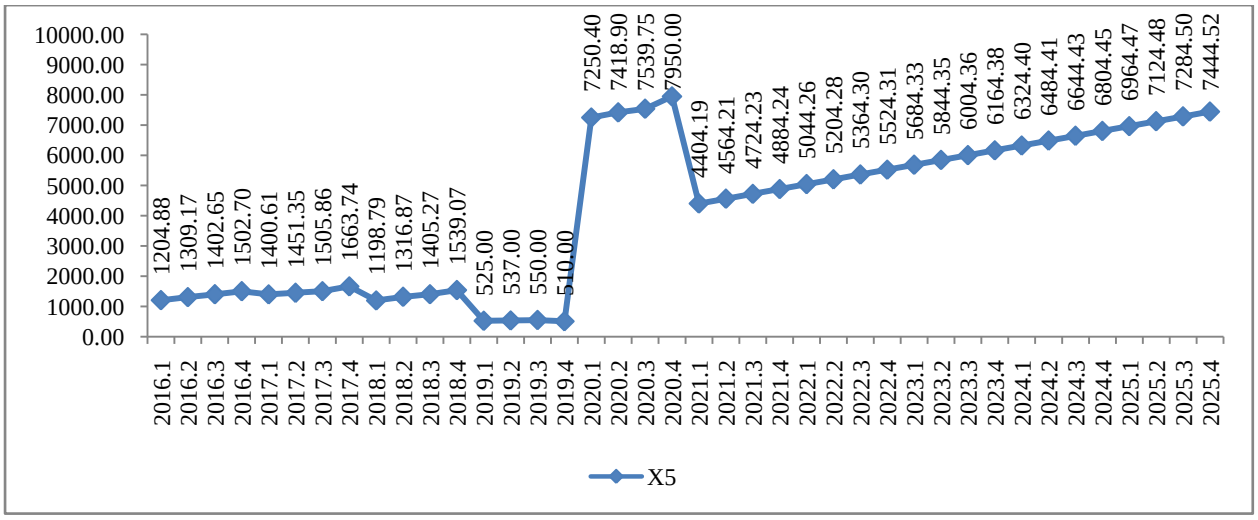

Figure 11. The trend of the liabilities of "Juz-basy" farm in 2016.1-2020.4 and forecast indicators calculated by quarters for 2021-2025 (thousand UZS)

Conclusion

In conclusion, according to the above tables and figures, prospective development factors of the last five years have been analyzed based on panel data through econometric models with the application of the methods of strategic management accounting and analysis. As a result, the five-year report data of the factors influencing the increase in net profit have been divided into quarters. Moreover, the five-year forecast data have been calculated according to a total of forty parameters in the quarter section.

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