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Analysis of Structural and Structural Changes in the Agrarian Sector of Our Country in Statistical Methods

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Abstract
In this article describes the current state and dynamics of the country's agricultural sector, economic and statistical analysis of agricultural production in economic entities and promising areas.

Keywords: Agriculture, agricultural production, gross domestic product, gross regional product, agriculture, animal husbandry, structural changes, investments, regional economy, economic and statistical analysis, agrarian reform, socio-economic processes.

Introduction

In a competitive environment, the development of our country's economy is inconceivable without the activities of the agricultural sector. Because the agricultural sector plays an important role in providing the population with food and agricultural products and is the main base for providing the industrial sector with raw materials.

Therefore, in order to ensure the sustainable development of the argar sector in our country, it is important to gradually and consistently implement economic reforms in its sectors, effectively use investment, labor, material, technological, and innovative potential, create a high level of added value in the sector, and achieve economic efficiency.

Today, at the level of economic reforms in the agricultural sector, a number of important legal, organizational, and economic measures for the sustainable development of forms of small business activity are being implemented in our country. In particular, the Strategy for the Development of Agriculture of the Republic of Uzbekistan for 2020-2030 pays special attention to supporting the development and diversification of entrepreneurial activity in the agricultural sector. [1] .

Normative legal acts on the conduct of farm activities include the Law of the Republic of Uzbekistan "On Farms" [1] and other subordinate acts. If an international treaty of the Republic of Uzbekistan establishes rules other than those provided for by the legislation of the Republic of Uzbekistan on farms, then the rules of the international treaty shall apply.

The purpose of this Law is to regulate relations in the field of creation, activity, reorganization and liquidation of farms. Currently, farming is one of the main subjects of agricultural production in the Republic of Uzbekistan.

A dehkan (personal subsidiary) farm is a family small commodity farm that produces and sells agricultural products based on the personal labor of family members on a household land plot granted to the head of the family for lifelong inheritable possession. The activities of dehkan (personal subsidiary) farms are regulated by the Law "On Dehkan Farms" [2]. A dehkan (personal subsidiary) farm may be carried out at the request of the members of the dehkan farm with the formation of a legal entity and without the formation of a legal entity. A dehkan (personal subsidiary) farm is created on a voluntary basis and is considered established after its state registration and provision of a land plot to it in the prescribed manner.

The New Uzbekistan Development Strategy for 2022-2026 also defines such tasks as "intensive development of agriculture on a scientific basis, increasing soil fertility, improving the system of providing agricultural services based on science and innovation, increasing the production volume of agro-industrial enterprises by 1.5 times, developing agro-logistics centers, increasing the number of modern laboratories, implementing the national program for seed production and seedling cultivation, creating an international agricultural university, deepening the integration of science and practice in the field" [4].

One of the urgent tasks today is to eliminate the factors negatively affecting the sustainable development of dehkan and farmer farms, to further strengthen state support for the farming movement, to create conditions aimed at ensuring its transformation into a leading force in society, to find optimal solutions to issues aimed at further increasing the income of dehkan and farmers by diversifying production.

At the same time, a comprehensive statistical analysis of agricultural production processes in the republic, a multifactorial assessment of economic development trends of farms, and the development of scientific proposals and practical recommendations for solving problems in the development of the agricultural sector by region are relevant and important issues.

2.Analysis of literature on the topic

Many domestic and foreign scientists and specialists have conducted extensive scientific research on increasing the efficiency of agricultural production and statistical assessment of its structural composition. In particular, Kh.D. Khodzhakulov, N.Kh. Rashitova, N.N. Askarov, S.N. Sayfullaev, and Kh. Shodiev scientifically investigated the methodological aspects of statistical analysis of structural and organizational changes in the agricultural sector, T. Shodiev investigated the theoretical and practical aspects of econometric models of economic development of the agricultural sector, Ch. Murodov, B. Berkinov, Sh.T. Ergasheva, K.A. Choriev conducted scientific research on the liberalization of agriculture in our country, the formation of the optimal composition of sown areas, structural and economic mechanisms of economic management, B.P. Pankov, N.A. Popov models of the agro-industrial complex, issues of effective organization of the agricultural economy, V.L. Somov analyzed the economic development and efficiency of agriculture using statistical methods. In particular, in the scientific article "Statistical Analysis of Production Processes in the Agrarian Sector by Forms of Economic Management," the peculiarities of agricultural production in our country, the role of economic entities in them, the level and dynamics of production by economic categories are statistically assessed, and scientific conclusions are drawn.

