
Economic Security of the Agrarian Sector in the Context of the Global Sustainable Development Goals

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Abstract:

Purpose: *The purpose of the study is to substantiate the problems and prospects of Ukraine's achievement of the Sustainable Development Goals in the condition of developing the economic security of the agricultural sector.*

Design/Methodology/Approach: *The methodological basis of the study is the dialectical method of cognition of the economic phenomena, the position of economic theory as to the economic security, the analysis and synthesis for determining the dynamics of individual indicators of the status of completed tasks. The study period is 2010-2018.*

Findings: *The main recommendations for further development of the economic security of the agricultural sector are to increase the level of investment attractiveness of the agricultural sector, to stimulate the creation of small farms, the technical modernization of the agricultural production, to promote increased value-added food exports, to create a clear mechanism of regulation of the market of organic products and raw materials with a proper system of certification ensuring the stability, predictability and transparency of the state support system for the agricultural sector.*

Practical Implications: *The results of the study may be useful for developing a further strategy for the economic security of Ukraine's agricultural sector, taking into account the implementation of the Global Sustainable Development Goals.*

Originality/Value: *Achieving the sustainable development is a top priority for most countries of the world. Ukraine has the relevant goals, in this direction the achievement of which is impossible without a reliable foundation, that in modern conditions should be the agricultural sector of the economy.*

Keywords: *Economic security, agricultural sector, goals of sustainable development.*

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1. Introduction

Problems of economic security attract the attention of both domestic and foreign scientists. The unstable political and economic situation in Ukraine and the world determines the relevance of research in this area. In such conditions, the agricultural sector of Ukraine is significantly affected by destabilizing factors of the external and internal environment, and therefore is one of the most vulnerable components of the economy.

The economic security of the agricultural sector, as an economic category, in the scientific literature is considered from the following positions: a component of economic security of the state; food security; development of rural areas; economic security of agricultural enterprises. The economic security of the agricultural sector is closely linked to the economic security of the state and the economic security of separate enterprises operating in this sector of the economy (Utenkova, 2018).

In this alternative approach economic security comprises a microeconomic and macroeconomic component. The microeconomic one focuses on the individual, as main referent of security, with the purpose of ensuring revenue security, as well as access to a level of consumption able to assure basic human and family needs. The macroeconomic component refers to the assurance of integrity or robustness of the market to generate economic growth and welfare in society (Andruseac, 2015).

Economic security is not a new concern for the government, economic instruments being part of the statecraft set of instruments for a long time now, a means to influence other states and their policies (Kahler, 2004).

Achieving sustainable development is a priority for most countries in the world. Stepping in this direction, Ukraine has the appropriate goals, the achievement of which is impossible without a solid foundation, which in modern conditions should be the agricultural sector of the economy.

2. Literature Review

Pasternak-Taranushenko (2003) defines economic security as a state of the country, *"which provides an opportunity to create and develop conditions for productive life of its population, long-term development of its economy in future and increase the welfare of its inhabitants"*. He is one of the first researchers of this, he has formulated the theoretical foundations of modern science of economic security in Ukraine.

According to Shevchenko (2009), *"economic security generally should be considered as the most important qualitative characteristic of the economic system, which determines the ability to maintain consistent implementation of national and state interests, sustainable capacity of economic entities, proper living conditions"*.

Muntiiian (1999) believes that economic security is a national set of measures aimed at the constant and stable development of the state's economy, which includes counteracting external and internal threats.

Akimova *et al.* (2020) defines economic security is a specific tool to ensure the state stability to impact of a number of distractive factors, phenomena and processes of internal and external origin.

According to Sehedá *et al.* (2019), one of the important benchmarks of the national economic policy is a significant improvement of the living standards of the population. Nowadays Ukrainian policies require the accession of socially focused market economy according to the main European standards. Consequently, this may lead to a remarkable improvement of the population's food provision, especially in the field of basic agrarian food consumption with regard to the healthy eating norms.

In the context of the research topic Chaudhary *et al.* (2018) also note that currently, *“the main problems of humanity are the growing food demand within the conditions of world's population increasing, the support of rational food consumption and elimination of dietary shifts and, as a result, deterioration of the health status”*.

It is also important to study the problems and prospects of organic production. According to Edwardson and Santacoloma (2013), the demand for organic products is limited and is concentrated in North America and Europe which account for 96% of global revenues in the sector and in some rich countries in Asia, such as Japan, Singapore, South Korea, and Taiwan. Currently most consumers in poor countries are not willing to pay a premium price for organic products.

