

RESEARCH PAPER

Management of Economic Security of the Ukraine's Agricultural Sector in the Conditions of Globalization

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ABSTRACT

The essence of the economic security of the Ukraine's agricultural sector, its role in further globalization, as well as the trends of changes in key indicators of economic security till 2024 are considered in the article. The economic security of the agricultural sector is determined by the authors as an important component of the economic security of a country. It provides the state of a system (as a whole or individual entities), which in conditions of permanent influence of external and internal factors ensures the stability and progressive development of the agricultural sector providing conditions for preservation and further reproduction of resource potential, guarantees food security, promotes the development of rural areas. The emphasis is focused on the special role of food security in the context of achieving the Global Sustainable Development Goals. The key indicators of achieving the Sustainable Development Goal 2 "Overcoming hunger, achieving food security, improving nutrition and promoting sustainable agricultural development" are analyzed. The positive dynamics is established for the following indicators: Productivity labour in agriculture; Index of agricultural products; The share of agricultural lands under organic production in the total area of this year lands; The consumer price index for food. Other indicators show that Ukraine lags far behind the targets. The need to form a unified approach to the management of economic security of the agricultural sector has become the basis for the development of conceptual foundations for the strategy of economic security of the Ukraine's agricultural sector in the context of globalization. The implementation of this strategy will strengthen further the food security.

KEYWORDS: *Economic security; Food security; Agricultural sector; Strategy; Management; Goals of sustainable development; Indicators.*

1. Introduction

Ukraine's integration into the world economic space requires the formation and development of economic security, which will provide a solid

foundation for functioning of the agricultural sector in order to meet not only the needs of the domestic market but also to ensure our country's leading position in the world market of agricultural products and food.

The theoretical basis of studying the problem of economic security of the agricultural sector of the Ukraine's economy is to clarify the essence of the concept of "economic security", its development and place in the national security system. A thorough analysis of the current regulatory framework has allowed to identify the following levels of normative regulation of economic security in Ukraine. Level 1 is formed by the Constitution of Ukraine. level 2 - the Codes of Ukraine (Commercial, Civil, Criminal, Tax, Administrative, Customs and others); Level 3 - the Law of Ukraine "On National Security of

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Ukraine"; Level 4 - other laws on security issues or on the activities of economic security entities: "On the Prosecutor's Office", "On the Security Service of Ukraine", "On Protection against Unfair Competition"; "On Protection of Economic Competition", etc., as well as international security regulations ratified by Ukraine; Level 5 - legal normative documents (strategies, concepts, recommendations); Level 6 - regional regulations of local governments, business entities [1-9].

2. Literature Review

The term "economic security" has a long history. The study of the dynamics of the intensity of publications on the study of economic security ("economic security") in world scientific English sources since 1840 shows that the growth of scientific interest in economic security began in 1930, and the peak of activity was in 1944. In post-Soviet countries the intensive growth of interest began almost 130 years later in early 90's of the twentieth century, and the peak of activity was recorded in 2002 [10].

The economic security as an economic category has a complex internal structure, which is confirmed by the multi-vector views on its content. The definition "economic security of the agricultural sector" is considered by scientists from the following positions: as a component of economic security of a state; as food security; as the development of rural areas; as economic security of enterprises in the agricultural sector [11-15].

In our opinion, the economic security of the agricultural sector is an important component of the economic security of a country. It provides the state of a system (as a whole or individual entities), which in conditions of permanent influence of external and internal factors ensures the stability and progressive development of the agricultural sector that provides conditions for preservation and further reproduction of resource potential, guarantees food security, promotes the development of rural areas.

The main threats to the economic security of the Ukraine's agricultural sector are: unreasonable changes in legislation; inefficient mechanism of state support of agricultural production; price disparity; significant tax pressure; loss of markets; low product competitiveness; unstable political situation; lack of a proper system of protection against potential external hazards; unfavourable weather and climatic conditions; corruption; low level of availability of credit resources; deterioration of financial performance;

unprofessional management of agricultural sector enterprises; low level of qualification of employees; significantly worn out and obsolete technical base. Use of non-progressive production technologies, technological retardation; depletion of lands.

For further development of economic security of the agricultural sector it is necessary to understand that its functional components are: financial, personnel-intellectual, production-technological, political-legal, security of decision-making and information security, ecological, investment-innovative, social, marketing, resource-technical, energy, food, transport, foreign economic ones.

The article focuses on the food component of economic security which is crucial for the agricultural sector.

