

ORGANIZATIONAL AND ECONOMIC TRANSFORMATIONS OF THE AGRICULTURAL SECTOR IN THE POST-WAR PERIOD OF ECONOMIC DEVELOPMENT OF UKRAINE

Olena Shust¹, Oksana Nykonenko², Nikolett Czipa³

¹Doctor of economic sciences, professor, Rector of the Bila Tserkva National Agrarian University, Bila Tserkva, Ukraine, e-mail: isvinous@ukr.net, ORCID: <https://orcid.org/0000-0002-5337-4976>

²Postgraduate of the Bila Tserkva National Agrarian University, Bila Tserkva, Ukraine, e-mail: ksuwechka200@ukr.net, ORCID: <https://orcid.org/0000-0002-4601-8076>

³Associate professor, Institute of Food Science, University of Debrecen, Debrecen, Hungary, e-mail: czipa@agr.unideb.hu, ORCID: <https://orcid.org/0000-0001-6966-4380>

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Abstract. The agricultural sector in Ukraine plays a pivotal role in the country's socio-economic stability and food security. However, the full-scale war with Russia has significantly impacted this sector, necessitating comprehensive organizational and economic transformations to restore and enhance its functionality in the post-war period. This study aims to propose practical recommendations for the organizational and economic transformations required in the agricultural sector of Ukraine during the post-war economic revival period. The research employs a combination of general scientific methods, including abstract-logical reasoning, monographic and terminological analysis, theoretical generalization, economic and statistical analysis, abstraction, and formalization. These methods facilitate the substantiation of theoretical approaches, formation of conceptual frameworks, identification of development trends, and justification of strategic directions for the agricultural sector's transformation. Despite the crisis induced by the war, the agricultural sector in Ukraine has demonstrated financial stability and adaptability. In 2022, agriculture contributed 8.6% to GDP, though this was a decline from previous years. The sector's share in export structure increased, becoming a crucial source of foreign currency inflows despite logistical challenges. The study identifies structural issues such as over-reliance on low-value-added exports, technological dependencies, and economic vulnerabilities tied to the raw material orientation. Recommendations include diversifying production, enhancing value-added processing, fostering technological advancements, and creating investment funds for structural economic reforms. Further research should explore the long-term impacts of proposed transformations, the role of technological integration in agriculture, and the development of policies that balance agricultural productivity with environmental sustainability. Additionally, investigating the effectiveness of investment funds and economic incentives in achieving structural changes will be critical to ensuring the resilience and growth of Ukraine's agricultural sector.

Keywords: agricultural sector; post-war economic development; food security; economic sustainability; economic transformation.

JEL Classification: H56; Q13; Q16

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Introduction. Ukraine has a developed food complex, which is able not only to fully provide the country's population with food products, but also to form an active position of the country in the international markets of a number of important types of agro-food products. Thanks to traditionally strong food exports, Ukraine is one of the guarantors of food security in the world. Before the full-scale war, Ukraine was one of the five largest exporters of grain in the world, exporting $\frac{3}{4}$ of what it produced, domestic consumption of grain was only 20-25%. Ukraine supplied 10% of world wheat exports, more than 14% of corn and more than 47% of sunflower oil.

At the same time, the hostilities taking place in Ukraine as a result of the large-scale armed aggression of the Russian Federation have led to the deterioration of food security in Ukraine, which is caused, in particular, by broken logistics chains, destroyed infrastructure, and a decrease in the production of agricultural products.

Literature review. Thanks to the works of domestic and foreign scientists, the topic of raw material orientation of export of agricultural production of Ukraine and its socio-economic and ecological consequences are widely covered in scientific literature. In particular, this is a study by P. I. Haydutskyi, Yu. O. Lupenko, M. I. Pugachev, O. S. Kovalenko, and others. Despite the professional disclosure of the mentioned problem, in our opinion, insufficient attention is paid to the impact of structural distortions of production and foreign trade in agro-food products on the development of the country's economy.

Goal. On the basis of the generalization of scientists, to offer practical recommendations on the formation of prerequisites for the implementation of organizational and economic transformations of the agrarian sector of Ukraine in the post-war period of the revival of Ukraine.