We agree with Kirchmann *et al.* (2009), who note that *“there is a level of risk connected with organic production, which is associated with the probability of loss of part of the crop due to the intensive development of diseases and pests, as well as less resistance of plants to stress factors”*.

According to Willer and Lernoud (2017), organic agriculture is subject to severe supply-side constraints, not least because of the lack of plant-available nutrients, and cannot be a major food source for the world. Further improvement of conventional agriculture based on innovations, enhanced efficiency, and improved agronomic practices seems to be the only way to produce sufficient and affordable food for a growing world population while minimizing negative environmental impacts.

The current state of the economy, including the agricultural sector, indicates the existence of unresolved problems of effective management of economic security and need further research.

The purpose of the study is to substantiate the problems and prospects of Ukraine's achievement of the Sustainable Development Goal “Overcoming hunger, achieving

food security, improving nutrition and promoting sustainable agricultural development” in the conditions of economic security of the agricultural sector.

3. Research Methodology

A set of general scientific and special methods has been used to solve the purpose outlined in the process of the investigation. The methodological basis of the study is the dialectical method of economic phenomena cognition, the principles of economic theory as to the economic security; the analysis and synthesis to determine the dynamics of separate indicators of the state of implementation of tasks provided by the Sustainable Development Goals.

Total statistical analysis was conducted with the use of Microsoft Exel software. The study period is 2010-2018. Based on the data of the State Statistics Service of Ukraine, the key indicators of achieving the Sustainable Development Goals have been analyzed. Data from the International Federation of Organic Agricultural Movements (IFOAM) have been also used as a source of information.

4. Empirical Findings

Economic security of the agricultural sector presupposes, firstly the stability of its functioning and progressive development. The food security of any state is determined by the efficiency of the whole national economy. At the same time, food resources are formed in the agricultural sector. Undoubtedly, food security is a component of economic security (Danylenko *et al.*, 2017).

At the Sustainable Development Summit held on September 25, 2015, 193 UN member states approved the Sustainable Development Goals for the period up to 2030 (SDGs) (United Nations, 2015). This became the basis for formulating the Sustainable Development Goals for Ukraine by adapting 17 global SDGs taking into account the specificity of national development (Ministry of Economic Development and Trade of Ukraine, 2017).

For the contextual research on certain aspects of economic security of the agricultural sector, we conducted a survey according to our own methods by questioning a group of experts, which is formed of leading economists and industry representatives with practical experience in agricultural enterprises (Utenkova, 2018). According to the results of the expert assessment, it has been found that ensuring the appropriate level of economic security of enterprises in the agricultural sector will contribute to the achievement of the following two SDGs: SDG-2, overcoming hunger, achieving food security, improving nutrition and promoting sustainable agricultural development; SDG-8, decent work and economic growth.

Our further research will be aimed at studying the problems and prospects of achieving SDG-2. Food security exists when all people, at all times, have physical,

social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Food insecurity exists when people do not have adequate physical, social or economic access to food as defined above. Undernourishment exists when caloric intake is below the minimum dietary energy requirement (MDER). The MDER is the amount of energy needed for light activity and to maintain a minimum acceptable weight for attained height (FAO, 2017a).

According to the latest estimates, 9.2% of the world population (or slightly more than 700 million people) were exposed to severe levels of food insecurity in 2018, implying reductions in the quantity of food consumed to the extent that they have possibly experienced hunger. A broader look at the extent of food insecurity beyond severe levels and hunger reveals that an additional 17.2% of the world population, or 1.3 billion people, have experienced food insecurity at moderate levels, meaning they did not have regular access to nutritious and sufficient food. The combination of moderate and severe levels of food insecurity brings the estimated total to 26.4 % of the world population, amounting to about 2 billion people (FAOSTAT, n.d.).

Particularly, certain tasks have been identified for SDG-2, the achievement of which will ensure its implementation. First of all, we speaking about the following:

1. To ensure the availability of a balanced diet at the level of scientifically sound standards for all segments of the population.
2. To double the productivity of agriculture, primarily through the use of innovative technologies.
3. To ensure the creation of sustainable food production systems that contribute to the preservation of ecosystems and gradually improve the quality of land and soil, primarily through the use of innovative technologies.
4. To reduce food price volatility.

