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SUSTAINABILITY OF THE COMPETITIVE POSITION OF AGRICULTURAL ENTERPRISE: EVALUATION AND FORECASTING OF POSSIBLE SCENARIOS

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ABSTRACT

The article is devoted to the study of the problem of assessing and forecasting the stability of competitive positions of agricultural enterprises. The analysis of theoretical approaches to the definition of the studied categories is carried out. Based on the essence of the competitive position, a methodical approach to assessing the competitive position of an agricultural enterprise is substantiated: a method of comparing the rate of change of the main economic indicators of an agricultural enterprise and the industry as a whole is proposed. The article calculates the forecast values of the integrated stability index of the competitive position and its components using the method of exponential smoothing using the Brown-Mayer model, which allowed to assess the dynamics and trends of agricultural enterprise. A model is proposed, which can not only assess the level of competitive position of the enterprise, but also identify areas of change in the level of competitive position of the enterprise as a whole and in terms of individual components, develop conceptual frameworks for effective management decisions.

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Introduction. Today, the agricultural sector operates in conditions of instability of the national economy. All this creates additional risks for the activities of economic entities. Enterprises need to properly assess the market environment and their ability to ensure the required level of competitiveness. This is possible when determining the position of the company among all its competitors. In this regard, the question of finding ways and methods to ensure the stability of the competitive position become especially relevant.

Analyses of latest researches and publications. A significant contribution to the study of competitiveness, evaluation and search for ways to ensure the stability of competitive positions was made by scientists: G. Azoev, J. Barney, B. Wernerfelt., R. Grant, A. Muga, G. Hamel, M. Porter, C. Prahalad, B. Timilsina. Ukrainian scientists have also dealt with this problem, in particular: L. Kviatkovska, P. Kulinichev, Yu. Ivanov, H. Seleznova, O. Shnytko, O. Trydid, S. Filyppova, S. Cherkasova. Peculiarities of the formation of stable competitive positions of the agricultural sector are reflected in the works: V. Hranovskoi, O. Nykoliuk, M. Malika, V. Mesel-Veseliaka, P. Sabluka, O. Shpychaka.

Forming the purpose of the article. Scientists have studied the problems of achieving and maintaining competitive positions of enterprises in conditions of turbulence. However, the question of choosing the tools for assessing and forecasting the stability of the competitive position of agricultural enterprises requires in-depth study. The purpose of the article is to deepen scientific and methodological approaches and develop practical recommendations for assessing and forecasting possible scenarios for changes in the stability of competitive positions.

Literature Review. Attention to the problem of ensuring competitive advantages, as the basis for the formation of sustainable competitive positions, is increasing and acquiring new features of research, it should be especially noted that research is focused on such a sign of competitive advantages as sustainability [1-4]. Maintaining a competitive position indicates the ability of an enterprise to respond in a timely manner to a rapidly changing market environment. It is the stable competitive positions and advantages that ensure the victory of the enterprise in the competitive struggle. [5]. Azoev G.L. competitive position refers to the position that a firm occupies in a particular area according to performance compared to competitors [6]. Competitive position of the enterprise - the place of the enterprise in specific segments of the external market in relation to competitors [7]. Thus, R. Rumelt notes: «The competitive position reflects the competitive advantages that the company possesses in the industry» [8]. A.A. Thompson and A.J. Strickland define the competitive position of the company as one of the stages in the study of competition in the industry. The competitive position of a company is a fixed position of a company relative to its competitors at a certain point in time. Being a relative value, the competitive position is always comparable both quantitatively and qualitatively [8]. Competitive position is defined as a complex characteristic of the state of an enterprise in a competitive environment, which is formed due to the existence of competitive relations; it is a set of controlled dynamic factors that constantly affect the viability of an enterprise and determine the stability of its position in the market [9]. The stability of the competitive positions of companies is understood as the preservation and reproducibility of the parameters of the qualitative and quantitative determination of these positions within a fixed period of time. The need to maintain competitive positions makes it important to ensure the sustainability of these positions [10]. A stable competitive position is the ability to maintain the intended competitive position in the market, ensure a stable high level of competitiveness and effectively adapt to changes in environmental factors that the enterprise cannot influence [5]. The stability of the competitive position is the ability of an enterprise to maintain a competitive position over a long period of its functioning when the factors of the internal and external environment change. The most important factor in the formation of a stable competitive position is to ensure competitive advantages. It is the presence of competitive advantages that enables an enterprise to have a better competitive position for a certain time in comparison with its competitors. The competitive position of a subject is its place in specific segments of the external environment market in relation to competitors [7].