Methodology. Achieving the set goal and further solving the tasks was facilitated by the use of a complex of general scientific methods of cognition, namely: abstract-logical (substantiation of theoretical approaches to research), monographic and terminological analysis (formation of conceptual and categorical apparatus), theoretical generalization, analysis, synthesis, induction and deduction (justification of the main methodological principles of the implementation of the transformation process in the agrarian economy), economic and statistical analysis (identification of trends and patterns of development business entities in the field of agrarian business), abstraction and formalization (justification of the strategy and prospects for the development of the agrarian sector in the post-war period) and others.

Results. In the economy of Ukraine, the agricultural sector plays a crucial role in shaping the socio-economic state of society and ensuring the country's food security. Despite the crisis of the Ukrainian economy, which was primarily caused by the full-scale invasion of Russia, the agricultural sector of our country showed financial stability and adaptability to the risks of wartime.

It should be noted that the share in the structure of the GDP in 2022 was 8.6%, which is 2.3 percentage points higher. less than in 2021. At the same time, it should be noted that agriculture is the leader among the branches of material production in terms of GDP formation.

A similar situation is observed in the formation of gross added value, where the share of agriculture slightly decreased in 2022 compared to 2018 by 2.7 percentage

points. At the same time, this industry plays a leading role in the formation of the analyzed indicator, which reflects the macroeconomic state of the country.

Table 1. Dynamics of gross domestic product, gross value added and export volumes of goods, 2018–2022

Indicators	Years					2022 years % to	
	2018	2019	2020	2021	2022	2018	2019
Gross domestic product in actual prices, UAH million							
Agriculture,	360998	356563	3930	593367	449148	124.4	75.7
everything	3560302	3977198	4222026	5450849	5239114	147.2	96.1
In % to all	10.1	9.0	9.3	10.9	8.6	-1.5	-2.3
Gross value added (main prices), million UAH							
Agriculture,	360757	356563	393077	593367	426817	118.3	71.9
everything	3016960	3421628	3626725	4684726	4580393	151.8	97.8
In % to all	12.0	10.4	10.8	12.7	9.3	-2.7	-3.4
Exports, thousands of US dollars							
Agriculture,	18612	22144	22179	27709	23390	125.7	84.4
In % to all	48.8	44.2	45.1	40.7	53.0	4.2	12.3
including crops	7241	9633	9411	12344	9108	125.8	73.8
In % to all	19.0	19.2	19.1	18.1	20.6	1.6	2.5
Total exports	38127.1	50054.6	49191.8	68072.3	44135.6	115.8	64.8

Source: compiled and calculated according to the data of the State Statistics Service of Ukraine

Despite the logistics crisis, characterized by the unstable operation of sea ports and the destruction of sales infrastructure, the share of agricultural products in the structure of export of goods increased in 2022 compared to 2021 by 12.3 percentage points. and amounted to 53%, which became one of the main guarantors of foreign currency inflows into the country's economy. At the same time, it should be noted that a decrease of 15.6% was observed in terms of value. In the structure of the total export of goods, the largest share was grain crops, which are characterized as goods with a low level of added value.

In 2022, Ukraine received \$23.3 billion in profit from the export of agricultural products. This is certainly half less than in the pre-war years. However, these exports became the main source of currency for the country during the war. For comparison, the income of IT services brought Ukraine 7.34 billion dollars for the analyzed year. It should be noted that more than 50% of goods were exported to EU countries. At the same time, almost half of all agricultural products are grains.

According to scientists, the deepening of raw material specialization not only ties the Ukrainian economy to the business cycle of its industrial partners, but also increases the amplitude of its cyclical fluctuations. At the same time, technological withering reduces the production potential and future capabilities of the country [1].

A significant part of agricultural products are usually goods with a low level of added value. And countries that produce such goods often lag behind in their economic development.

In economically developed countries, the share of agriculture in the structure of GDP is only 1.4%, and in underdeveloped countries - more than 30%.