Food security is one of the important components of economic security which creates the basis for further development of the state. Achieving food security is one of the Global Sustainable Development Goals till 2030, set by UN member states at the 2015 Sustainable Development Summit [16]. Today, the problem of food security both at the level of our country and in the global dimension is not fully solved, that is why further research in this field is relevant.

The legislation of Ukraine defines food security as "protection of human vital interests which is expressed in the state guarantee of unimpeded economic access to food in order to maintain its normal life" (Article 2.13 of the Law of Ukraine "On State Support of Agriculture in Ukraine") [17].

However, it should be noted that the content of the category "food security" has been transformed even at the level of the FAO international community since 1983. In 1983, FAO determined that food security occurs when everyone has the opportunity to find and buy the necessary food at any time [18].

According to FAO definition reflected in the Rome Declaration on World Food Security, adopted in 1996, food security is achieved when all people have physical and economic access at any time to sufficiently safe and nutritious food to meet their dietary needs and taste preferences for an active and healthy lifestyle [19].

Food security occurs when all people at any time have physical, social and economic indicators of access to sufficient, safe and nutritious food that meets their dietary needs and nutritional standards for an active and healthy life [20].

The topic of food security of separate nations and of the world a whole has been in the focus of

attention of the entire world community, especially of the developed countries, since the seventies of the last century. The real situation in the world and in many countries demonstrates that the growth of the population of the Earth requires an accelerated growth of food production [21].

Today, the leading scientists believe that the food security of the country is the level of country's population supply with ecologically pure and useful for health of population domestic products at scientifically sound standards and affordable prices while preserving and improving the living environment. According to experts' points of view, during the life of the modern generation, the food problem may escalate into a deep international crisis [22].

Food security of any state is determined by the efficiency of the entire national economy. At the same time, food resources are formed in the agricultural sector. Undoubtedly, food security is a component of economic security [23].

The global debate on food security continues. Bazerghe et al., note that the main threats for food security arise when the supply of nutritious and safe food decreases or disappears, or when the solvency of the population is low [24].

Nutrition imbalance; reduction of own production volumes of separate products; non-compliance of consumption of important food products with scientifically substantiated norms, deterioration of food quality; economic unavailability of food due to population low incomes; high differentiation of living standards by social groups are considered the main problems of food security in Ukraine.

Scientists around the world are conducting research concerned with the growing impact of climate change on food security [25].

In addition, environmental and agri-environmental problems exacerbate the crisis of resources for agro-industrial production. [26]. These and other circumstances necessitate a scientific approach to solving the situation and working out the effective strategies in accordance with the identified trends and scientific forecasts [27-29, 33-34].

3. Materials and Methods

The methodological basis of the study is the dialectical method of cognition, conceptual provisions and results of fundamental researches of domestic and foreign scientists on the development of economic security.

The study was conducted using modern general scientific and special methods:

of abstract logics and comparison - for the formation of the conceptual and categorical apparatus of research, as well as the study of the content of economic security and deepening scientific understanding of its essence;

of formalization, synthesis, abstraction and logical generalization - to study the functional components of economic security of the agricultural sector, particularly food security;

of analysis and synthesis - for the assessment of the level of food security, the structure of the system of indicators and their effectiveness;

monographic - to study the development of the agricultural sector and the peculiarities of the formation of its economic security;

economic and statistical - to study the current state of the agricultural sector, as well as the implementation of tasks ensuring the achievement of Sustainable Development Goals

economic and mathematical modelling - to predict functioning of the agricultural sector economy;

of theoretical generalization - to form conclusions based on the results of the study.

The information base of the research was normative legal documents corresponding to the research problem, materials of specialized periodicals, covering issues of economic security and food security, official data of the State Statistics Service of Ukraine, analytical calculations of the author, which were performed in the process of scientific research, materials of the Internet.

4. Results and Discussion

Food security is an important component of the economic security of the agricultural sector, as it provides a state of production of food by the agricultural sector which meets the needs of each member of society in food of adequate quantity and quality, providing it is balanced and accessible.

In terms of ongoing globalization, the problems and perspectives of Ukraine's achievement of the Global Sustainable Development Goals (SDG), particularly SDG 2 "Overcoming hunger, achieving food security, improving nutrition and promoting sustainable agricultural development" have been studied. Achieving SDG -2 involves the following tasks:

1. to ensure the accessibility of balanced nutrition at the level of scientifically based standards for all population groups.
2. to double agricultural productivity, firstly through innovative technologies application.
3. to ensure the development of sustainable food

production systems that help preserve ecosystems and gradually improve the quality of lands and soils, primarily through innovative technologies.
4. to reduce the volatility of food prices.

The state of these tasks is evidenced by certain indicators. The Information on the first task implementation is given in table 1.

