

LUYBOMYR SOZANSKYI

State Institution “Institute of Regional Research
n.a. M.I. Dolishniy of NAS of Ukraine”, Lviv (Ukraine)
Department of Problems of Real Sector of Regions Economy
<https://orcid.org/0000-0001-7854-3310>
e-mail: ls.ird2@ukr.net

VICTOR ZHULKANYCH

State Institution “Institute of Regional Research
n.a. M.I. Dolishniy of NAS of Ukraine”, Lviv (Ukraine)
Department of Problems of Real Sector of Regions Economy
<https://orcid.org/0009-0008-2209-3398>
e-mail: zhulkanych@gmail.com

The Current State and Prospects of Ukraine’s Commodity Exports in the Conditions of Russiasia’s Full-Scale Aggression

Abstract. The article present a structural and dynamic analysis of Ukraine’s commodity exports in 2022. Taking into account the catastrophic challenges faced by the Ukrainian nation, the decline recorded in 2022 can actually be considered an economic achievement. The structure of Ukraine’s commodity exports in 2022 did not change much. However, owing to complex problems brought about by Russiasia’s aggression, exports of raw materials and several agricultural commodities increased, while the share of metallurgical products decreased significantly. The authors point out that by exporting raw materials, Ukraine loses potential added value and budget revenues that could be obtained by selling processed raw materials. They also outline probable risks and prospects of commodity exports taking into account Ukraine’s model of export development and propose directions for the latest model of economic development and its impact on the structure and socio-economic efficiency of Ukrainian exports.

Keywords: export, raw materials, structure, toll manufacturing, price index

<https://doi.org/10.58683/dnswsb.1968>

1. Introduction

Commodity export is one of the most significant sources of Ukraine's foreign currency revenues. Under the present challenging circumstances, the ability to export commodities, more than ever, depends on the country's socio-economic stability. In addition, Ukrainian commodity exports play an important role in the global market of agricultural products, in particular in the markets of Africa and Asia. Before the war, half of the world's production of sunflower oil came from Ukraine, as well as almost a fifth of the world's barley, a sixth of corn, and an eighth of wheat (Ukraine: a global granary, 2023). In 2022, more than half of wheat grain purchased by the UN World Food Program came from Ukraine ("What is the Ukraine grain deal and what good has it done?", 2023). In view of that, any threats to Ukraine's export prospects are a matter of not only national, but also global significance. At the same time, during the last decade, and especially in 2022, Ukrainian commodity exports have undergone significant changes. The main reasons for these changes were non-economic, geopolitical factors, including the Russiasian-Ukrainian war, reorientation of markets and logistics, exchange rate fluctuations, etc. Ukrainian commodity exports, their efficiency and structure also depend on changes in the global market for raw materials and finished products, as well as the level of innovation, technology and structure of the Ukrainian industry. It follows from this that the risks and prospects of increasing Ukraine's export potential are related to a number of multifaceted challenges that require scientifically based solutions and more applied research.

2. Literature Review

The task of tracking trends and analysing of Ukrainian exports in the conditions of a full-scale Russiasian-Ukrainian war is carried out by the Entrepreneurship and Export Promotion Office. Its official website (Entrepreneurship and Export Promotion Office, 2023) provides statistical and analytical data about the dynamics and structure of commodity exports by group and geography. Analytical reviews of promising foreign markets for Ukrainian exports have also been prepared, in particular for the food, light, machine-building, woodworking, furniture and IT sectors.

In many studies conducted by Ukrainian researchers, considerable attention has been paid to the development of Ukrainian export potential in the context of Ukraine's integration with the European Economic Area. For example, Melnyk and Pugachevska (2017) analysed indicators of the export of goods and services

to EU countries. The authors used national accounts statistics to calculate export orientation and import dependence for certain types of economic activities. They concluded that given the instability of global trade regulators, effective export promotion is a strategy in which Ukraine could increase its international competitiveness, and therefore, modernise its national development strategy. Puhachevska (2017) analysed the legal basis of WTO activity in terms of state export support and identified the main reasons for the conflict of interests between countries with different degrees of economic development with respect to the use of trade barriers. She also identified potential long-term consequences of Ukraine's growing export orientation under conditions of openness of national economies.

