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ECONOMIC-STATISTICAL ANALYSIS OF INDICATORS AFFECTING THE AGRICULTURAL NETWORK IN THE REPUBLIC OF UZBEKISTAN

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ABSTRACT **DOI No: 10.36713/epra17938** **Article DOI: https://doi.org/10.36713/epra17938**

This article statistically analyzes factors that have a strong influence on the main macroeconomic indicators of the agricultural network of our country and the general state of the economy. Also, based on the structural changes occurring in the agricultural sector and dynamic changes in the main economic indicators of the industry, these factors were analyzed by various statistical methods and a statistical assessment of their impact in future periods was given. In particular, the influence of GDP, GRP, economic categories operating in the network and their share, land area, share and influence of small businesses in the network is based on scientific results.

KEY WORDS : ***Macroeconomics, GDP, GRP, agriculture, small business and private entrepreneurship, macroeconomic indicators, agricultural production, structural changes, statistical indicators, economic statistical analysis, statistical methods, time series, correlation and regression analysis, factor analysis, agrarian reforms, social - economic processes .***

INTRODUCTION

In the period when serious negative effects on the well-being of the population are being observed due to the various crises that bring the developed countries to economic disadvantage, in the countries with developed agricultural sector, the positive state of the level of well-being of human life is maintained. This shows that the agricultural sector is gaining the most importance in all countries nowadays. The development of the agricultural network creates the basis for the development of the processing system in the country by growing environmentally friendly products in the network. In addition, it serves to increase the number of jobs for rural residents.

Today, the emergence of global instability in the world requires paying special attention to the study of problems related to food security and conducting extensive scientific research in this regard. In these studies, development of the economic development strategy of the agrarian sector, ensuring the proportionality of the growth of the population and demands with the increase in the production volume of agricultural products, sustainable development of the agrarian sector, specialization of production processes, increasing the level of economic efficiency of economic entities through the use of modern innovative technologies and methods requires necessity. According to official statistics , the world population's demand for agricultural products has been [1]growing by an average of 5-7% per year in the last 20 years .

Almost all countries of the world with developed agricultural network are reaching the peak of their economic development. As the main reason for this, the increase in the level of well-being of citizens has a very positive effect on their effective activities in

[1]*http://www.uz.undp.org/content/dam/uzbekistan/docs/Publications/economicgovernance/Improving_Productive_and_Export_Potential/un_uzb_Improving_Productive_%20and_Export%20Potential.pdf*

various fields. In recent years, the lack of a long-term strategy for the development of agriculture has hindered the effective use of land and water resources, the wide attraction of investments in the sector, the high income of producers and the increase of the competitiveness of products. A strategy for 2030 [2]has been developed. Its main goal is to fundamentally improve the state policy in deepening the reforms aimed at increasing the competitiveness of the agricultural and food industry, ensuring the food security of the population, creating a favorable agribusiness environment and value added chain, reducing the state's participation in the management of the sector and increasing the investment attractiveness, natural ensuring rational use of resources and environmental protection, development of modern systems of state administration, gradual diversification of state expenditures aimed at supporting the network, development of the system of science, education, information and consulting services in agriculture, development of rural areas, network statistics covers priority areas such as the development of a transparent system.

In the development strategy of New Uzbekistan for 2022-2026, "intensive development of agriculture on a scientific basis, increasing soil fertility, improving the system of providing agro-services based on science and innovation, increasing the production volume of agro-industrial enterprises by 1.5 times, developing agro-logistic centers, modern laboratories to increase the number, to implement the national program on seed and seedling cultivation, to establish an international agricultural university, to deepen the integration of science and practice in the field »[3] such tasks are defined. In order to ensure the effective performance of these tasks, the economic-statistical analysis of the activities of subjects active in the agricultural sector in the republic's territories , the relevance of researching the factors affecting their economic development determines the practical importance of our scientific work. Climate change, land degradation, water scarcity, pests and diseases, limitations in the market system, and existing labor shortages are the major challenges facing us today, requiring the expansion of scientific research to develop the sector. Currently, one of the urgent tasks is to eliminate the factors that have a negative impact on the sustainable development of farmers and farms, to further strengthen the support of the farming movement by the state, to create conditions aimed at ensuring that it becomes a leading force in society, and to increase the income of farmers and farmers by diversifying production. It is important to find optimal solutions to problems aimed at increasing.

ANALYSIS OF LITERATURE ON THE SUBJECT

The agricultural sector is one of the most important sectors of the economy of Uzbekistan, which serves to ensure the stability of Uzbekistan's export potential in foreign trade processes, as well as being a source of raw materials for food products, processing industry and service sectors of the population of our country. In the agricultural sector, which is the real "driver" of the economy in our country, about 27% of the employed workforce (2020) and 25% of the gross domestic product (2021) will be accounted for by this sector [4].