Tab. 1. The state of implementing task 1- to ensure accessibility to balanced nutrition to the level of scientifically based standards for all population groups

Indicators	Years					2020	2030
	2015	2016	2017	2018	2019	(benchmark)	(benchmark)
1.1. Meat consumption per capita, kg / year	50,9	51,4	51,7	52,9	53,6	61,0	80,0
1.2. Milk consumption per capita, kg / year	209,9	209,5	200,0	199,8	200,5	270,0	380,0
1.3. Fruit consumption per capita, kg / year	50,9	49,7	52,8	57,8	58,7	65,0	90,0

Source: calculated by the authors based on the data [30].

As for the implementation of the first task, the following results have been obtained:
- indicators 1.1. and 1.3 need acceleration ;
- under the threat the performance of the indicator

1.2 as it has reverse dynamics.
The information on the second task is given in table 2.

Tab. 2. The state of implementing task 2 - to double agricultural productivity, firstly through innovative technologies application

Indicators	Years					2020	2030
	2015	2016	2017	2018	2019	(benchmark)	(benchmark)
2.1. Productivity labour in agriculture, thousand US dollars per employee	8,68	8,71	9,30	10,61	10,83	10,0	15,0
2.2. Index of agricultural products, %	95,2	106,3	97,8	108,1	101,1	102,0	102,0

Source: calculated by the authors based on the data [30].

As to the implementation of the second task, the following results have been obtained: both indicators had a positive dynamics and at this

stage their value corresponds to the targets.
The information about the implementation of the third task is given in table 3.

Tab. 3. The state of implementing task 3 - to ensure the development of sustainable food production systems that help maintain ecosystems and gradually improve the quality of land and soil, primarily through innovative technologies

Indicators	Years						2020	2030
	2015	2016	2017	2018	2019	2020	(benchmark)	(benchmark)
3.1. Production index of food products,%	88,6	108,9	107,1	98,5	103,9	99,5	103,0	103,0
3.2. The share of food industry products and processing agricultural raw materials in exports of groups 1–24 Ukrainian classification of goods of foreign economic activity,%	38,3	42,0	41,0	39,4	44,3	45,1	51,0	65,0
3.3. The share of agricultural land under organic production in the total area of this year lands,%	1,0	0,9	0,7	0,7	1,1	-	1,1	1,7

Source: calculated by the authors based on the data [30].

Regarding the implementation of the third task, the following results have been received:

- indicator 3.1 does not have clear dynamics (its value varies from 88.6 to 108.9%), and therefore this indicator needs to be stabilized;
- the indicator 3.2 is under threat, as its growth rates are very low;
- the value of indicator 3.3 at this stage corresponds to the targets.

The indicator 4.1 shows the fulfillment of the fourth task (to Reduce the volatility of food prices). The consumer price index for food, % (Fig. 1).

The target value of indicator 4.1 is 105.0% for 2020-2030. Based on the economic essence of this indicator, we can conclude that it has a positive trend and its value meets the targets at this stage.

According to scientists' view, for an in-depth study of the current and projected level of food security at the nanoscale (food security of a man and his family) it is necessary to develop

appropriate parameters - indicators differentiated by professional and gender-age population [31]. In order to achieve SDG-2 till 2030, it is necessary to bring the main types of food consumption (meat, milk, fruit) to the scientifically substantiated level of consumption by the population of Ukraine. The increase of labour productivity in the agricultural sector (up to 15 thousand US dollars per employee in the sector) will contribute to the stable growth of gross agricultural output, which by 2030 should be increased by more than a third, that should not only increase the share of raw materials at foreign markets of Ukraine, but also stimulate the development of the domestic food industry. The increase of agricultural production should take place in compliance with environmental norms and international food quality standards. First of all, the increase of the agricultural land area allocated for the production of organic products is expected [32-33] (Fig. 1).

