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Scientific-Methodological Bases of Parameter Estimation in Determining the Perspective of Agricultural Development

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Annotation: According to the sources, it is predicted that the annual gross income will increase to 2.06 billion US dollars as a result of the development of agriculture in the world market from 2020 to 2025, and the use of modern technologies in agriculture will increase to 4.8 billion US dollars in 2024. However, all the countries of the world pay priority attention to solving problems such as meeting the needs of the population for environmentally friendly organic products and ensuring food safety, occupying segments of consumer markets and adapting to the increasingly intense competition in them. These problems, in turn, have been studied by economists at the global and national level in such important areas as determining the directions of development of agriculture based on the wide introduction of digital economy mechanisms and technologies, strategies for ensuring the competitiveness of agricultural products in the world food market, and these problems are receiving priority attention today.

Keywords: Priorities, economic-financial, economic-technical, constructive calculation, Algorithmic, regression.

The correct selection of priorities for the development of agriculture creates wide opportunities for the efficient use of the resource potential of industries and enterprises, for predicting them in accordance with the directions of economic development, and for increasing the competitiveness of products in the conditions of the free market. Also, in the course of the development, the priority directions of agricultural development in the processes of mutual transformation between economic sectors are determined, and the economic-financial and organizational-management mechanisms of their implementation in the new institutional environment are justified.

In this case, the methods of determining the perspective are based on the analysis of basic data, the ratio and influence levels between the exogenous (external) and endogenous (internal) factors of the object (subject), as well as a certain confidence related to its activity for future development based on their measurements within a certain event or process. It is considered as a set of methods such as economic-technical, comparative analysis, and logical thinking that provide (Table 1).

Table 1. Methods of assessment of agricultural development prospects [1]

№	Names	Composition and content
1.	Methods of economic evaluation	It is classified by the level of formalization, principles of operation, method of obtaining analysis information, etc.
2.	Analytical method	Allows for logical analysis of prospective evaluation parameters and its presentation in the form of analytical notes.
3.	Scenario approach method	It is based on determining the logic of development of a process or event over time in different conditions of its implementation.

[1]It is based on the generalization of scientific views.

4.	"Target tree" method	It is used to analyze systems, objects and processes that can be divided into several structural or hierarchical levels.
5.	"Brainstorming" method	It is used to identify possible options for the development of the object under study and to obtain effective results in a short time by involving all experts in the active creative process.
6.	"Delphi" method	Based on the results of each processing cycle, it consists of systematic collection of expert assessments, their mathematical-statistical processing and consistent matching by assessment experts.
7.	Method of extrapolation	The basis is to apply the development trend of the economic process determined for the period in the future, and it is based on maintaining the current development trends in the future.

According to local and foreign scientists[2], there are many ways to determine the perspective in accordance with the content of the goals and selected directions in the current period. Most of these methods refer to separate processes that take into account its specific characteristics and level of development when predicting the future of a particular object (subject). Today, there are many software-instrumental and technological solutions that allow to predict the economy on a scientific basis and to use them effectively and purposefully in the activity of the object (subject) under investigation (Table 2).

Table 2. Classification of software-instrumental and technological solutions and effective methods[3].

№	Name of the instrument	Scope of application	Implemented models	Required training from the user	Readiness for use
1.	Microsoft Excel, OpenOffice.org	Extensive	Algorithmic, regression	Basic statistics knowledge	It is required to adapt to the object of prediction.
2.	Statistica, SPSS, E-views, Gretl	Conduct research	Regression neural networks	Special mathematical knowledge (education)	Finished product
3.	Matlab	Research, program development	Algorithmic, regression, neural networks	Special mathematical knowledge (education)	Programming required
4.	ForecastPro, ForecastX	Business forecasting	Algorithmic	No deep knowledge is required	Тайёр маҳсулот
5.	iLog, AnyLogic, iThink, Matlab Simulink, GPSS	Application development, modeling	Imitation	Special mathematical knowledge (education) is required.	It requires object-oriented programming

[2] Gold, B. Productivity, technology and capital. – Le xington, 1979. – P. 19, 153-236., Kimberly, J.R. Organizational side and the structuralist perspective. A review, critique and proposal // Administrative Science Quaterly. 1976. No. 21. P. 571-597.,Kline, S.J., Rosenberg G. (1986) An Overview of Innovation, The Positive Sum Strategy // In R. Landau & N. Rosenberg (eds.). The Positive Sum Strategy: Harnessing Technology for Economic Growth. Washington, D.C.: National Academy Press, 1986. P. 275-305.,

[3] It is compiled on the basis of generalization of scientific literature.