B. Utanov, one of the local economists, [5]in his scientific article on the topic "Integral indicators representing the efficiency of the activities of multi-sectoral farms" describes the activity of multi-sectoral farms in our republic and their economic determination and system of integrated indicators is described on a scientific basis.

Taking into account the need to solve the tasks of modernization of the agrarian sector and its transfer to the innovative path of development, N. Khushmatov expressed an opinion on ways to solve many problems and issues in the field of activation of innovative activities in this sector [6].

Globalization processes showed the need to take into account the influence of the world economy on the foreign economic relations of our republic and increasing the competitiveness of agriculture. The issue of increasing the export of agricultural products and the coordination of access to foreign markets by the state is one of the most important issues [7].

Statistical Analysis of Production Processes in the Agrarian Sector by Forms of Management" [8]by one of

[2]*Decree of the President of the Republic of Uzbekistan dated October 23, 2019 No. PF-5853 "On approval of the strategy for the development of agriculture of the Republic of Uzbekistan for 2020-2030". www.lex.uz*

[3] *Decree of the President of the Republic of Uzbekistan dated January 28, 2022 No. PF-60 on the development strategy of New Uzbekistan for 2022-2026. Lex.uz*

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[8]*Khojakulov Kh.D. Statistical analysis of production processes in the agricultural sector by forms of economic management // Scientific electronic journal of economics and innovative technologies, 2014, No. 3*

our local scientists who conducted extensive scientific research on increasing the efficiency of agricultural production and statistical evaluation of its structural structures, the specific features of growing agricultural products in our country, in which the manager of the farm the role of subjects, the level and dynamics of production by economic categories were statistically evaluated and scientific conclusions were drawn. T.Shodiev, one of the leading economists of our country, scientifically researched the theoretical and practical aspects of econometric models of economic development of the agricultural sector.[9]

As a result of his researches, despite the fact that the state allocates large subsidies and loans to the agricultural system of the Republic of Uzbekistan, not enough work is being done to solve the problems of this sector, he said that the role and importance of small and private entrepreneurship in the agricultural sector should be increased, and an innovative approach to the development of this sector is necessary [10].

Q. Berdigulov's scientific article entitled "Statistical analysis of the structural change implemented in agriculture" covers the normative documents adopted in the next year on the further development of agriculture and the processes of its implementation, the problems in the methodology implemented in agriculture and ways to eliminate them [11].

An approach to sustainable development of agriculture in the Russian Federation and other foreign countries and strategic planning of agrarian sector networks managed by artificial and intelligent intelligence is based on research conducted under the leadership of academician of the Russian FA Academy A.N.Anishchenko . [12]Also, the study analyzed trends in agriculture using smart technologies and assessed its development trends and competitiveness.

Ukrainian professor N.V. Kalinchik analyzed the existing approaches to the development of the strategy for the development of the agrarian sector of the economy. In particular, it is shown that in developed societies, the strategy envisages the support of small farms of various sizes [13].

According to A.G. Mikhaylov, the characteristics of the agrarian sector are important enough to distinguish it as a separate sector of the economy at all levels and in all aspects. Thus, the main practical issue facing the researchers is to determine the rules, compliance with which shows the most effective interaction of the agricultural sector with other sectors and its most rapid development.[14]

E.A.Boyko and L.Yu.Peterskaya devoted their research to considering the role of small business in the agrarian sector of the economy. It is explained that it is related to the growing interest in the development of small business in the village, the wide opportunities for consistent development of the agro-industrial complex in the conditions of the market changes taking place in our country. At the current stage of development, the agricultural sector is recognized as one of the growth factors of the entire national economy. The authors have widely covered the features of small business in agriculture and based on the results of the research, they have presented its specific concept [15].

RESEARCH METHODOLOGY

Scientific-practical research of the currently formed structural structure of the agricultural sector and its main concepts and the results of scientific research of foreign scientists served as the theoretical and methodological basis of this research. Abstract and analytical observation, comparative and factor analysis, normative and positive analysis, statistical grouping, expert assessment, scientific abstraction, dynamics series, economic indices, statistical tables and graphs were widely used in the research process.