Certain indicators are set for each of these tasks as shown in Table 1:

Table 1. *Characteristics of SDG – 2"Overcoming hunger, developing agricultural*

№	Tasks	Indicator	Target values by years	Source
2.1	To ensure accessibility of balanced nutrition at the level of scientifically sound standards for all segments of population	2.1.1. Meat consumption per capita, kg / year	2015 – 51 2020 – 61 2025 – 71 2030 – 80	State Statistics Service, Ministry of Agrarian Policy
		2.1.2. Milk consumption per capita, kg / year	2015 – 210 2020 – 270 2025 – 320 2030 – 380	State Statistics Service, Ministry of Agrarian Policy

		2.1.3. Fruit consumption per capita, kg / year	2015 – 51 2020 – 65 2025 – 78 2030 – 90	State Statistics Service, Ministry of Agrarian Policy
2.2	To double agricultural productivity, primarily through use of innovative technologies	2.2.1. Productivity labour in agriculture, thousand US dollars per employee	2015 – 8,7 2020 – 10,0 2025 – 12,5 2030 – 15,0	State Statistics Service, Ministry of Economy development
		2.2.2. Index of agricultural products, %	2015 – 95,2 2020 – 102,0 2025 – 102,0 2030 – 102,0	State Statistics Service
2.3	To ensure the creation of sustainable food production systems that help preserve ecosystems and gradually improve quality of lands and soils, primarily due to the use of innovative technologies	2.3.1. Production index of food products,%	2015 – 87,2 2020 – 103,0 2025 – 103,0 2030 – 103,0	State Statistics Service
		2.3.2. 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,%	2015 – 38,3 2020 – 51,0 2025 – 57,0 2030 – 65,0	State Statistics Service, State Fiscal Service, Ministry of Agrarian Policy
		2.3.3. The share of agricultural lands under organic production in the total area of this year lands,%	2015 – 1,0 2020 – 1,1 2025 – 1,3 2030 – 1,7	Ministry of Agrarian Policy, Federation of organic movement in Ukraine
2.4	To reduce food price volatility	2.4.1. Consumer index of food prices (average annual),%	2015 – 144,4 2020 – 105,0 2025 – 105,0 2030 – 105,0	State Statistics Service

Source: Ministry of Economic Development and Trade of Ukraine (2017).

For example, the state of the first task (to ensure the availability of a balanced diet at the level of scientifically sound standards for all segments of the population), can be seen from the following indicators:

- Meat consumption per person, kg / year.
- Milk consumption per person, kg / year.
- Fruit consumption per person, kg / year.

Without doubt, structural changes to economies have boosted per capita incomes, reduced poverty and enhanced food security almost everywhere. Despite these positive achievements, some 700 million people still live in extreme poverty, and about 815 million suffer from chronic hunger (FAO, IFAD, UNICEF, WFP & WHO, 2017).

Unless economic growth is made more inclusive, the Sustainable Development Goals, to end poverty and achieve zero hunger by 2030, will not be reached. Instead, more than 650 million people will be suffering from undernourishment. Achieving the key SDGs is made more difficult by other, interrelated global challenges, such as climate change and environmental degradation (FAO, 2017b).

Table 1 also presents the target values of these indicators for the years: 2015, 2020, 2025 and 2030. Particularly, it is stated that meat consumption per capita in 2020 should be 61 kg / year, in 2025 - 71 kg / year, in 2030 - 80 kg / year. Comparing the target values of the indicators with the actual ones, we learn about the state of performance of certain tasks. Consider the dynamics of individual indicators that characterize the implementation of SDG-2 "Overcoming hunger, agricultural development."

As to the indicators that characterize the availability of a balanced diet at the level of scientifically sound standards for all segments of the population, according to Table 2, we can draw the following conclusions:

Table 2. *Availability of balanced diet at the level of scientifically sound standards for all segments of the population in Ukraine*

Indicators	Years					Changes in 2018 compared with 2015, +, -
	2011	2015	2016	2017	2018	
2.1.1. Meat consumption per capita, kg / year	51,2	50,9	51,4	51,7	52,9	+2,0
2.1.2. Milk consumption per capita, kg / year	204,9	209,9	209,5	200,0	199,8	-10,1
2.1.3. Fruit consumption per capita, kg / year	52,6	50,9	49,7	52,8	57,8	+6,9

Source: State Statistics Service of Ukraine (2019).