Consequently, in order to ensure the competitive and sustainable development of an enterprise, to ensure its viability, such a characteristic of the competitive position as stability is important. Sustainable competitive position is a way of expressing the competitive potential of an enterprise and the ability of an enterprise to quickly adapt to rapid changes from outside the enterprise and to stay ahead of its competitors.

Ensuring a stable competitive position is carried out under the influence of many factors, the identification and analysis of which will determine the further strategic directions of the enterprise. Factors to ensure a stable competitive position are the conditions that are necessary for the enterprise to provide sustainable competitive advantages, which, other unchanged conditions, will allow it to maintain a competitive position in the market [11]. Regarding the factors of sustainable competitive advantages in the scientific literature, there are two opposite concepts: the resource-based concept of sustainable competitive advantages [1; 2] and models based on the study of the influence of the external environment on the competitive position of the firm [12]. According to M. Porter [12], the competitive position of a firm depends on the specifics of the industry to which it belongs. He assumed that resources in one industry are identical, and their heterogeneity is a temporary phenomenon. According to Porter, the basic components of competitive advantages are specialized types of activities. The existence of barriers, even with resource homogeneity, according to Porter, provides an opportunity for a firm to gain a competitive advantage. Critics of this concept, the founders of the resource approach [1-4; 13; 14], believe that it does not pay enough attention to the influence of internal characteristics on the competitive advantages of a firm. From the point of view of supporters of the resource approach, the source of sustainable competitive advantage is resources that are endowed with a certain set of features, such as scarcity, immobility and uniqueness. It is important to achieve a balance between the exploitation of existing resources and the development of new ones [14]. According to Prahalad and Hamel [3], who expanded the resource theory, the production of a unique product is determined by new knowledge that arises as a result of an effective combination of

available resources, knowledge and processes. It is the competencies that will ensure the adaptation of the company to changing market conditions and the compliance of internal and external conditions. High adaptability is closely related to the continuous process of obtaining and producing new knowledge [3]. The main assumption of RBV is that the firm competes in the market on the basis of its resources and capabilities to achieve certain characteristics. Resources are what an organization can use to achieve its goals. Opportunities are the firm's ability to use its resources to create the products it wants. The firm competes and changes its competitive environment in the amount of its resources and capabilities. This means that the choice of resources and operational decisions play an important role in the work of the firm to achieve a stable competitive position [15].

Thus, the resource potential can be a factor of stable competitive position and a source of differences between firms, as evidenced by the fact that in the same conditions of operation within one industry enterprises provide different results.

Methodology. To achieve this goal, the following methods of scientific research were used: *methods of scientific generalization* (when studying existing approaches to determining the essence of the category «stability of a competitive position»); *statistical methods of multivariate analysis* (when studying the dynamics and trends of changes in indicators of stability of a competitive position, when developing a model for diagnosing a competitive the position of the enterprise in the context of the industry). When analyzing the strategic priorities for ensuring the sustainability of the competitive position of the studied enterprise, *forecasting methods and a scenario approach* were applied.

Research results. For effective management and development of measures to ensure a sustainable competitive position, a reliable assessment of its level and its sustainability is needed. Given the multifaceted nature of such a complex category as a competitive position, it becomes necessary to analyze in detail its actual level and the factors to ensure its stability. Therefore, a correctly chosen methodology for assessing the stability of the competitive position of an enterprise will determine how it can strengthen its position in the market environment. Analysis of literary sources showed that there is no single assessment methodology. Each of the proposed methods has both advantages and disadvantages. The assessment of the competitive position of an agricultural enterprise should be carried out by adapting and modifying existing methodological approaches to the conditions of the agricultural industry. As the analysis has shown, there is no consensus among scientists about which indicators should be taken as a basis for assessing the competitive position of an enterprise. [6;7;9;16-23].

In our opinion, the analysis of the competitive position involves an integral assessment using the indices of changes in individual indicators in comparing the average industry values and the enterprise [21]. The model for assessing the competitive position of an enterprise is based on the use of an assessment of the competitive potential of an enterprise and is implemented in determining the available resources of the enterprise, assessing the efficiency of using the resources of the enterprise and determining the level of its market advantages in relation to enterprises operating in the same industry [22].