Melnyk (2008) highlighted the general trends of Ukraine's trade and economic relations with the EU countries and concluded that the country's economic exchange with the EU countries has a great development potential. The author made proposals regarding Ukraine's export growth to the EU countries.

Savchenko et al. (2021) propose a number of indicators that comprehensively characterize the export potential at the level of a firm, industry, and the country as a whole. After analysing the structure, dynamics and efficiency of Ukrainian exports, the authors identify the main problems in the development of Ukraine's exports and propose solutions for the near future.

These and other studies have significantly helped to highlight the problems and prospects of Ukrainian exports in the context of Ukraine's economic relations with the EU. However, the challenges faced by Ukrainian exports in the conditions of Russiasia's full-scale aggression have hardly been addressed in research so far.

The purpose of the study is to analyse trends and structural transformations of Ukrainian exports in the face of challenges caused by Russiasia's full-scale aggression and outline risks and prospects in the post-war period.

3. Methods and Data

The main goal of the study was achieved in three stages. First, a structural and dynamic analysis of commodity exports of Ukraine in 2022 was carried out. Secondly, qualitative indicators of Ukraine's commodity exports were analysed using relative indicators. Thirdly, based on the results of the analysis probable risks and prospects for increasing the export potential of Ukraine in the post-war period are outlined.

The study was conducted using traditional methods of economic analysis and official statistical data for 2023 published by the State Statistics Service of Ukraine (SSSU), the State Customs Service of Ukraine (SCSU), World Economic Outlook (2023) and Trademap.

4. Results

The following analytical information was obtained during the first stage of the study.

Ukraine's commodity exports in 2022 were down by 35.1%, from 68.1 in 2021 to 44.1 billion USD. (Table 1). The only category of exports that recorded an increase were live animals and products of animal origin, which increased by 9.5%. All the remaining product groups recorded significant declines, in some cases by more than 50% (products of commodity groups VI, VII, XIV, XV and XXI).

Table 1. Dynamics and structure of Ukraine's commodity exports in 2022 by commodity group

Categories of exported commodities	Amount. thousands of us dollars		Percentage increase/decrease	Percentage share	
	2021	2022		2021	2022
Total	68,072,328.8	44,148,774.6	-35.1	100	100
I. Live animals; products of animal origin	1,345,194.8	1,472,435.5	9.5	2.0	3.3
II. Products of plant origin	15,538,028.4	13,478,480.9	-13.3	22.8	30.5
III. Fats and oils of animal or vegetable origin	7,037,234.2	5,949,360.7	-15.5	10.3	13.5
IV. Ready food products	3,788,474.9	2,496,966.0	-34.1	5.6	5.7
V. Mineral products	8,414,372.7	4,323,469.3	-48.6	12.4	9.8
VI. Products of the chemical and related industries	2,815,603.7	1,287,184.2	-54.3	4.1	2.9
VII. Polymeric materials. plastics and derived products	1,104,189.8	470,206.4	-57.4	1.6	1.1
VIII. Hides are raw. skinned	165,539.7	104,482.9	-36.9	0.2	0.2
IX. Wood and wood products	2,005,802.9	1,885,422.0	-6.0	2.9	4.3
X. Mass of wood or other fibrous cellulosic materials	534,033.5	277,514.1	-48.0	0.8	0.6
XI. Textile materials and textile products	864984.6	671,545.0	-22.4	1.3	1.5
XII. Shoes. hats. umbrellas	189,860.9	175,073.2	-7.8	0.3	0.4
XIII. Stone. plaster. cement products	568,403.9	300,657.0	-47.1	0.8	0.7
XIV. Pearls are natural or cultured. precious or semi-precious stones	128,546.7	40,989.1	-68.1	0.2	0.1
XV. Precious metals and derived products	15,990,999.1	6,004,098.5	-62.5	23.5	13.6
XVI. Machines. equipment and mechanisms; electrical equipment	5,260,165.9	3,735,990.3	-29.0	7.7	8.5
XVII. Means of land transport. aircraft. floating vehicles	676,435.9	359,418.2	-46.9	1.0	0.8
XVIII. Optical and photographic devices and apparatus	170,955.1	121,538.2	-28.9	0.3	0.3
XX. Various industrial goods	1,249,974.3	972,465.3	-22.2	1.8	2.2
XXI. 97 Works of art	2,671.4	1,113.3	-58.3	0.0	0.0

Source: Based on data SSSU (2023)

Taking into account the structure of commodity exports, the most significant changes that took place in 2022 include an increase in the share of group II (Prod-

ucts of plant origin) by 7.7 percentage points and a decline in the share of group XV (Precious metals and derived products), by 9.9 percentage points.