- Meat consumption per capita in 2018 comparing with 2015 increased by 2 kg / year and amounted to 52.9 kg / year, which is quite small, comparing with the planned volumes for 2020 - 61 kg / year.
- Consumption of fruit per capita in 2018 comparing with 2015 increased by 6.9 kg / year and amounted to 57.8 kg / year, which is also insufficient, compared to the planned volumes for 2020 - 65 kg / year. In the previous cases there was a slight increase of meat and fruits.

Index of agricultural production, %									
2000	109,8	121,3	95,3	98,1	105,4	77,9	118,6	142,2	101,3
2005	100,1	97,5	105,1	101,1	96,6	119,1	99,4	98,3	100,9
2010	98,5	95,9	103,4	97,7	93,7	109,1	99,1	98,5	100,1
2011	119,9	130,4	101,3	128,7	137,9	106,0	111,8	121,7	98,3
2012	95,5	91,9	103,9	93,4	89,1	107,0	97,8	95,5	101,7
2013	113,3	117,9	104,0	120,8	125,6	108,1	105,5	108,4	101,0
2014	102,2	103,2	99,7	104,0	104,2	103,5	99,9	101,9	96,6
2015	95,2	94,8	96,3	94,9	94,4	96,4	95,7	95,4	96,3
2016	106,3	109,9	98,0	110,0	113,9	98,1	101,8	104,1	97,8
2017	97,8	97,0	100,1	96,8	95,8	100,7	99,2	98,9	99,7
2018	108,1	110,7	101,5	112,6	114,8	105,2	102,3	104,3	98,4

Source: State Statistics Service of Ukraine (2019).

A similar situation is observed in the categories of agricultural producers. Thus, the index of agricultural products of enterprises was 112.6% in 2018, while in households it was at 102.3%. Moreover, in the field of animal husbandry in households, the index was 98.4%, i.e., there was a decrease in productivity.

The index of food production is an indicator of ensuring the creation of sustainable food production systems. Conclusions about its dynamics can be made from data, given in Table 4.

Table 4. *Ensuring the creation of sustainable food production systems in Ukraine*

Indicators	Years						
	2010	2013	2014	2015	2016	2017	2018
Food production index, %							
Food production	105,5	96,1	104,6	87,2	106,0	104,2	98,5
Production of meat and meat products	107,7	108,1	100,5	99,8	104,5	101,3	99,1
Processing and canning of fish, crustaceans and mollusks	99,1	105,0	98,7	71,4	115,6	106,8	112,4
Processing and canning of fruits and vegetables	90,8	99,7	102,9	74,6	100,2	105,1	110,4
Production of oil and animal fats	105,4	92,6	121,5	85,8	116,5	118,7	94,5
Dairying	98,6	100,6	100,1	91,2	98,6	102,1	100,4
Manufacture of products of flour and cereals industry, starches and starch products	96,9	95,2	100,6	94,6	100,7	99,4	92,5
Production of bread, bakery and flour products	103,2	96,4	89,5	86,9	97,7	96,9	95,3
Manufacturing of other food products	116,9	85,7	110,8	79,0	111,5	102,2	98,8
Sugar production	143,6	58,9	166,8	69,5	136,2	99,2	89,4
Production of cocoa, chocolate and sugar confectionery	104,7	100,5	76,2	82,9	98,6	106,4	109,6
Tea and coffee production	126,8	109,8	106,1	92,0	103,7	93,7	107,3
Production of spices and	105,4	98,5	93,1	86,4	100,4	104,8	100,4

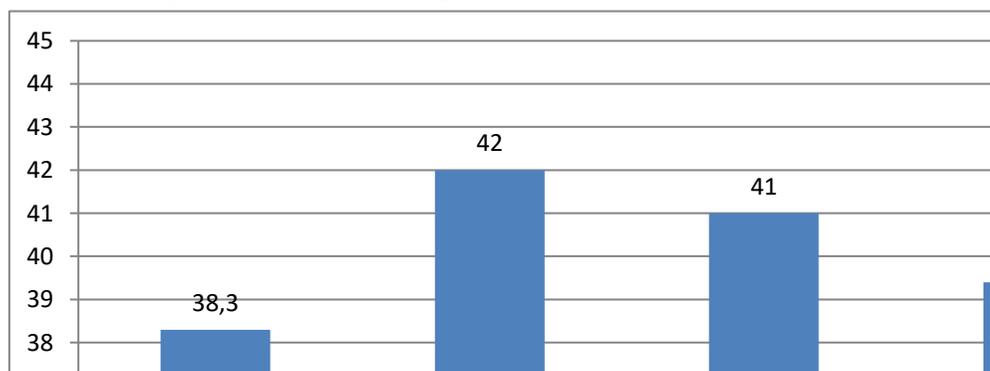
seasonings								
Manufacture of other food products	120,4	119,5	112,6	75,8	88,1	103,4	106,9	