Thus, in the world's largest food producer, Holland, the share of agriculture in the structure of GDP is only 1.8%, and the number of people employed in this industry is only 2%. In Ukraine in 2021, the above indicators were 10.9% and 8%, respectively. Therefore, economically developed countries do not have a high value of the specific weight of the raw material industry, like Ukraine. At the same time, the added value per worker in the agricultural sector of our country's economy is 5.5 times lower than the average for EU countries (Table 2).

Table 2. The contribution of the agricultural sector to the development of the economy of individual countries in 2020

Country	Added value in the agricultural sector per employee, USD	Added value in industry per employee, USD
USA	83735.8	124204.9
Japan	22653.4	123772.9
Germany	38506.5	103530.2
France	54798.9	91143.7
Korea	18800.4	84728
Israel	84612.5	78808
Great Britain	48995	78780.4
Other EU countries	26290.4	78293.5
Ukraine	4801.4	10734.9

Source: compiled and calculated according to the data of the State Statistics Service of Ukraine

At the same time, the national manufacturing industry accounted for only 7.6% of GDP in 2022, showing an annual decline of 43% and entering the top five sectors in terms of the rate of decline. It should be noted that the reason for the decline was not exclusively the armed aggression of the Russian Federation, because it was recorded in 2018-2020, when the share of the sector decreased from 11.5 to 10.1% of GDP. For comparison, in 2005-2007, the processing sector reached more than 18% of GDP.

Taking into account the current conditions of the country's economic development, the formation of the revenue part of the State Budget of Ukraine depends as much as possible on the prices on the markets of agricultural products and food, the fluctuations of which have a clearly pronounced cyclical nature. At the same time, the orientation of our country towards turning into a raw material appendage of Europe is threatening, which was emphasized by the ex-president of Poland, Lech Walesa, back in 2015. In particular, in an interview with the Die Zeit newspaper, he noted what place Ukraine will occupy in the unified European space: "... Ukraine has good lands so that it can feed all of Europe. We must tell Ukraine that it can produce all the grain for Europe, but not cars. Machines can be produced in Poland" [2].

So, the current state of Ukraine's economy is due to the influence of two main factors: the "curse of resources" in the form of agricultural land, which is characterized by a high level of fertility and a favorable geographical location, which is characterized by the manifestation of "Dutch disease", caused by dependence on the mass export of agricultural raw materials, in particular grain.

In fact, Ukraine has gradually made an "involutionary transition" from a country that is an exporter of metallurgical and chemical products to a stable exporter of agricultural raw materials and certain food products with little added value.

We believe that the current economic situation in Ukraine is a consequence of structural degradation and structural simplification of the economy, since a strong, growing economy is complex. It can supply the market with a wide range of goods - high-tech, machine-building, alternative, Ukraine alone, as export statistics show, offers the world market a limited number of product groups, mainly of a raw material nature. In turn, a simplified economy, such as the domestic one, cannot be resistant to external challenges, as evidenced by the consequences of the global financial crisis of 2008-2009, when the level of recession in our country was the highest among all countries, and stable economies with a diversified product structure passed this period without a significant decrease in the resulting indicators.

It should be emphasized that due to the blocking of seaports and the emergence of problems with logistics in 2022, this industry lost approximately 7.5-8 billion dollars. After all, before the 3 largest ports accounted for 65% of the country's agricultural exports. In addition, 500 million were lost on the value of last year's unsold grain, and the value of captured and destroyed elevators recorded another 1.3 billion dollars in losses. Currently, the shortage of elevator capacities is about 15–20 million tons.

Some difficulties were created by the problem of railway transportation. Tariffs for grain transportation in Ukraine increased by 70% in 2022, which led to additional costs for farmers in the amount of 120 million dollars per year [3].

The totality of the above-mentioned circumstances shows that the presence of signs of the "Dutch disease" or the "Groningen effect" is characteristic for the branches of agriculture and the country's economy [4]. First, one of the characteristics of the "Dutch disease" is differences in the formation of business conditions for subjects of different sectors of the economy. Thus, in our state, the most favorable conditions are created for economic entities in the field of agrarian business, which produce export-oriented products, including cattle breeding. Secondly, the dependence of the country's economy on the export of agricultural raw materials, such as live cattle, leads to a decrease in the level of added value in general in the national economy of the country, as well as to the destruction of industry and the destruction of incentives for investment in knowledge-intensive industries of material production.

