

EFFECTIVENESS OF USING ECONOMETRIC MODELS IN STRATEGIC PLANNING OF THE TEXTILE INDUSTRY

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Abstract: Based on the flexible management system, in the process of strategic planning of the activity of textile enterprises, forecasting of economic indicators was carried out using econometric models, and proposals for further development of the industry were developed based on the results.

Keywords: Strategic planning, textile enterprise, development, efficiency, econometric model, forecasting.

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Introduction.

Research is being conducted to ensure the sustainable development of textile enterprises in the world, the use of cost-effective technologies, the widespread introduction of innovations, strategic development forecasting, alternative resource allocation. At the same time, areas such as balanced development of production, reduction of costs on the basis of an alternative composition of raw materials, a system of balanced indicators (BSC), achieving potential economic growth and business modeling are topical scientific issues. In this regard, one of the most pressing issues today is to ensure the sustainable development of textile enterprises through the introduction of experience gained in world practice in the practice of textile enterprises of the republic.

The textile industry plays an important role in the economy of Uzbekistan, and large-scale practical work is being carried out to attract foreign investment, introduce a quality management system and apply innovative methods for sustainable development. The new Development Strategy of Uzbekistan for 2022-2026 sets the task of "doubling the volume of textile production" [1], the successful implementation of which requires improving the management mechanisms of the textile industry based on econometric models.

Material and Methods.

At the next stages of the evolutionary development of strategic management, the main focus in the process of strategic management of industrial enterprises was the development of long-term development strategies and the concept of rational

use of available internal resources in their successful implementation. It is worth noting that the achievement of economic efficiency and competitive advantage of manufacturing enterprises in many ways is directly related to satisfying the expanding needs of consumers, organizing the production process taking into account their behavior, and thereby organizing the strategic management of their sustainable development in the future. depends. The key to success is that production and industrial enterprises correctly assess their internal capabilities, in particular, their internal resources, and ensure their adaptability to changes in the external environment. Today, the variety of products, especially textiles, is overflowing on the market, and the rapid development of the fashion industry requires the production of new types of products and the organization of their close introduction to consumers. It is appropriate to use economic-mathematical methods in the process of long-term strategic planning in textile enterprises.

The methodology of scientific research is the dialectic method, and methods such as selective observation, comparison, and correlation-regression analysis were used in the research process.

Results.

We use the method of correlation-regression analysis in the long-term strategic planning of textile industry enterprises.

In the process of strategic planning, the economic indicators of the limited liability company "FULL SOTTON", which is a part of the "Uztoqimaliksanoat" association, were selected. The following factors were selected to create a multifactor econometric model for the economic development of this enterprise (data for the period from 2015 to 2021): Outcome indicator - total revenue from sales of goods (works, services) of the enterprise, thousand soums - (Y), influencing factors - average annual value of fixed assets of the enterprise, thousand soums (X_1), labor productivity, thousand soums / person (X_2), the total amount of working capital, thousand soums - (X_3). Descriptive statistics on factors were first conducted when constructing a multifactor econometric model. To do this, a special econometric modeling program - Eviews 10 was used.

Descriptive statistics on factors were first conducted when constructing a multifactor econometric model. To do this, a special econometric modeling program - Eviews 10 was used [10].

The data required for the econometric analysis are given in Table 1.

Table 1

Data of the official report for 2015-2021 for the development of a multifactor econometric model of economic development of BETLIS TEXTILE LLC 109

¹⁰⁹Муаллиф ҳисоб-китоби

Years	Gross income from the sale of goods (goods, works, services), thousand soums	The average annual cost of fixed assets, thousand soums	Labor productivity, thousand soums / person	Total working capital, thousand soums
	Y	X ₁	X ₂	X ₃
2015	38964523	1294586	62546	7256844
2016	41024525	1298756	76846	7453564
2017	44073679	1317674	84526	8159881
2018	82466323	1 317 674	109372	6479353
2019	76 045 393	3216667	96996	9 316 044
2020	74 245 844	7 187 460	185615	6 449 088
2021	98 945 423	11 361 828	247363	5 492 124

The Jacques-Bera criterion is used to verify that the resulting factor obeys the law of normal distribution. This criterion is a statistical criterion that checks the errors of observations with normal distribution moments of the third moment (asymmetry) and the fourth moment (excess) to the normal distribution and and.

In the Jacques-Bera criterion, the zero hypothesis against the hypothesis is tested, where - the coefficient of asymmetry, - the coefficient of excess.