In the scientific article "Economic-Statistical Analysis of Agricultural Production" [15] of Candidate of Economic Sciences, Associate Professor K.Kh.Zhumaev, the current state of agricultural production in our country, the role of the industry in the country's economy, economic analysis of the economic activities of their main sectors, as well as the main problems and directions that need to be implemented for the development of the industry are described.

In the scientific article of Doctor of Philosophy (PhD) in Economic Sciences B.Utanov on the topic "Integral indicators expressing the effectiveness of the activities of diversified farms" [16], the system of economic determination and integral indicators characterizing the activities of diversified farms in our republic is scientifically substantiated. K. Berdikulov's scientific article "Statistical Analysis of Structural Changes Implemented in Agriculture" [17] highlights the regulatory documents adopted in the last year for the further development of agriculture and the processes of their implementation in practice, problems in the methodology implemented in agriculture, and ways to eliminate them.

In the scientific article "Labor Productivity as a Factor of Sustainable Development of Agricultural Enterprises" [18] by T.G. Kolesnikova and others, the role of the labor factor in the economic development of the agricultural sector, its features, and issues of economic and statistical analysis of the level and dynamics of labor productivity in agricultural enterprises are highlighted.

Despite the fact that in the above-mentioned studies, the development of the agricultural sector, structural and organizational changes were analyzed at different levels using statistical methods, studied from a theoretical and methodological point of view, in the current conditions, in-depth analysis of the agricultural sector of our country, based on the identification of trends in its changes, research on the study of the main directions of industry development and structural changes has not been carried out at the proper level.

3.Research Methodology

In the research process, such methods as scientific observation, generalizing indicators, statistical grouping, expert assessment, dynamic series, statistical tables, and graphs were widely used.

Methodologically, statistical agencies currently form statistical analyses of products grown in farms, dehkan (personal subsidiary) farms, and enterprises engaged in agricultural activities based on forms 1-FX "Report on the Activities of Farms" (annual), 2-FX "Report on the Activities of Farms" (2 times a year), 1-DX "Report on the Activities of Dehkan (personal subsidiary) Farms" (2 times a year), 1-QX "Report on Agricultural Activities" (annual), 4-QX "Report on Agricultural Activities" (quarterly), and 1-KB (QX) "Report on the Agricultural Activities of Microfirms and Small Enterprises" (annual).

The object of the research is the activities of farms and dekhkan farms operating in the agricultural sector of our republic.

The purpose of the research is to conduct an economic and statistical analysis of the production of crop and livestock products in the republic, changes in their structural composition, as well as to develop proposals and recommendations for their further development.

The purpose of the research is to conduct a statistical assessment of structural changes in the processes of growing crop and livestock products in the republic, to study research on the analysis of the agricultural sector, to conduct a comprehensive statistical analysis of the state of

development and effectiveness of agricultural activity, and to develop practical conclusions and proposals based on the results obtained.

The practical significance of the research results lies in the fact that, as a result of a comprehensive statistical analysis of structural changes in the agricultural sector of the republic, it expands the possibilities of developing targeted programs and making short-term forecasts.

4.Analysis and Results

During the years of independence, large-scale measures have been implemented in the republic to implement economic reforms aimed at introducing market relations and developing private property in the agricultural sector. As a result, the share of the non-state sector in the structure of agricultural production is currently 94.0 percent. Although the share of agriculture in the total volume of gross domestic product in 2023 was 25.0 percent (34.4 percent in 2000) and decreased compared to previous years, production in this sector is growing at a high rate. In 2023, gross value added in agriculture, forestry and fisheries amounted to 245,222.5 billion soums in current prices, an increase of 4.0 percent compared to 2022 [3]. This is relatively higher than in the CIS countries.

The main economic entities in the republic's agricultural sector are farms and dehkan farms, as well as agricultural enterprises. In the production of basic types of agricultural products, there is an increase in the share of farms (30.2%) and dehkan farms (62.3%), with a decrease in the share of organizations engaged in agricultural activities (7.5%) [3].