Thus, it is advisable to represent the competitive position assessment model in the form of a function (1):

$$CPC = f(LP; PL; EP; CP; MA), \quad (1)$$

- CPC – current competitive position;
- LP – competitive position on the level of production;
- PL – competitive position in labor productivity;
- EP – competitive position on production efficiency;
- CP – competitive position in production costs;
- MA – competitive position in terms of market advantages.

The CPC index is an integral numerical characteristic. The greater its value, the higher the level of competitive position of the enterprise in the current period. The obtained results can be the basis for increasing the level of competitive position of the enterprise. It should be noted that the number of indicators should be optimal, since the use of a large number of indicators complicates the calculations. The parameters we selected were brought to a dimensionless form and partial indices were calculated. We have identified the following indices: production level index (I_{LP}), labor productivity level index (I_{PL}), production efficiency index (I_{EP}), production cost index (I_{CP}) and market advantage level index (I_{MA}). After calculating the indices, the integrated index of the level of the competitive position of the enterprise was calculated as the geometric mean of the product of the above indices (formula 2).

$$I_{CPc} = \sqrt[5]{I_{LP} * I_{PL} * I_{EP} * I_{CP} * I_{MA}}, \tag{2}$$

- I_{CPc} – integral index of the level of competitive position of the enterprise;
- I_{LP} – production level index;
- I_{PL} – labor productivity level index;
- I_{EP} – production efficiency index;
- I_{CP} – production cost index;
- I_{MA} – market advantage level index.

The proposed model was tested on the example of one of the agricultural enterprises of Ukraine. Relevant indices for the period 2014-2019 were calculated. The results are shown in table 1.

Table1. Dynamics of the integral index of the level of the competitive position of an agricultural enterprise

Indicators	Years					
	2014	2015	2016	2017	2018	2019
Production level index	0,91	0,88	0,98	0,90	0,79	0,68
Production efficiency index	5,16	1,86	0,40	2,55	0,23	1,27
Labor productivity level index	0,85	0,80	0,62	0,65	0,69	0,56
Production cost index	1,11	1,69	0,81	0,54	0,91	1,22
Market advantage level index	1,04	1,03	1,02	1,04	1,09	0,89
Integral index of the level of competitive position of the enterprise	1,81	1,25	0,76	1,14	0,74	0,92

Source: author’s development

The agricultural enterprise does not have sufficient competitive advantages and has been losing its competitive position over the past 4 years (with the exception of 2017). The analysis revealed low competitive positions of the enterprise in some indicators (high cost, insufficient selling price) and quality parameters. A graphic representation of the dynamics of the components of the integral index of the level of the competitive position of the enterprise is shown in Fig. 1.

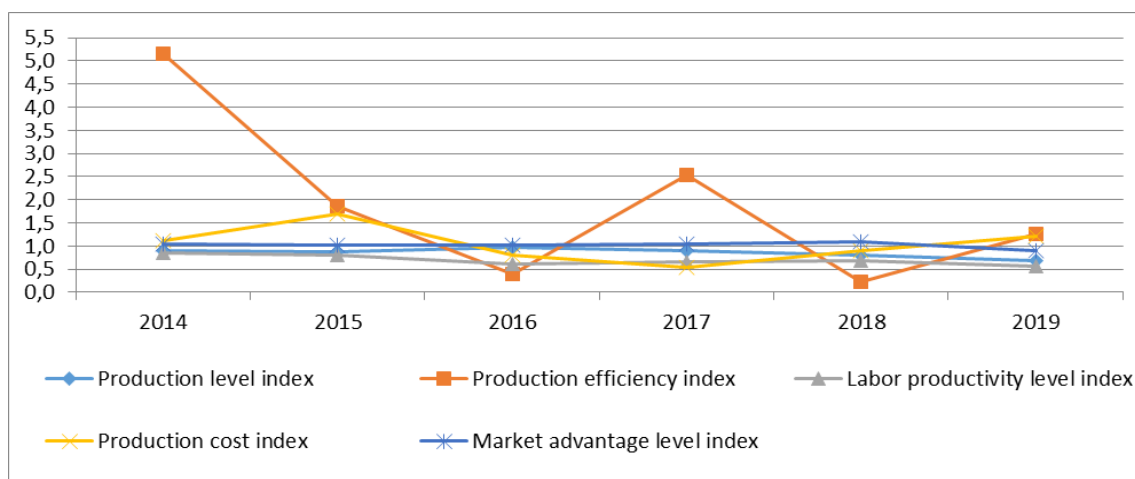


Fig. 1. Dynamics and trends of the components of the integral index of the competitive position of an agricultural enterprise