Currently, for the production of agricultural products in the farms of the corporate sector of the agrarian economy, mainly imported technical means, seeds, plant and animal protection products are used. This circumstance only strengthens the innovative dependence of Ukraine's economy on the industrialized countries of the world, including Holland.

We support the opinion of O. Kush that the current situation in the agricultural sector is a poverty trap, which looks like this: due to the presence of favorable natural and climatic conditions for the production of agricultural products, we have absolute advantages in this field, compared to other countries, therefore, we will concentrate on raw monoproducts with diminishing returns [5]. But unlike industrial goods with a high level of added value, it is impossible to obtain the effect of scale in the production of

agricultural products. The raw material orientation of the economy led to the fact that the "Groningen effect" has been influencing the domestic national monetary unit, the hryvnia, for a long time. For a long time, the exchange rate stability of the hryvnia was determined not by the economic efficiency of the national economy and its investment attractiveness, but by the growth of export revenue from the sale of raw materials, metal, and agricultural products.

At the same time, it should be noted that the rapid development of the agricultural sector of Ukraine and its relatively high profitability even in the conditions of military aggression (in 2022, the level of profitability of the operational activity of agricultural enterprises was 21%), which clearly corresponds to the postulates of the "Rybchinsky theorem". As its content shows, in the event of the appearance of a growing factor of production, those sectors of the economy where this factor is predominant will rapidly develop. Currently, even in difficult economic conditions, value added tax is reimbursed to grain exporters. Taking into account the above, it is worth stating that Ukraine has the lowest rent in Europe for the use of agricultural land. The Norwegian economist Erik Reinert in his book "How rich countries became rich, and why poor countries remain poor" convincingly showed on the examples of specific countries, demonstrating how the focus on agriculture forced industry to degrade and reduce the economic development of the state [6].

Official statistics show that the level of poverty in Ukraine has increased since the beginning of the war. This is due to the loss of jobs, inflation and the deterioration of the economic situation. Many citizens of Ukraine found themselves on the poverty line or even below this line. According to a World Bank report, the poverty rate in Ukraine increased from 5.5% to 24.2% in 2022. Thus, every fourth Ukrainian was below the poverty line. Official statistics show that the level of poverty in Ukraine has increased since the beginning of the war. This is due to the loss of jobs, inflation and the deterioration of the economic situation. Many citizens of Ukraine found themselves on the verge of poverty or even below this threshold [7]. Together with the decrease in the solvency of Ukrainians and the rise in prices, which was significantly influenced by the devaluation of the national currency from UAH 29/dollar. to 40 hryvnias/dollar, with the beginning of the war, entrepreneurs almost lost the opportunity to conduct any foreign economic activity due to the limited capacity of the country's western borders, almost completely paralyzed sea ports, and closed borders with Belarus for obvious reasons.

It is obvious that under the current state, the agricultural sector cannot provide the country's population with basic food products and is unable to generate high values of added value, which will ensure the country's exit from the risk zone of economic activity and the loss of the status of the poorest country in Europe in terms of GDP. The presence of a country's natural advantages, such as, for example, fertile black soils and a favorable climate, does not at all mean the prosperity of a nation. On the contrary, this state of affairs provokes merciless exploitation of resources in order to obtain easy profit at the expense of exporting these resources. This circumstance causes a number of economic and social problems. Thus, in 2020, as a result of the unbalanced economic activity of agribusiness entities in Ukraine, 300-400 to 500-600 million tons of soil is lost annually from erosion. The yield of agricultural crops on eroded soils is 20-60%

lower than on non-eroded ones. Losses of agricultural products from erosion, according to expert estimates, exceed 9-12 million tons of grain units, ecological and economic losses due to erosion exceed 10 billion dollars. USA every year [8]. Due to the rather large scale of cultivated areas, maximizing yield per unit area has been a priority until now. Compared to Western European agricultural regions, Ukraine uses fewer high-quality fertilizers and pesticides, resulting in lower average yields.