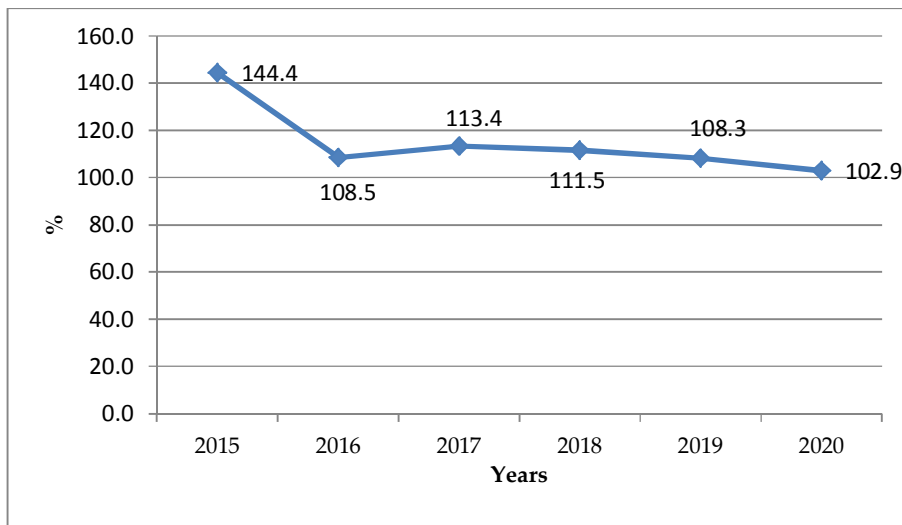


Fig. 1. The dynamics of the consumer price index for food in Ukraine during 2015-2020, %
Source: calculated by the authors based on the data [30].

In order to assess Ukraine's further prospects for strengthening the economic security of the agricultural sector as a whole, as well as ensuring the adequate level of food security, as one of the important components that ensures the achievement of SDG-2, we've made the corresponding forecast.

An effective applied tool for the study of macroeconomic phenomena is a trend analysis, which allows to identify trends in economic

development over a significant period of time and their description using equations with one variable - the time variable. Trend functions can be the following: exponential, linear, logarithmic, polynomial and power ones. When forecasting indicators-factors of economic security in the agricultural sector for 2021–2024, the one with the highest level of approximation (R^2) has been chosen for the study (Table 4).

Tab. 4. The results of constructing a trend forecast of indicators-factors of economic security of the agricultural sector for 2021-2024

Indicators	Trend equation, the level of approximation, the type of function	Forecast scenario	Value by years			
			2021	2022	2023	2024
Labor productivity in agriculture, per employee at constant prices in 2016, thousand UAH	$y = 58,916x + 323$ $R^2 = 0,9686$ Linear function	optimistic	1406,0	1464,9	1523,8	1582,8
		realistic	1029,4	1088,9	1147,8	1206,7
		pessimistic	654,0	712,9	771,8	830,7
Agricultural products at constant prices in 2016, million UAH	$y = -1435,3x^2 + 37202x + 432616$ $R^2 = 0,8872$ Polynomial function	optimistic	810894	809342	804921	797628
		realistic	673676	672125	667704	660411
		pessimistic	536459	534908	530486	523194
Share of livestock products in agricultural production, %	$y = 0,05x^2 - 1,3276x + 29,347$ $R^2 = 0,8314$ Polynomial function	optimistic	26,6	26,5	26,5	26,6
		realistic	20,6	20,5	20,6	20,7
		pessimistic	14,7	14,6	14,6	14,7
Livestock at the end of the year, thousand heads	$y = -171,68x + 5222,4$ $R^2 = 0,9354$ Linear function	optimistic	4174,2	4002,6	3830,9	3659,2
		realistic	2818,9	2647,2	2475,5	2303,8
		pessimistic	1463,5	1291,8	1120,2	948,5
Number of employees in agriculture, thousand people	$y = 906,18x^2 - 31550x + 833328$ $R^2 = 0,9267$ Polynomial function	optimistic	729,0	720,1	713,0	707,7
		realistic	585,2	576,3	569,2	564,0
		pessimistic	441,5	432,6	425,5	420,2
Energy capacity, kW per 100 hectares of sown area	$y = 0,0962x^2 - 6,6643x + 242,87$ $R^2 = 0,6908$ Polynomial function	optimistic	216	212	209	206
		realistic	157	154	151	148
		pessimistic	99	96	93	90

Source: Author's own.

The optimistic scenario of economic security of Ukraine's agricultural sector has positive growth trends in such indicators as labour productivity in agriculture per employee, agricultural products at constant prices in 2016, the number of employees in agriculture and indicates the possibility of increasing the number of livestock ' cattle and the growth of energy capacity per 100 hectares of sown area.

The pessimistic forecast scenario takes into account the risks and threats that may affect the level of economic security. In the case of such threats worsening the main indicators in average term perspective comparing with the optimistic scenario are foreseen.

On the basis of the conducted forecast, a set of measures and recommendations for further development of the economic security of the agricultural sector is proposed. As Ukraine's agricultural policy is characterized by situational and uncoordinated decisions that are weakly

correlated with national and global goals and objectives, today there is a need to form a unified approach to managing economic security of the agricultural sector which has become the basis for developing conceptual principles of development strategy in the economic security of Ukraine's agricultural sector.