* Source: author’s development according to the State Statistics Service of Ukraine and the annual reporting of the enterprise [24-29]

In 2014, the production efficiency index had the largest contribution to the overall level of competitive advantages, however, in subsequent years, its negative dynamics began to be observed, and already in 2018, this index was the largest, but negative, impact on the competitive advantage index. The assessment revealed a low level of efficiency in the use of resources at the disposal of the enterprise. In the aggregate, the multiplicative effect of the investigated factors indicates a low and

insufficient level of management and forms an insufficient level of competitive advantages. The generalization of the results of diagnostics of the forming factors of competitive positions on the basis of the assessment made it possible to conclude that their level is insufficient. The study of the constituent elements showed that the enterprise does not fully use its existing competitive potential.

To assess the stability of the competitive positions of an enterprise, we consider it necessary to take into account not so much the absolute values of certain indicators, or their comparison with competitors (industry-average), but the dynamic trends of changes in the corresponding indicators in comparison with each other. In our opinion, the analysis of the competitive position should provide for an integral assessment using indices of changes in individual indicators in comparing the indicators of the enterprise and the industry average values. An analysis was carried out for 2014-2019. For the aforementioned indicators, with the values for 2014 taken as the basis (index = 1.00). The values of the corresponding indices for subsequent years were determined as the ratio of the absolute values of a given year to the value of the indicator for the previous year. The last stage in assessing the sustainability of the competitive position of an enterprise is the calculation of the corresponding coefficient, which is defined as the ratio of the integral index of changes in the enterprise's competitive advantages to the industry average integral index. Relevant indices for the period of 2014-2019 of the agricultural enterprise and for Ukraine as a whole were calculated (Table 2).

Table 2. Dynamics of the index of sustainability of the competitive position of an agricultural enterprise and the agricultural sector of Ukraine for 2014-2019.

Indicators		Years					
		2014	2015	2016	2017	2018	2019
Production level index	Agricultural enterprise	1,00	0,91	1,10	1,02	1,24	1,09
	Ukraine	1,00	0,94	1,03	1,02	1,43	1,45
Labor productivity level index	Agricultural enterprise	1,00	0,93	0,89	0,92	1,12	0,98
	Ukraine	1,00	0,98	1,21	1,19	1,38	1,47
Production efficiency index	Agricultural enterprise	1,00	1,70	0,33	1,85	0,16	1,15
	Ukraine	1,00	4,72	4,32	3,75	3,57	4,71
Production cost index	Agricultural enterprise	1,00	0,79	0,44	0,32	0,40	0,42
	Ukraine	1,00	0,70	0,61	0,58	0,54	0,42
Market advantage level index	Agricultural enterprise	1,00	1,52	1,68	2,06	2,29	2,05
	Ukraine	1,00	1,47	1,71	2,04	2,14	2,38
Integral index of stability of a competitive position	Agricultural enterprise	1,00	1,12	0,75	1,03	0,73	1,01
	Ukraine	1,00	1,35	1,41	1,40	1,52	1,59

* Source: author's development according to the State Statistics Service of Ukraine and the annual reporting of the enterprise [24-29]

Thus, the assessment of the stability of the competitive position of the company for 2014-2019 showed that it tends to decrease. Only in 2017 and 2019 there was some improvement, but it could not change the general trend. This indicates the need for the company's management to take the necessary measures to improve product quality, production levels and reduce costs.

When making management decisions, it is mandatory to forecast the level of stability of the competitive position in the future. Without forecasting, without presenting the future trajectory of events and the influence of internal and external factors, it is impossible to make an effective management decision to ensure the stability of the competitive position. The development of a forecast of the stability of the competitive position of an agricultural enterprise is based on an integral assessment using indices of changes in individual indicators in comparison with the industry average values and indicators of the enterprise.

The following method was used to determine the predicted values of the above indices. First, the values of the initial indicators for the calculation of indices were predicted – the corresponding indicators for the enterprise and Ukraine by applying the economic-mathematical function of Brown-Mayer on the basis of a parabola of the second order [30]. As a result of regression analysis, the appropriate analytical dependences for each index were identified, which make it possible to predict the value of a particular indicator. The results of the statistical analysis of the dependence of the index of the level of production by enterprise on the index of the forecast value are shown in table 3.