The results obtained show that the resulting factor is subject to the normal distribution. This is confirmed by the calculated parameters and criteria, i.e., the Jacques-Bera calculated coefficient is 6,588 and its probability is less than 0,05 (prob = 0,045).

Among the factors, autocorrelation and private autocorrelation test also matched the high obtained results. That is, there is no autocorrelation in the time series studied. This is because it can be seen from all the observations that the probability value in all the residues was less than 0,05.

So, at the next stage, we will create a multi-factor econometric model based on the total revenue from sales of products (goods, works, services) LLC "BETLIS TEXTILE". In general, the multifactor econometric model looks like this:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n + \varepsilon, \quad (1)$$

where y is the resultant factor, -the influencing factors, - the random error.

Where, y - is the resultant factor, x_i - the influencing factors, ε - the random error.

In the multivariate econometric model (1), the "least squares method" is used to determine the unknown parameters β₀, β₁, β₂, ..., β_n.

We use Eviews 10 to calculate the unknown parameters of a multifactor econometric model. The results of the calculations are given in Table 2 below.

Table 2
Calculated parameters of a multifactor econometric model

Construction of an empirical model of changes in gross sales of products (goods, works, services) LLC "BETLIS TEXTILE" ¹¹⁰

Related variables: Y - total revenue from sales of goods (goods, works, services)				
Method: The smallest squares method				
Row: 2015-2021				
Added variables: 21				
Variable	Model coefficients	Default error	t- Student criteria	P- value
X ₁	66,0123	39,05782873	-3,681332456	0,191289266
X ₂	243,13012	5466,876428	-4,448192816	0,021137406
X ₃	-9,90546	46,10194461	3,912733111	0,061859333
R ² - determination coefficient		0,960391307		
Flattened R ² - determination coefficient		0,844702926		
Standard error of regression		126311763,6		
F - Fisher criteria		11,8785		
DW-Darbin-Watson criterion		1,82356		

Using the Eviews program, the coefficients of the multivariate regression equation in the form of a linear relationship, as well as indicators of the importance of the regression equation and coefficients, indicate that this relationship is within the limits of the established criteria.

Using the data in Table 2, we present a mathematical view of a multifactor econometric model:

Using statistical data, we give a mathematical view of a multifactor econometric model:

$$Y = 159895513 + 66,01 * X_1 + 243,13 * X_2 - 9,9 * X_3 \quad (2)$$

(659496466) (398,075) (16880,51) (31,8821)

[6,812] [6,0741] [-7,4253] [6,8796]

where the standard error of each factor in round brackets and the t-statistical values of each factor in square brackets.

The calculated multi-factor econometric model shows that if the annual average value of fixed assets (X₁) in "FULL SOTTON" LLC increases by an average of 1.0 points, the total revenue indicator (Y) from the sale of products (goods, work, services) increases by an average of 66,01 points. If the labor productivity indicator (X₂) of "FULL SOTTON" LLC increases by an average of 1.0 points, the total income indicator (Y) from the sale of products (goods, work, services) will increase by an

¹¹⁰Муаллиф томонидан ишлаб чиқилган

average of 243.13 points. "FULL SOTTON" LLC's total working capital index (X_3) decreases by an average of 1.0 points, resulting in an average decrease of the total income index (Y) from the sale of products (goods, work, services) by 9.9 points.

The calculated determination coefficient (R^2 - R-squared) is 0,9604. The fact that the flattened coefficient of determination (Adjusted R-squared) is equal to 0,8447 and that it is close to R^2 means that the model can accept values around a change in the number of influencing factors.

Fisher's F-criterion is used to check the statistical significance of the multifactor econometric model (2) or its adequacy (suitability) to the process under study. The value of Fisher's calculated F-criterion is compared to its value in the table. The table value of the F-criterion is $F_{table} = 3,112$. The calculated value of the F-criterion is $F_{account} = 11,8785$ and the table value is $F_{table} = 3,112$, and since the condition $F_{account} > F_{table}$ is fulfilled, (2) the multifactor econometric model can be considered statistically significant. the gross sales revenue (Y) can be used to forecast future periods.

According to him, in the forecast of "FULL SOTTON" LLC using the trend model of changes in exogenous factors under the influence of time and the forecast indicators of the resulting and influencing factors for the medium term (2022-2026) using Equation 2:

$$Y = 159895513 + 66,01 * X_1 + 243,13 * X_2 - 9,9 * X_3 \quad (2)$$

- Annual average value of fixed assets - $X_1 = - 1408410 + 1037858 * t$;

- Labor productivity indicator - $X_2 = 96399 + 18676 * t$;

- An indicator of the amount of total working capital - $X_3 = 49984925 - 3069953 * t$.