We believe that the further development of economic security of Ukraine's agricultural sector can be ensured by implementing the following prerequisites:

- the creation of a proper legal basis for the implementation of priority tasks of agricultural policy. The further development of regulatory policy in the agricultural sector;

- the regulation of the land market as the main means of production taking into account the interests of agricultural producers, ensuring the reliability of the State Land Cadastre and improving land lease relations;

- limiting the expansion of agricultural

holdings to prevent further spread of the negative consequences of their destructive impact (market monopolization, unfair competition, the lack of funds in local budgets, the significant losses of value added from exports of raw materials, etc.);

- the exit from the raw material stage characterized by a low share of value added and depletion of land and other natural resources, movement in the direction of creating goods with high added value;

- the improvement of tax policy in the agricultural sector for optimizing the tax loading on agricultural producers;

- ensuring the sufficient amounts of state support of the agricultural sector, its implementation on a permanent basis and available conditions, further expansion of directions of state support, as well as increasing its volume to the required limits;

- the formation of financial and credit support for the development of the agricultural sector on the institutional basis through the creation of a system of land mortgage lending, the provision of soft loans, the partial compensation for the cost of loans, the formation of a microcredit system for small agricultural producers;

- the introduction of resource-saving and ecologically pure technologies of agricultural production for the increase of the competitiveness of products and expanding sales markets, as well as a positive impact on environmental protection and restoration of soil fertility;

- further deepening the cooperation with the EU in the direction of forming a common agricultural policy, as well as the approximation of Ukrainian legislation to EU legislation;

- the introduction of comprehensive regulation of the development of the agricultural economy and rural areas to restore the latter, the improvement of the living conditions of rural residents. Creating favourable conditions to increase the prestige of labour in the countryside, attracting young professionals;

- creating preconditions for further development of agricultural science and education that will ensure the development and introduction of advanced technologies for agricultural production, the effective implementation of the personnel component of security, will allow to manage economic security on a scientifically sound basis;

- ensuring the further development of organic production, which contributes to the preservation of ecosystems and gradually improves the quality of lands and soils;

- the creation of favourable conditions for the development of animal husbandry in order to ensure the consumption of products of animal origin within scientifically sound standards by increasing the number of enterprises engaged in animal husbandry, increasing the number of animals, increasing their productivity, etc.;

- the improvement of the pricing system, which is a prerequisite for the progressive development of the agricultural sector, ensuring price equilibrium in the agricultural sector;

- the development of the export strategy of the agricultural sector as a component of the export strategy of Ukraine, which should become a reliable basis for foreign trade in agricultural products;

- the creation of a favourable investment climate for agricultural producers, as well as the effective regulation of investment activities in the agricultural sector of the economy;

- further work in the direction of forming subjects of economic security in the agricultural sector, the popularization of creating corresponding divisions and services.

Economic security management is impossible without evaluating the results of the strategy. Such assessment should be carried out firstly at the local level, followed by a further generalization of the information received at the state level.

With this aim, it is advisable to introduce the following measures: the creation of monitoring groups; approval of their work order; determining the list of indicators for evaluation of the results; determining the procedure for entering evaluation results; determining the procedure for processing and publishing the evaluation results.

5. Conclusions

The current stage of development of our state in terms of globalization requires forming and further strengthening of economic security in the agricultural sector. These processes also include food security and independence in the context of the international labour division and the specialization of agricultural producers and suppliers of food products to world markets.

The economic security of the agricultural sector in terms of achieving the Global Sustainable Development Goals has been studied in order to identify prospects in this direction. The consumption of the main types of food by the population of Ukraine is less than the scientifically substantiated norms, particularly, for meat at the rate of 83 kg / year the actual consumption is 65%; for milk and dairy products

at the rate of 380 kg / year the actual consumption - is 53%; consumption of eggs at the rate of 290 pieces / year is 97%; fish consumption at the rate of 20 kg / year -is 63%; consumption of fruits, berries and grapes at the rate of 90 kg / year - is 65%. Therefore, the state of food security can be considered unsatisfactory. The main priority to be completed till 2030 is to bring the population of Ukraine to the level of consumption of basic food to a scientifically sound level.

The conceptual bases of the strategy formation of Ukraine's agrarian sector of economic safety development that is based on forecast data which allow to make conclusions about tendencies of the key indicators changes of agrarian sector activity are substantiated. The implementation of the suggested directions of the strategy implementation will further strengthen food security in the context of globalization.

In the future, we consider promising the study of other important components of economic security such as financial, personnel and intellectual, productional and technological, environmental, investment and innovation, as well as social and others.

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