ANALYSIS AND RESULTS

For years, large-scale reforms have been implemented in Uzbekistan for the development of the agricultural sector. As a result of these reforms, it is possible to mention the observed changes in the main indicators of agriculture. It is known that, in recent years, our country has seen great economic growth. In particular,

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[15]Boyko E.A., Piterskaya L.Yu. VII International scientific and practical conference "Current directions of scientific research: development prospects". 11/21/2018 Cheboksary 2018.

according to the results of last year, the volume of GDP in our country at current prices is 1,066,569.0 billion amounting to soum, we can observe that it has increased by 6.0% compared to 2022. At the same time, the total volume of products and services provided in the agricultural sector this year amounted to 426.3 trillion soums, the growth of agriculture and animal husbandry, hunting and the services provided in these areas compared to the previous year - by 117.6% (411.6 trillion soums), agricultural production increased by 117.2% (404.6 trillion soums), forestry - 108.3% (10.4 trillion soums), fisheries - 134.4% (4.3 trillion soums) can be recognized as a growth rate.

The structural changes of GDP are directly related to the development of the agricultural sector. Its analytical indicators are shown in the following figure.

From the data in the above figure, in 2019, agriculture accounted for 24.4% of GDP, and by 2022, this figure has decreased to 23.5%. However, it can be recognized that this indicator is not negative. The reason can be explained by the fact that the volume of industry and services in GDP has increased significantly compared to this sector.

Over the past years, GDP in our country, in particular, the volume of gross added value in sectors and especially in agriculture, has been growing significantly (Table 1).

Table 1.

The Main Indicators of The Economy of Uzbekistan, bln. in soums [16].

Indicators	2019	2020	2021	2022
GDP	532712.5	605514.9	738425.2	888341.7
Networks OK	487449.8	561153,4	686432.4	828054,2
sh.j. village at the farm	129885 .0	150493.7	181787.7	208452.9
Investment	195927.3	210195.1	239552.6	266240
sh.j. village at the farm	12199.1	14776.8	17727.9	15703.6
In economics clauses	13541.1	13236.4	13538.9	13737.3
sh.j. village at the farm	3544.6	3499.2	3414.7	3429.6

From the data in the table above, we can see that compared to the analyzed 2019 GDP (532,712.5 billion soums at current prices) and GNI (487,449.8 billion soums), the GDP created in 2022 (888,341.7 billion soums) and GNI (828,054, 2 billion soums) increased by 120.3 and 20.6%, respectively. In 2019, the volume of gross added value created in the agricultural sector was 129,885.0 billion. amounting to 208,452.9 billion soums in 2022, or an increase of 14.7%.

The investment has a very positive impact on the development of all industries. It is necessary to analyze the sources of financing of investments directed to the development of the agricultural industry in our country (Table 2).

Table 2.

Amount of Investments in Agriculture by Financing Sources, bln. in soums [17].

Funding sources	2019	2020	2021	2022
Republic budget	1903.5	1736	1231.9	1428.7
Enterprise and organization funds	1165,0	1163.8	3038.6	3461.4
Bank credit and another debt funds	1588.5	1883.5	2746.9	2209.9
Foreign investment and loans	5496.2	6739.9	7659.4	5067
Other financing sources	2045.9	2753.6	3051.1	3536.6
Total	12199.1	14276.8	17727.9	15703.6

It can be seen from the above table that in 2022 compared to 2019, excluding the investment allocated to the agricultural sector from the republic budget (75.0%) and foreign investment and credit funds (92.2%), the funds of enterprises and organizations (2.9 times), banks credit and other debt funds (139.1%), other financing funds (172.7%), increased significantly. The structural changes of these investments are also statistically significant.

From the figure above, we can see that the share of foreign investment and loans in the volume of investments in the sector has decreased in 2022 compared to 2019, but the total share has been the highest in years.

In the economic-statistical analysis of the state of agriculture in our country, it is necessary to analyze

[16] www . stat. en author's development based on information from the official site.

[17] www . stat. en author's development based on information from the official site.

the growth dynamics of cultivated area and agricultural and livestock products (Table 3).

Table 3
The Main Indicators of Agriculture.

Indicators	2019	2020	2021	2022
Crop area , thousand ha.	3309.4	3396.1	3340.6	3353.3
Village , forest and fishing in the farm created product and service , billion soum	224265.9	261892	317028	362898
including				
Farming	111904.8	123859	152130	177963
Animal husbandry	104378.3	126392	151285	167229
Village , forest and fishing in the farm created product and service , growth pace	103.1	102.9	104	103.6
including				
Farming	104.8	103.2	104.3	103.8
Animal husbandry	101.6	102.1	103.5	103.3
Village in the farm average yearly employment , million person	3.5	3.5	3.4	3.4

From the data of this table, it can be seen that the cultivated area of agricultural crops was 3309.4 thousand hectares in 2019, and by 2022 it was 3353.3 thousand hectares or equal to 101.3%. Including, in 2019, agriculture (111904.8 billion soums) products and services and animal husbandry (104378.3 billion soums) products and services compared to 2022 (177963.0 and 167229 billion soums, respectively) 59.0 and increased by 60.2%. But the average annual employment in agriculture is 3.4 million people from 3.5 million people. we can see that it has decreased per person.