These solutions are scientifically-theoretical and methodologically-practical in terms of their content, in our opinion, they can be classified according to the following important criteria, i.e. according to the scope and purpose of the application, selected methods, user skills, readiness for work.

As mentioned earlier, in most cases, it is appropriate to use the stochastic method in the mathematical modeling of randomly recurring events. Because the use of stochastic models through the analysis of periodic changes in the prices of goods produced in various sectors of the economy serves as a basis for ensuring the level of authenticity and reliability of the obtained parameters. The analysis shows that today this method is more common in stock market trading processes, but, in our opinion, taking into account the cyclical-seasonal nature of the prices of agricultural products, economic modeling is useful in determining the parameters of changes in the volume of agricultural and food products. it is appropriate to use the stochastic method.

In order to analyze and evaluate the level of reliability of the results obtained based on the economic-mathematical modeling methods recommended above and their application, in the research process, data on the prices of vegetable products formed in the markets of our republic for the years 2010-2022 were collected and their daily changes were analyzed. It is worth noting here that although it seems difficult to determine and manage prices in the markets of agricultural products, based on the chain model developed and recommended by Markov, it is possible to analyze the future changes in the prices of consumer markets depending on time.

For this purpose, changes in the prices of vegetables in the farmers' and wholesale markets of our republic were recorded through monographic observations, and based on their results, the probability of profit or loss was analyzed. Based on the results of the analysis, it was justified that it is possible to create models for transitional prices, stable prices and average recurring prices. It is known that vegetables play an important role in providing food safety and the population with them in the primary condition, and there is no doubt that the change in their prices will have a negative or positive effect on the composition of the consumers' basket. Especially in recent years, sharp changes in vegetable prices affect the balance of interests of consumers and producers. Because a high price encourages producers, a sharp drop in price is in the interest of consumers.

According to the results of the analysis, more than 65% of the total produced vegetables are accounted for by farmers' farms, and they are the main source of income for many rural residents. In 2022, more than 8019 thousand tons of vegetables will be produced in our republic. Decisions taken by the government in recent years to increase the export of vegetables[4] and requires an analysis of the price changes of vegetable products due to the incentives of the producers. In fact, price formation in consumer markets is mainly carried out through the marketing system. However, the higher the number of intermediaries in the distribution of vegetable products to consumer markets, the higher the prices. For example, according to the results of monographic studies conducted by our local scientists, "today, vegetables reach consumers through sales channels mainly in 4-5 stages, and participating entities have shares corresponding to their activities and the volumes of services provided" (Fig. 1)[5].

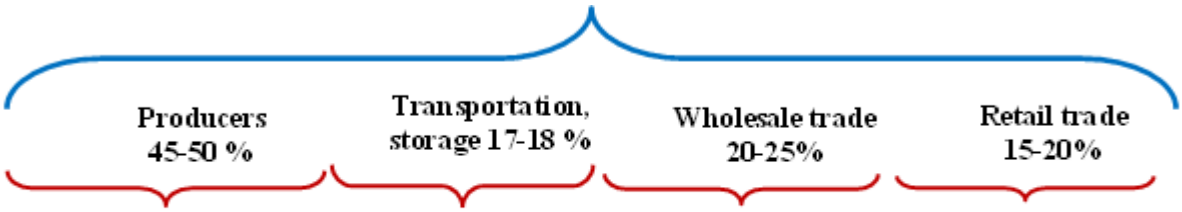

Figure 1. The share of participating entities in the structure of the prices formed in the markets of agricultural products.

[4]Resolution No. 53 of the Cabinet of Ministers of the Republic of Uzbekistan dated January 30, 2020 "On measures for more effective use of land plots of farms and residential estates".
[5] Umurzakov.U.P, Djuraev B, The formation of price of agricultural products and its efficiently management // Агроиқтисодиёт журнали 2018 йил №2.

In general, according to the data of Figure 1, the share of intermediaries, that is, wholesale trade entities, in the prices of products sold in consumer markets is high, making 20-25 percent.

In conclusion, we can say that in the conditions of transformation of the agrarian sector, problems such as scientific and methodical substantiation of prospective development directions of agriculture and parameters of future changes in the volume of branch products, especially food types, selection of optimal forecast results and implementation in practice, economic models and innovative information technology solving and setting the perspective based on the application of means is of great importance in increasing the competitiveness of agriculture and food products of our republic in the world markets.

From the point of view of determining the strategic directions of agricultural development in the processes of mutual transformation and modernization of economic sectors in the correct assessment of the future, their implementation in accordance with the conditions of changing market competition, the advantages, scientific and methodological-practical significance of this research work are justified, determining and managing the prices of products in the market, The Markov chain model is the basis for creating the possibility of a comprehensive economic analysis of the price policy and competitive environment in the food market.

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