Source: State Statistics Service of Ukraine (2019).

In general, in food production we observe an increase in this indicator during 2016-2017 to 106.0 and 104.2%, respectively. But in 2018 the index was 98.5%, i.e., there is again a decline. Particularly, this indicator is due to the decrease in the production of meat and meat products (99.1%), oil and animal fats (94.5%), products of the flour and cereals industry, starches and starch products (92.5%), bread, bakery and flour products (95.3%), sugar (89.4%).

The share of food industry products and processing of agricultural raw materials in exports of groups 1-24 Ukrainian classification of goods of foreign economic activity is also an indicator of fulfilling task to "Ensure the creation of sustainable food production systems that preserve ecosystems and gradually improve the quality of land and soil, primarily through the use of innovative technologies." The value of this indicator in 2015-2019 is given in Figure 2.

Figure 2. The share of food industry products and processing of agricultural raw materials in exports in Ukraine during 2015-2019, %



Source: State Statistics Service of Ukraine (2019).

The investigated indicator approached to some extent the target value (Table 1), but the increase is not sufficient, in addition, it is not a question of a certain tendency to increase the share of food products and processing of agricultural raw materials in export, as in 2015-2019 the decline, and the growth rate had place.

As to such indicator as the share of agricultural land under organic production in the total area of agricultural lands, which is characterized by the state of the task "To ensure the creation of sustainable food production systems that preserve ecosystems and gradually improve the quality of lands and soils, primarily through innovative technologies" it is necessary to note that:

1. Over the past 20 years, Ukraine has become actively involved in the international organic movement, as it increasingly produces, exports and consumes organic products.
2. Recently, the organic direction of production is no longer positioned as a niche and now occupies a strategic position not only in the development of the agricultural sector, but also in our entire national economy.
3. The development of the organic sphere takes place in conditions of high uncertainty for both operators and consumers of organics, as it requires improvement of the system of scientific-theoretical and regulatory legal basing (Mylovanov, 2018).

According to the Federation of Organic Movement of Ukraine, the area of certified agricultural lands in Ukraine involved in the cultivation of organic products is already over 400 thousand hectares, and our country ranks the 21st among the world's leading countries in the organic movement. The share of certified organic areas among the total agricultural lands of Ukraine is about 1%. At the same time, Ukraine ranks the first in the Eastern European region as to the certified area of organic arable lands, specializing mainly in the production of cereals, legumes and oil crops (Federation of Organic Movement in Ukraine, 2020).

The official statistical surveys of IFOAM confirm that if in 2002 there were 31 farms registered in Ukraine, which received the status of "organic", in 2018 there were already 501 organic farms, and the total area of agricultural lands on which organic production is carried out was 420,000 ha (Federation of Organic Movement in Ukraine, 2020). Thus, in general, this indicator corresponds to the target value (Table 1). Furthermore let us consider the index of consumer prices for food (average annual), which in accordance with Table 1 is an indicator of the task "To reduce the volatility of food prices" (Table 5).

Table 5. Reducing food price volatility in Ukraine

Indicators	Years				
	2005	2010	2015	2017	2018
<i>Consumer price index for food (average annual), %</i>					
Food	117,5	110,7	144,4	113,4	111,5
bread and bakery products	98,9	112,3	160,6	108,4	110,5
bread	97,4	110,2	154,8	115,4	119,0
macaroni foods	97,0	107,1	154,1	106,0	111,2
meat and meat products	130,3	102,0	131,3	120,9	116,6
fish and fish products	129,8	105,1	160,2	101,7	105,6
milk, cheese and eggs	123,4	121,9	128,5	120,8	117,5
oil and fats	124,0	109,6	145,5	115,4	112,1
fruits	120,6	105,1	172,4	115,2	105,4
vegetables	91,7	114,5	130,8	110,3	107,6
sugar	127,5	157,5	136,0	106,8	84,2

Source: State Statistics Service of Ukraine (2019).