Table 3. The results of statistical analysis of the dependence of the index of the level of production of agricultural enterprises from the index of forecast value

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	1,0719	0,0790	13,5593	0,0009	0,8203	1,3234
X Variable 1	0,0298	0,0211	1,4110	0,2531	-0,0374	0,0970
X Variable 2	-0,0025	0,0138	-0,1813	0,8677	-0,0465	0,0415

$$I_{LPt}^E = 1,0719 + 0,0298 \cdot t - 0,0025 \cdot t^2 \tag{3}$$

$$I_{LPt+l}^E = 1,0831 + 0,0144 \cdot l + \frac{1}{2} \cdot 0,0001 \cdot l^2 \tag{4}$$

The results of the statistical analysis of the dependence of the index of the level of production in Ukraine on the index of the forecast value are given in table 4.

Table 4. The results of statistical analysis of the dependence of the index of the level of production in Ukraine on the index of forecast value

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	1,0367	0,0781	13,2683	0,0009	0,7881	1,2854
X Variable 1	0,0825	0,0209	3,9511	0,0289	0,0161	0,1490
X Variable 2	0,0232	0,0137	1,6947	0,1887	-0,0203	0,0667

$$I_{LPt}^U = 1,0367 + 0,0825 \cdot t + 0,0232 \cdot t^2 \tag{5}$$

$$I_{LPt+l}^U = 1,3976 + 0,0123 \cdot l + \frac{1}{2} \cdot 0,0019 \cdot l^2 \tag{6}$$

The results of the statistical analysis of the dependence of the index of labor productivity on the agricultural enterprise on the index of the forecast value are given in table 5.

Table 5. The results of statistical analysis of the dependence of the index of labor productivity of agricultural enterprises from the index of forecast value

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	0,9315	0,0645	14,4522	0,0007	0,7264	1,1367
X Variable 1	0,0118	0,0172	0,6839	0,5431	-0,0430	0,0666
X Variable 2	0,0087	0,0113	0,7678	0,4985	-0,0272	0,0445

$$I_{PLt}^E = 0,9315 + 0,0118 \cdot t + 0,0087 \cdot t^2 \tag{7}$$

$$I_{PLt+l}^E = 0,9946 - 0,0082 \cdot l - \frac{1}{2} \cdot 0,0007 \cdot l^2 \tag{8}$$

The results of the statistical analysis of the dependence of the labor productivity index on the index of forecast value from Ukraine are given in table 6.

Table 6. The results of statistical analysis of the dependence of the labor productivity index on the index of Ukraine of the forecast value

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	1,1815	0,0577	20,4704	0,0003	0,9978	1,3651
X Variable 1	0,0777	0,0154	5,0352	0,0151	0,0286	0,1268
X Variable 2	0,0048	0,0101	0,4764	0,6663	-0,0273	0,0369

$$I_{PL_t}^U = 1,1815 + 0,0777 \cdot t + 0,0048 \cdot t^2 \tag{9}$$

$$I_{PL_{t+l}}^U = 1,3971 + 0,0338 \cdot l + \frac{1}{2} \cdot 0,0026 \cdot l^2 \tag{10}$$

The results of the statistical analysis of the dependence of the index of production efficiency of agricultural enterprises on the index of forecast value are shown in table 7.

Table 7. The results of statistical analysis of the dependence of the index of production efficiency of agricultural enterprises on the index of forecast value

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	1,0242	0,6247	1,6395	0,1996	-0,9640	3,0125
X Variable 1	-0,0391	0,1670	-0,2339	0,8301	-0,5704	0,4923
X Variable 2	0,0016	0,1093	0,0144	0,9894	-0,3463	0,3494

$$I_{EP_t}^E = 1,0242 - 0,0391 \cdot t + 0,0016 \cdot t^2 \tag{11}$$

$$I_{EP_{t+l}}^E = 1,0893 - 0,0069 \cdot l + \frac{1}{2} \cdot 0,0024 \cdot l^2 \tag{12}$$

The results of statistical analysis of the dependence of the index of production efficiency in Ukraine on the index of forecast value are shown in table 8.