The forecast results were calculated by substituting the values determined in $t = 8$ instead of Equation 2 (Table 3):

Table 3

Forecast of total revenue from sales of goods (goods, works, services) of "FULL SOTTON" LLC in 2022 - 2026 and the factors influencing it¹¹¹

Years	Gross income from the sale of goods (goods, works, services), thousand soums	The average annual cost of fixed assets, thousand soums	Labor productivity, thousand soums / person	Total working capital, thousand soums
2021 is real	111 273 985	8 153 730	228020	56 126 450
2022	105968732	6894454	245807	57 448 090
2023	149959222	7932312	264483	60 382 410
2024	193949712	8970170	283159	63 316 730

¹¹¹Calculated by the author on the basis of enterprise data.

2025	237940201	10008028	301835	66 251 050
2026	281930691	11045886	320511	69 185 370

As a result of the implementation of the tasks and the scientific results obtained in the research in order to achieve the set targets, in 2026, compared to 2021, the total revenue of the enterprise from the sale of products (goods, work, services) is expected to increase by 2.53 times and reach 281930691 thousand soums.

Discussion.

Strategic management appeared in the 60s of the 20th century as a scientific direction and an innovative approach to the organization of management. However, until now, strategic management is considered primarily as a task of managing market entities such as enterprises, firms, organizations at the lower level.

I. Ansoff in his book "Corporate Strategy" interprets strategic management as "a way of knowing, the beginning of which is a strategic diagnosis, a path of further measures and a climax - new products, new markets and technologies, as well as new opportunities". 3].

V.N. Rodionova understands strategic management as "the process of developing, making and implementing strategic decisions, the central link of which is a strategic choice based on comparing the resource potential of the enterprise with the opportunities and threats of the external environment" [4].

According to M.I.Kruglov and N.Yu.Kruglova: "strategic management is to expand the horizons of foresight, to strengthen the long-term and thus to be timely to the changes occurring in the external environment of the enterprise: in the markets of goods and technologies, in the scientific-technical, economic, social and political spheres. is an opportunity to respond" [5].

According to G. B. Kleiner's definition, "strategic management is a system of views and recommendations on enterprise management based on the processes of forming, implementing and changing the company's strategy to achieve business success" [6].

According to Hoffer and Schendels, "strategy is the main link between the goals and objectives of the enterprise" [7].

R.A. Isayev studied the conceptual basis of the integrated quality management and strategic management system in textile industry enterprises, as well as the methodological aspects of its implementation [8,9].

In our opinion, it is important to develop a comprehensive long-term strategy for the textile industry:

- Absence of an owner oriented with a ctpathetic perspective;

- the redistribution of property continues in many countries, which leads to a change in the economic system;
- taking into account the value of the property by the property owner and the leading manager;
- frequent change of the makcadlap attached by the stockholder;
- lack of qualified mutaxacciclap for development of long-term strategy;
- Lack of and lack of disclosure of statistical information on the canoat base for many years;
- lack of improvement of the software development team.
- lack of staged improvement of ctpathetic technology and equipment.

Conclusions.

When choosing alternative options for long-term strategic development of textile enterprises in the future, the company's goals, opportunities to achieve them are compared, and the level of advantages, disadvantages and risks is assessed. Based on the results of the analysis, each development alternative represents a possible direction of the enterprise's activity. The lack of theoretical and practical developments adapted to the specific characteristics of the economic activity of industrial enterprises, as well as really applicable recommendations that allow creating an effective mechanism, are the most important issues facing domestic enterprises. The use of econometric models is highly effective in this process.

Acknowledgement.

The practical application of methodological recommendations on the formation of the mechanism of sustainable development of textile enterprises with the help of econometric models allows:

use of the mechanism, taking into account the specific characteristics of the activity of any industrial enterprises;

gaining an advantage in the competition due to the fact that the mechanism is based on a target approach, as well as the division of targets into qualitative and quantitative parts;

adjustment of the mechanism of sustainable development of the organization when new problems arise in the economic activity of the enterprise, in the social and environmental spheres, when new trends occur;

the ability to avoid disturbances in the process of achieving sustainable development goals;

The results of the assessment of development opportunities in the future based on the created econometric model provide an opportunity for rational use of available resources.

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