The agricultural industry is dominated by especially large agricultural holdings with acreage of up to 100,000 hectares. For comparison, Western European farms usually occupy about 70 hectares. One of the consequences of the size of Ukrainian companies is that they are less successful in implementing effective incentive systems and good governance. All producers of raw materials are at risk: their basic goods can fall in price at any moment and collapse the economy. Prices in Ukraine used to be formed on the basis of the ratio of supply and consumption. Not only between the manufacturer and the exporter/processor/broker, but also between the exporter and the importer. Now the main limiting link is logistics, and the limiting factor is the uncertainty of the state and working conditions of the grain corridor. In the hryvnia equivalent, there is no significant decrease in purchase prices based on the type of grain, and in the dollar equivalent, it is significant, almost twice as much. The main reason for raw material risks is the focus on mono-production with diminishing returns and the incorrect application of the theory of comparative advantages, which was formulated as early as the 19th century. by the English economist David Riccardo and testifies that trade is profitable if it is based on both absolute and relative advantages.

As for Ukraine, the manifestation of this theory is manifested as follows: our country has favorable conditions for agriculture, and accordingly there are absolute advantages in agriculture compared to other countries, so we will concentrate on the production of corn, grain and sunflower oil, that is, raw monoproducts with decreasing return. However, unlike goods with a high level of added value, it is not possible to obtain economies of scale in the production of agricultural products. Despite the conviction of scientists in the constant demand for food over a long period of time, we should not forget that the laws of the world economy operate inexorably: high prices and demand lead to the development of alternative technologies and further cyclical collapse through the development of alternative methods of production, the appearance of modified substitutes (artificial m 'yaso'), and new global players in food production. In addition, the production of agricultural products is characterized by the manifestation of climatic risks. We believe that the raw material composition of our country's economy creates a number of economic problems.

The first problem is rent-oriented behavior. When the economy begins to depend only on resources, then the only possibility to achieve success and wealth in the country is to gain control over these resources. The second is unemployment, since the commodity economy cannot provide everyone with work. The third is debts, since the country produces only raw materials, it will import all manufactured goods. Given that the cost of manufactured goods is higher than the cost of raw materials, it will always suffer from a trade deficit for this reason. The lack of foreign currency makes it necessary to cover this deficit with debts. And these debts, in turn, will create permanent economic difficulties for the country. The fourth problem is the volatility of

prices for agricultural products. The main trend of the world agricultural market remains the high volatility of prices for the main types of agricultural products, which is connected both with the dynamic conjuncture of changes in supply and demand, and with complex financial and economic processes in the global economy.

The root cause of this situation lies in the fact that the sectors of the economy - agriculture and industry and the service sector - develop according to different economic laws. J. Stiglitz singles out two types of economic activity, which he conventionally calls "Schumpeterian" and "Malthusian" (after the names of outstanding economists - Thomas Malthus and Joseph Schumpeter) [9]. Yes, "Schumpeterian activities" are mainly processing industry. The development of innovations leads to an increase in wages in this area, and, accordingly, the prerequisites for the development of the economy as a whole are formed. In turn, "Malthusian types of activity" are agriculture, which keeps wages at the level of the living wage. These ideas were well demonstrated by the crisis of the 1930s in the USA: in the manufacturing industry, workers who managed to keep their jobs did not lose anything in wages, and in the field of agriculture, the amount of profit and, accordingly, the payment of labor decreased significantly. A similar phenomenon is currently observed in Ukraine. We believe that the post-war period of revival of the economy of Ukraine should be characterized as "industrialization" of the branches of the national economy. The financial basis of the above-mentioned process should be laid by the agrarian sector. The positive experience of the countries of the world shows that the effect of the "raw material curse" of the national economy can be overcome, in particular, at the expense of the funds received from the export of agricultural products. At the same time, it should be noted that in the near future the high level of prices on the global agri-food market will remain. As an example, it is appropriate to take the development of the innovative economy of the Republic of Korea, which until the beginning of the 60s of the XX century. was an agrarian country [10].