To achieve these indicators, it is necessary to analyze the volume of the gross regional product created in the regions.

Based on the data of the above picture, the share of agriculture in the GNP created in our country in 2023 was the highest in Jizzakh, Surkhandarya and Khorezm regions, while the lowest share was in Navoi and Tashkent regions and the Republic of Karakalpakstan.

The Increase in the volume of agricultural production in our country is the level of provision of basic tools used in the industry, that is, agricultural machinery (Table 4).

Table 4
Production of the main types of Agricultural Machinery, pcs [18].

	2019	2020	2021	2022
Tractor, unit	2257	903	928	401
Tractor ash tivator , thousand units	3.8	0.7	0.4	0.4
Storm, grain	54	117	586	1258
Grain combine, unit	307	323	174	202
Seed drill, piece	1288	1083	271	626
bridged electricity lifter , pcs	19	53	145	79
reaper, piece	104	53	24	5

From the data in the above table, we can see that in 2019-2022, the production indicators of agricultural machinery in our country had different changes. In particular, while the number of tractors, tractor cultivators, grain harvesters, and seeders decreased, only bridge electric hoists increased by 60 units (4.1 times).

The number of enterprises and organizations operating in the region is also one of the factors influencing the development of the agricultural sector. Therefore, we will analyze the data reflecting their situation at the beginning of 2023 in the cross-section of regions.

From the above table that when analyzed by regions, the largest number of enterprises and organizations was in Kashkadarya region - 5,352 units or 14.2% of the total number of enterprises and organizations operating in this field in the republic, on the contrary, the least number of enterprises and organizations was in Tashkent city - 646 unit (1.7%) noted.

[18] *www.stat.en author's development based on information from the official site.*

It is necessary to analyze the impact of the volume of products grown in agriculture, forestry and fisheries on the total volume of products (services) of agriculture, forestry and fisheries of the Republic of Uzbekistan (Table 5).

Table 5

The total volume of agricultural products (services) produced in Uzbekistan, trillion soums.

	2019	2020	2021	2022	2023
Total	**224.3**	**261.9**	**317.0**	**362.9**	**426.3**
that's it including :					
Farming and animal husbandry , hunting and this in the fields shown services	217.3	253.2	306.9	350.1	411.6
from which :					
Village economy product	216.3	250.3	303.4	345.2	404.6
Forestry economy	5.5	6.8	7.5	9.6	10.4
Fishing economy	1.5	1.9	2.6	3.2	4.3

The data in the above table shows that the volume of agricultural, forestry and fishery products (services) in January-December of this year compared to the corresponding period of the previous year increased by 104.1% (January-December of 2022 compared to January-December of 2021 - 103, 6 %), including agriculture and animal husbandry, hunting and services provided in these areas - 104.1 % (103.6 %), forestry - 102.7 % (101.7 %), fisheries - 107, shows that it was 4% (106.4%). Their share in total agricultural products shows how they influence the development of the industry.

CONCLUSIONS AND SUGGESTIONS

Based on the above analysis, the above researched factors are of incomparable importance in ensuring the effective operation and development of farmers-farms engaged in agricultural activities. Using the data of statistical analysis, the following are recommended in addition to the factors affecting the development of the agrarian sector listed above: renewal of product storage warehouses by agro-firms based on foreign investments; organizing exhibitions of new mini-technologies in cooperation with the farmers' union, the chamber of commerce and industry and other interested organizations, forming the necessary statistical data base on their purchase; reconsideration of providing the necessary financial support (lease, preferential loan) for providing farms with modern technologies in the regions; allocation of preferential loans from commercial banks; it is considered appropriate to form a database of statistical information on foreign and domestic markets, processing enterprises, population demand for agricultural products, prices, purchase volumes.

Also, it is necessary to find a solution to the existing problems in the development of the agricultural network and to ensure the implementation of the prospective parameters in 2022-2026, to determine the priority directions in this area and to set measures for them.

In addition to the investment and the provision of basic equipment, which play a key role in the development of agriculture in our country, it is necessary to increase the agrotechnical work to increase the productivity of land areas and increase the level of employment in the sector. At the same time, the creation of many opportunities for products and services created in the network to enter the world market will increase the profitability of legal entities operating in the network, as well as private households. As a result, the ground will be created for the further increase of the welfare of the population.

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