In our republic in 2023, the share of the agricultural sector in the total volume of agricultural production was 50.1 percent, and the livestock sector - 49.9 percent, in farms and dehkan farms these indicators were 90.9 and 9.1 percent, respectively, 30.7 and 69.3 percent [3]. The share of crop production in the total value of crop production by category of farms in farms and dehkan farms has been increasing in recent years. Such a situation can be observed in the livestock sector for farms. The share of production in agricultural enterprises decreased. This situation arose as a result of the development of the farming movement. Currently, the main part of livestock products is produced in dehkan farms.

The results of the analysis show that the increase in the yield of agricultural crops from year to year leads to an increase in the volume of gross output (Table 1).

Table 1 Dynamics of gross agricultural production by region of the country in 2023[15]

T/p	Territory names	Gross production output in 2023, billion soums	Growth rate compared to 2022 (%)
1.	Republic of Karakalpakstan	16390,8	103,2
2.	Andijan region	42942,4	103,0
3.	Bukhara region	37921,8	103,3
4.	Jizzakh region	27860,9	105,1
5.	Navoi region	19906,8	102,8
6.	Namangan Region	32868,0	104,4
7.	Samarkand region	51023,3	103,8
8.	Syrdarya region	14519,5	106,1
9.	Surkhandarya region	33646,6	103,6
10.	Tashkent region	41665,1	105,4
11.	Fergana region	39545,9	104,5
12.	Khorezm region	27814,9	104,4
13.	Kashkadarya region	39924,4	103,8
Total for the republic:		**426030,2**	**104,1**

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As can be seen from the data in Table 1, in 2023, high growth rates of agricultural production at the regional level in our republic were observed in Syrdarya (106.1%), Tashkent (105.4%), Jizzakh (105.4%), and Fergana (104.5%) regions. Relatively low growth rates were observed in Navoi (102.8%) and Andijan (103.0%) regions.

In all forms of management, the share of farms in the production of agricultural products is high and has a relative growth trend (Table 2).

Table 2 Dynamics of agricultural production in Uzbekistan

Маҳсулот тури	Бирлиги	In all categories of farms		including					
				On farms		On peasant farms		In agricultural enterprises	
		2023 y	As of 2022, %	2023 y	As of 2022, %	2023 y	As of 2022, %	2023 y	As of 2022, %
Grain crops	thousand tons	8453,4	105,8	6700,3	105,6	690,9	94,6	1062,2	116,2
Vegetable	thousand tons	11553,7	103,5	4249,3	105,1	6736,1	99,9	568,3	149,5
Melon	thousand tons	2553,5	105,5	1416,4	107,9	999,3	100,1	137,8	125,2
Fruits and berries	thousand tons	3121,7	104,1	1407,7	105,3	1604,9	103,1	109,1	102,3
Grapes	thousand tons	1731,7	102,6	770,4	96,6	911,0	99,5	50,3	104,2
Potatoes	thousand tons	3574,1	103,8	1013,6	111,6	2459,2	101,7	101,3	138,3
Meat	thousand tons	2833,2	103,9	171,6	100,8	2390,0	101,2	271,6	138,8
Milk	thousand tons	11968,7	102,9	708,2	112,5	11090,1	102,1	170,4	125,3
Egg	thousand tons	8487,4	104,4	1321,7	110,2	4869,3	101,3	2296,4	108,0

As can be seen from the data in the table above, significant positive changes have been observed in the dynamics of production of the main agricultural products in our country during the years under study.

Agricultural enterprises and farms had a significant impact on these changes.

The annual increase in the share of farms in the production of all agricultural products in the republic had a positive impact on increasing economic efficiency.

It has been proven in practice that farms have a number of advantages over other forms of management. In their activities, there are no serious problems in entering and exiting the market; flexibility in economic management and flexibility in production create wide opportunities for quick adaptation to changes in market conditions; based on private ownership, it increases the efficiency of resource use; as a financially independent enterprise, it develops production mainly at its own expense; farms fully meet the requirements of a market economy in terms of their socio-economic essence and principles of economic management.

The creation of broad opportunities for improving the activities of farms and their development is yielding positive results. The share of farms in the gross agricultural output, sown areas, livestock numbers, and the number of workers are growing at a rapid pace compared to the country's agriculture as a whole. These features of farms indicate that they have firmly established themselves as effective forms of management in the agricultural sector.

In any human society, there are economic laws that directly affect the production process and its effective organization, which people try to rationally use to improve their lifestyle and satisfy their material interests. Among such economic laws, it is important to consider laws related to supply and demand, value, expanded reproduction, and competition.