Therefore, the reduction of price volatility to the desired target level of 105% (Table 1) has not yet been achieved. Comparing with 2015, when the average annual consumer price index for food was 144.4%, there are positive changes, but they are not enough. Particularly, in 2018 the growth of prices for fish and fish products (105.9%) and fruits (105.4%) approached the permissible level, and sugar prices decreased by 15.8%. Other food products rose in price by 7-19%.

Yet conditions in today's world are a far cry from the world "free of fear and want" envisioned at the foundation of the United Nations. Similarly, much remains to be done to fulfil the vision of the Food and Agriculture Organization of the United Nations (FAO, 2010) to create "*a world free of hunger and malnutrition and one in which food and agriculture contribute to improving the living standards of all, especially the poorest, in an economically, socially and environmentally sustainable manner*" (FAO, 2017b).

According to Grafton *et al.* (2015), "*the world has the collective means to achieve the changes needed to achieve food security by 2050, but it will not be easy and there can be no complacency. What is required is global co-operation, international food trade, multiple types of investments and the placing of the farms cape sustainably within the landscape. Above all, it demands a paradigm shift in thinking about how, what and where we produce our food, who gets access to output and input markets, and who gets to consume the food produced*".

5. Discussion and Conclusions

On the whole as to the achievement of SDG-2 "Overcoming hunger, development of agriculture" it is necessary to note that the main priority to be achieved by 2030 is to bring the main kinds of food (meat, milk, fruit) to a scientifically sound level by the population of Ukraine.

The key to the fulfillment of this task is a competitive and efficient agricultural sector. The planned twofold increase in labour productivity in the agricultural sector (up to 15 thousand US dollars per person employed in the sector) will contribute to the stable growth of gross agricultural output, which by 2030 should increase by more than one third.

The increase in agricultural production should occur due to the compliance with environmental norms and international food quality standards. Firstly, the area of agricultural lands allocated for the production of organic products is expected to be increased by almost 300,000 hectares. The growth of agricultural production should not only increase the share of raw materials as foreign markets of Ukraine, but also stimulate the development of the domestic food industry. Ensuring food security is directly related to the development of the national economy and, consequently, increasing the level of income of the population, which requires the implementation

of a set of macroeconomic measures (Ministry of Economic Development and Trade of Ukraine, 2017).

Taking into consideration the abovementioned, the Ministry of Economic Development and Trade of Ukraine provided the following recommendations for achieving the goal:

- increasing the level of investment attractiveness of agricultural sector;
- stimulating the creation of small farms with an area of up to 50 hectares, including family farms, by improving the legal framework and providing favourable economic, organizational and social conditions for their activities;
- technical modernization of agricultural production and food industry, increasing their energy efficiency and realization of energy saving potential;
- promoting the growth of high value-added food exports, particularly by completing the adaptation of Ukrainian legislation to EU requirements in the field of agriculture, ensuring the comprehensive implementation of permanent procedures based on the principles of HACCP (Hazard Analysis and Critical Control Point) that allows to guarantee production of safe production by identification and control of dangerous factors;
- creation of a clear mechanism for regulating the market of organic products and raw materials, a proper system of its certification;
- ensuring the stability, predictability and transparency of the system of state support for the agricultural sector by introducing medium-term budget planning and allocating at least one percent of the gross output of agricultural products to support agricultural production;
- development and implementation of a system of targeted food aid for the most vulnerable categories of the population;
- launching programs that will allow children of different ages to have daily access to a minimum set of foods and provide a third of their daily calorie intake;
- conducting information campaigns to promote healthy nutrition, especially at preschool and school institutions;
- limiting excessive price volatility on food and ensuring the proper functioning of food markets, particularly by reducing market risks for farmers through market instruments (insurance, guarantee funds, forward trade, derivatives trading, e-commerce, etc.) (Ministry of Economic Development and Trade of Ukraine, 2017).

Thus, it is clear that the successful implementation of SDG-2 requires further work towards the development of economic security of the agricultural sector of Ukraine's economy. A further research perspective in this direction should be the formation of a strategy for economic security of the agricultural sector of Ukraine, which is based on the research dedicated to the achievement of the Sustainable Development Goals.

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