Table 8. The results of statistical analysis of the dependence of the index of production efficiency in Ukraine on the index of forecast value

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	4,4214	0,9711	4,5529	0,0199	1,3309	7,5120
X Variable 1	0,3167	0,2595	1,1390	0,3374	-0,5304	1,1216
X Variable 2	-0,1589	0,1699	-0,9352	0,4187	-0,6996	0,3818

$$I_{EP_t}^U = 4,4214 + 0,3167 \cdot t - 0,1589 \cdot t^2 \tag{13}$$

$$I_{EP_{t+l}}^U = 4,1108 + 0,3773 \cdot l + \frac{1}{2} \cdot 0,0223 \cdot l^2 \tag{14}$$

The results of the statistical analysis of the dependence of the inverse index of production costs on the agricultural enterprise on the index of the forecast value are shown in table 9.

Table 9. The results of statistical analysis of the dependence of the inverse index of production costs for agricultural enterprises from the index of forecast value

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	0,3738	0,0487	7,6743	0,0046	0,2188	0,5289
X Variable 1	-0,0937	0,0130	-7,1979	0,0055	-0,1351	-0,0523
X Variable 2	0,0400	0,0085	4,6912	0,0183	0,0129	0,0671

$$I_{CP_t}^E = 0,3738 - 0,0937 \cdot t + 0,0400 \cdot t^2 \tag{15}$$

$$I_{CP_{t+l}}^E = 0,5133 - 0,0936 \cdot l - \frac{1}{2} \cdot 0,0034 \cdot l^2 \tag{16}$$

The results of the statistical analysis of the dependence of the inverse index of production costs in Ukraine on the index of the forecast value are shown in table 10.

Table 10. The results of statistical analysis of the dependence of the inverse index of production costs in Ukraine from the index of forecast value

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	0,5766	0,0646	8,9235	0,0030	0,3710	0,7822
X Variable 1	-0,0744	0,0173	-4,3090	0,0230	-0,1294	-0,0195
X Variable 2	0,0145	0,0113	1,2833	0,2895	-0,0215	0,0505

$$I_{CP_t}^U = 0,5766 - 0,0744 \cdot t + 0,0145 \cdot t^2 \tag{17}$$

$$I_{CP_{t+l}}^U = 0,5120 - 0,0571 \cdot l - \frac{1}{2} \cdot 0,0033 \cdot l^2 \tag{18}$$

The results of the statistical analysis of the dependence of the index of market advantages on the agricultural enterprise on the index of forecast value are given in table 11.

Table 11. The results of statistical analysis of the dependence of the index of market preferences for agricultural enterprises from the index of forecast value

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	1,9799	0,0782	25,3117	0,0001	1,7310	2,2288
X Variable 1	0,1806	0,0209	8,6406	0,0033	0,1141	0,2472
X Variable 2	-0,0462	0,0137	-3,3791	0,0431	-0,0898	-0,0027

$$I_{MA_t}^E = 1,9799 + 0,1806 \cdot t - 0,0462 \cdot t^2 \tag{19}$$

$$I_{MA_{t+l}}^E = 1,9195 + 0,1384 \cdot l + \frac{1}{2} \cdot 0,0047 \cdot l^2 \tag{20}$$

The results of the statistical analysis of the dependence of the index of market advantages in Ukraine on the index of forecast value are given in table 12.

Table 12. The results of statistical analysis of the dependence of the index of market preferences in Ukraine on the index of forecast value

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	1,9102	0,0563	33,9555	0,0001	1,7312	2,0892
X Variable 1	0,2020	0,0150	13,4329	0,0009	0,1541	0,2498
X Variable 2	-0,0271	0,0098	-2,7516	0,0706	-0,0584	0,0042

$$I_{MA_t}^U = 1,9102 + 0,2020 \cdot t - 0,0271 \cdot t^2 \tag{21}$$

$$I_{MA_{t+l}}^U = 2,1340 + 0,1345 \cdot l + \frac{1}{2} \cdot 0,0072 \cdot l^2 \tag{22}$$

The next stage of forecasting is to determine the baseline scenario for forecasting change indices: production level index (I_{LP}), labor productivity level index (I_{PL}), production efficiency index (I_{EP}), production cost index (I_{CP}) and market advantage level index (I_{MA}).

The final stage was the calculation of the basic predicted value of the integral index of the competitive position level based on formula 2. The calculation results are shown in table 13.

Table 13. Forecasted values of the index of the level of competitive position of an agricultural enterprise and the agricultural sector of Ukraine for 2020-2022.