To ensure the economically successful completion of the production process in agriculture and the achievement of high economic efficiency by producers, it is necessary to care for each crop and livestock based on scientifically based technology. Because a certain type of crop or livestock care technology has its own peculiarities, non-compliance with which negatively affects the level of production productivity.

As our research shows, there are principles of interconnection and influence between the growth of agricultural production volumes in farms and the level of development of their property relations with respect to property, the harvest and income received. Because the more each farmer increases the volume of production and income, the greater their interest.

Table 3 Indicators of grain crop production in the republic, thousand tons [3]

Regions	Temperature scale			including farms		
	2022 y.	2023 y.	Slowing down the speed, %	2022 y.	2023 y.	Slowing down the speed, %
Republic of Uzbekistan	**7990,5**	**8453,4**	**105,8**	**6344,6**	**6700,3**	**105,6**
The Republic	312,2	317,4	101,6	250,9	253,9	101,2
Andijon	700,5	710,7	101,4	582,9	584,4	100,2
Bukhoro	620,1	645,4	104,1	465,7	480,8	103,2
Life	667,2	712,1	106,7	559,7	610,9	109,1
Kashkadarya	789,6	840,1	106,3	663,3	709,6	107,0
Navoi	252,1	257,8	102,3	218,7	223,4	102,0
Namangan	643,0	686,2	106,7	535,6	594,9	111,0
Category: Samarkand	827,8	879,8	106,2	713,9	761,9	106,7
Surkhandarya	723,0	754,2	104,2	527,9	529,2	100,2
Sirdar	522,2	559,1	107,1	390,3	401,1	102,8
Tashkent	603,0	651,0	107,9	316,6	319,7	100,9
Ferghana	868,0	943,9	108,7	816,9	895,8	109,6
Khorazm	461,6	495,5	107,3	302,9	334,7	110,4

As can be seen from the data in the table above, in our country in 2023, compared to 2022, the volume of grain crop production in all categories of farms amounted to 105.8 percent, and in farms - 105.6 percent. High growth rates were observed mainly in all categories of farms in Fergana, Khorezm, Tashkent, and Syrdarya regions, while high growth rates in farms were provided by Namangan, Khorezm, and Jizzakh regions.

However, there are a number of problems that need to be solved for the further development of the production activities of farms. This, in turn, affects the efficiency of agricultural production. In particular, the low level of organization of farm management, the low level of optimal decision-making, insufficient provision with information and communication technologies, the quality of various services provided to them by relevant enterprises are often low and expensive, and others. Currently, in all regions of the republic, due to the application of the same methods and agrotechnical processes, there is a slow decrease in the yield, quality, and effectiveness of crops. Therefore, if specific and appropriate agrotechnical measures are applied in each region, opportunities will be created for farming at the level of modern world economic requirements.

5.Summary and Suggestions

Based on the above information, in order to further develop and increase the efficiency of the agricultural sector in our republic, we propose the following:

1. In modern conditions, the improvement of the statistical methodology of the agricultural sector is an important issue. For this purpose, the following main tasks are recommended: development of a program for statistical observation of the industry's activities (widespread, sample, questionnaire, monographic observation, etc.); improvement of the system of indicators characterizing the financial results of agricultural activities (yield, product cost, income, profit, and profitability); statistical analysis of absolute and relative changes in the volume of production of the main types of agricultural products (agriculture and animal husbandry); comprehensive statistical analysis of structural changes in the scale of production of the main types of agricultural products;

2. Comparison of the main indicators of the scale of agricultural production in our country by regions using various statistical methods (economic indices, correlation-regression analysis, etc.);

3. Statistical modeling of time series characterizing the results of agricultural production activities and development of medium-term forecasts;

4. Comprehensive statistical analysis of various factors influencing the results of agricultural production activities and preparation of scientific and practical proposals based on them;

5. Today, the development of diversified farms has become an important aspect of the country's development, especially the main force in ensuring constant employment and well-being of the rural population, and is one of the important factors in raising the country's economy. It is necessary to solve the main problems facing diversified farms in the future, to develop the necessary measures for their comprehensive state support.

6. Measures such as ensuring the regular application of mineral and local fertilizers in the cultivation of agricultural crops in dehkan and farmer households of our country in appropriate norms and at established times, regular improvement of measures for the full and productive use of means of production, selective sowing of productive varieties of agricultural crops serve to increase the volume and efficiency of production in the agricultural sector.

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