Note that a negative example of the effect of the "Dutch disease" is the country of Somalia, where the majority of the population is starving. We believe that part of the income from the export of agricultural products should be used for the structural restructuring of the economy through the formation of development investment funds. Without their creation, our country will not be able to carry out an effective structural transformation of the national economy. At the same time, it is important to use a set of incentives: cheaper lending for domestic and foreign buyers of products of priority industries, providing cheap loans and even compensating a part of investments for the construction of new factories, simplifying the import of technologies and equipment for the purpose of creating new technological enterprises, the development of free economic zones and technology parks, simplification of connection to communications, additional export duties on raw materials. Thus, at one time, Japan and Korea used their textile industries to build advanced automotive and electronic industries.

The capitalization of the economy is the so-called internal multiplier of assets, on which the industry structure directly depends. The raw economy is not of interest to foreign investors. Nobel laureate Paul Krugman substantiated the theory of international trade, according to which developed countries dominate due to the fact

that their large technological corporations win the competitive struggle through economies of scale of production, and developing countries lose this struggle, even with cheap labor [11]. Thus, developing countries need to temporarily limit the export of raw materials and stimulate the development of domestic production, and as their competitiveness increases, gradually abolish the introduced barriers. An example can be the historical fact that by 1960 the economy of Somalia was ahead of the qualitative parameters of South Korea. However, the latter, thanks to its focus on industrial development, was able to overcome its perceived competitive "advantages" in the form of cheap labor and the export of agricultural raw materials based on the development of high-tech industries with high added value, and Somalia finally lost its economic potential.

Discussion. The course of industrial development with developed agriculture should become a strategic priority for Ukraine. However, world experience proves that all countries with strong agricultural production set themselves the task that it should not exceed 10% of GDP. In view of modern scientific opinion and the impact of globalization, it can be argued that in the long term, the focus should be exclusively on the resource (agrarian) potential of the country, which will have an extremely negative impact on its economic future. The economies of the world's leading countries are under the influence of the fourth industrial revolution, where raw materials cease to bring excess profits, and their income is formed due to the production of products with high added value and a significant scientific and technological component, innovations and synergies. In recent history, there are examples when states in 8-12 years have almost radically diversified their export structure, increasing the specific weight of its more valuable and technological components (China, Vietnam, South Korea, Turkey, etc.). The most important role in this was played, firstly, by the state and its support policy, and secondly by investors, who jointly achieved the gradual integration of local companies into global value added chains - first as intermediate agents or local producers, and then as final entities chain, in particular in the form of transnational corporations. In this case, it is appropriate to quote Friedrich Hayek: "It is difficult for all of us to put up with unfinished business, so it is time to start escaping from the curse of the commodity economy" [12, p. 56].

Conclusions. As the experience of the countries of the world, in particular the Republic of Korea, shows, the basis for the transformation of a "raw" economy to a high-tech one should be based on a flexible policy of adaptation in global chains of added value. Its components are: attracting and reorienting investments to create and modernize national industries for deeper processing, stimulating the development of related processing industries (packaging, cold chain, warehouse equipment, irrigation, fertilizer production); creation and development of national food clusters integrated with processing enterprises, research institutes and affiliated companies; promoting the interests of domestic producers on world markets, holding National Food Products Exhibitions; medium-term and long-term financing of state programs of preferential lending for the processing industry and related sectors of the economy; broad deregulation of economic relations, maximum expansion of opportunities in trade in agricultural food. We believe that the transformation processes of the domestic agricultural sector should be based on the "Strategy for the development of agriculture

and rural areas in Ukraine for the period until 2030", which should be developed taking into account the need for changes in the implementation of state policy in the field of agriculture, in particular related with granting Ukraine the status of a candidate for joining the EU and other international obligations, and will determine the main priority goals that will contribute to the achievement of general goals in the economic, environmental and social spheres in accordance with the Plan of Ukraine for the implementation of the Ukraine Facility program.

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