Indicators		Years		
		2020	2021	2022
Index of change in the level of production	Agricultural enterprise	1,10	1,11	1,13
	Ukraine	1,41	1,43	1,44
Labor productivity change index	Agricultural enterprise	0,99	0,98	0,97
	Ukraine	1,43	1,47	1,51
Production efficiency change index	Agricultural enterprise	1,08	1,08	1,08
	Ukraine	4,50	4,91	5,34
index of change in production costs	Agricultural enterprise	0,42	0,32	0,22
	Ukraine	0,45	0,39	0,33
Market advantage change index	Agricultural enterprise	2,06	2,21	2,36
	Ukraine	2,27	2,42	2,57
Integral index of the level of competitive position	Agricultural enterprise	1,00	0,96	0,90
	Ukraine	1,56	1,58	1,58

Source: calculated by the authors

The analysis of the data in Table 13 shows that according to the baseline forecast scenario, the level index of the competitive position of the economy decreases, while the industry average remains almost stable (with a small increase).

To assess the stability of the competitive position of the agricultural enterprise, we calculated the coefficient, which was defined as the ratio of the integrated index of the level of the competitive position of the enterprise to the corresponding indicator in Ukraine as a whole. The result is shown in Figure 3.

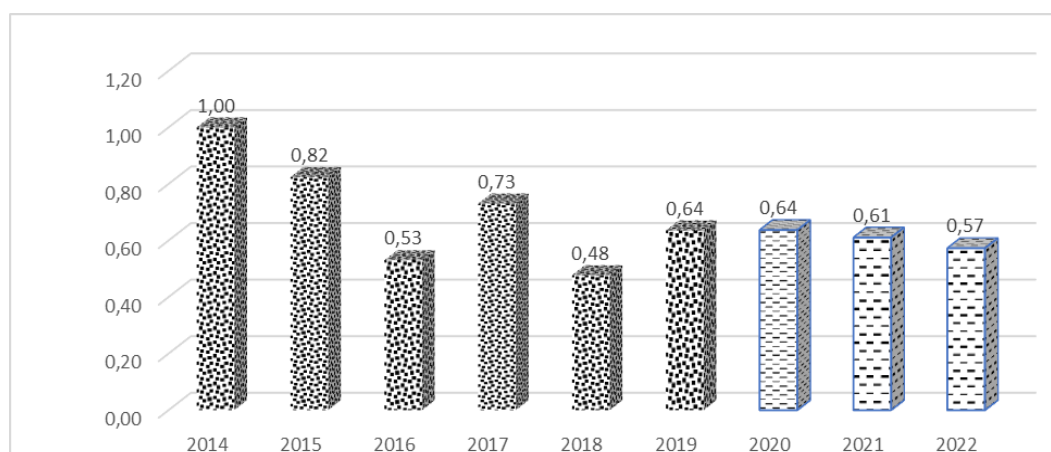


Fig. 3. Integral index of stability of the competitive position of an agricultural enterprise

Source: calculated by the authors

So, the forecast shows that while maintaining the existing trends, the stability of the competitive position of an agricultural enterprise in the future decreases.

The calculations performed correspond to the basic scenario of the development of events.

To calculate the pessimistic and optimistic variants of the development of events, it is proposed to correct (add or subtract) the standard deviation for the considered period of time:

$$\begin{aligned}
 PI_{SCP} &= I_{SCP} - STDEV(I_{SCP}) \\
 OI_{SCP} &= I_{SCP} + STDEV(I_{SCP})
 \end{aligned}
 \tag{23}$$

PI_{SCP} – pessimistic assessment of changes in the integral index of stability of the competitive position of an agricultural enterprise for the t-th year;

OI_{SCP} – optimistic assessment of the change in the integrated index of stability of the competitive position of the agricultural enterprise for the t-th year;

$STDEV(I_{SCP})$ –root-mean-square deviation of changes in the integral index of stability of the competitive position of an agricultural enterprise for the considered period of time.

The calculation results are shown in Figure 4.

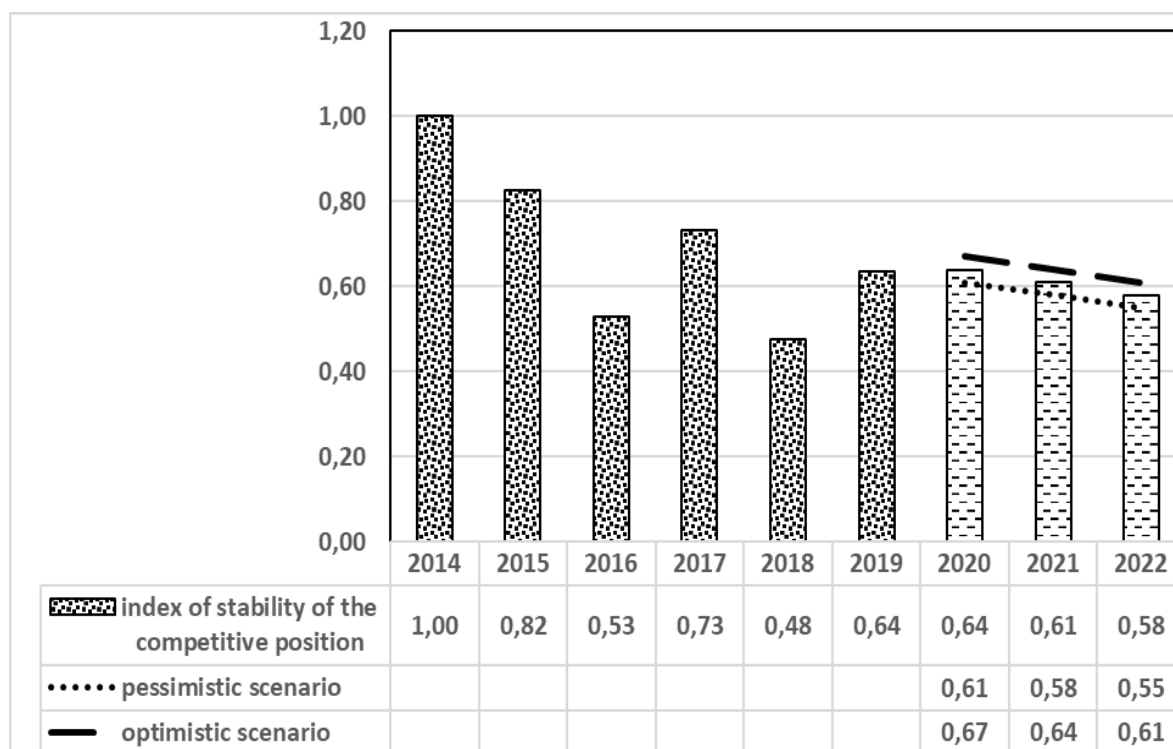


Fig. 4. Forecast of scenarios of sustainability of the competitive position of an agricultural enterprise for 2014-2022.

**Source: calculated by the authors*

Discussion. Thus, the stability of the competitive position is a category that is always on the scales, on the one hand - the company with its ability to use resources efficiently, the ability to respond quickly to change, and on the other - the same effective competitors who have their advantages (technologies, resources, etc.). Ensuring a sustainable competitive position is a complex process that requires constant monitoring and forecasting of possible development scenarios. A correctly chosen methodology for assessing the stability of the competitive position of an enterprise will determine how it will be able to strengthen its position in the market environment. When choosing a method, it is necessary to take a differentiated approach, analyze the industry-specific characteristics of the enterprise and take into account its uniqueness. In our opinion, the analysis of the competitive position should provide for an integral assessment using indices of changes in individual indicators in comparing the industry average values and the enterprise. When assessing the sustainability of a competitive position, we consider it necessary to take into account not so much the absolute values of certain indicators, or their comparison with competitors (industry-average), but the dynamic trends of changes in the corresponding indicators in comparison with each other. Forecasting is an important tool for taking into account future changes when making management decisions. We propose an approach to the formation of management decisions to increase the level of sustainability of the competitive position of an enterprise using scenario forecasting methods.

Conclusions. The proposed model of dynamic assessment and forecasting of the sustainability of a competitive position allows to model the position of an enterprise in the near future, provides the necessary information for making informed management decisions. So, we propose a model with which you can not only assess the level of competitive position of the enterprise, but also to determine the direction of their support as a whole and in terms of individual components, to develop a conceptual framework for radical change in production, the content of leading market positions, development and improvement of products, profitability and competitive potential of the enterprise. The implementation of the proposed measures will contribute to ensuring the long-term competitive development of an agricultural enterprise and, on this basis, the sustainable development of agriculture in Ukraine.

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