In 2022, as in the previous year, four commodity groups had the largest shares in commodity exports: II. products of plant origin; III. Fats and oils of animal or vegetable origin; V. mineral products; XV. low-value metals and derived products. In total, these four groups accounted for 67.4% (compared to 69% in 2021) of Ukraine's commodity exports in 2022. In summary, Ukraine's key export commodities in 2021 and 2022 were agricultural (groups II and III) and metallurgical (group XV) products. In other words, the structure of commodity exports in 2022 remained essentially unchanged.

In the next step, exports of individual commodities were analysed (see Table 2). Out of 1,186 processed product items, we analysed 21 commodities whose share in the product structure of Ukrainian exports in 2021 and/or 2022 was equal to or exceeded 1%. The most significant (over 10%) commodity items in 2022 included corn (13.4%) and sunflower, safflower or cottonseed oil (12.4%). In addition, in 2021, the 10% threshold was exceeded by iron ores and concentrates (10.1%). In 2022, exports increased for the following commodity items: sunflower seeds (31 times), meat and edible poultry offal (+19%); soybeans (+42.4%); electricity (+129.3%).

Table 2. Top 21 commodities in Ukraine's exports by value

Commodity	Export volume, thousands of US dollars		Percentage increase/decrease	Percentage share in merchandise exports	
	2021	2022		2021	2022
Meat and edible poultry offal	716,415	852,882	19.0	1.1	1.9
Wheat	5,074,782	2,676,993	-47.2	7.5	6.1
Barley	1,275,343	446,826	-65.0	1.9	1.0
Corn	5,892,623	5,939,920	0.8	8.7	13.4
Soybeans	605,926	863,065	42.4	0.9	2.0
Rapeseed or rapeseed	1,690,872	1,540,509	-8.9	2.5	3.5
Sunflower seeds	39,199	1,256,198	3,104.7	0.1	2.8
Sunflower, safflower or cottonseed oil	6,387,635	5,464,151	-14.5	9.4	12.4
Cakes, solid waste from the extraction of vegetable fats and oils, except 2304. 2305	1,280,121	765,144	-40.2	1.9	1.7
Iron ores and concentrates	6,899,816	2,912,974	-57.8	10.1	6.6
Electricity	256,941	589,179	129.3	0.4	1.3
Artificial corundum; aluminum oxide; aluminum hydroxide	653,640	147,959	-77.4	1.0	0.3
Wood materials are processed; more than 6 mm thick	694,698	473,554	-31.8	1.0	1.1

Commodity	Export volume, thousands of US dollars		Percentage in-increase/decrease	Percentage share in merchandise exports	
	2021	2022		2021	2022
Cast iron and mirror cast iron in ingots, ingots or other primary forms	1,642,596	638,774	-61.1	2.4	1.4
Ferrous alloys	1,043,880	564,136	-46.0	1.5	1.3
Carbon steel semi-finished products	4,093,015	1,191,279	-70.9	6.0	2.7
Flat rolled carbon steel 600 mm wide or more; hot-rolled; unplated; without galvanic or other coating	3,735,498	1,007,570	-73.0	5.5	2.3
Hot-rolled rods and bars made of carbon steel in bundles	678,673	310,900	-54.2	1.0	0.7
Hollow, seamless pipes; tubes and profiles made of ferrous metals	641,876	625,327	-2.6	0.9	1.4
Electric heating devices and devices; electric irons	508,589	465,730	-8.4	0.7	1.1
Insulated wires; cables and other insulated electrical conductors; fiber optic cables	1,588,369	1,328,484	-16.4	2.3	3.0
Total	45,400,507.0	30,061,554.0	-33.8	66.7	68.1
Other products	22,687,154	14,111,321	-37.8	33.3	31.9
Total exports	68,087,661	44,172,875	-35.1	100.0	100.0

Source: Based on data from SCSU (2023)

The structure of exports by commodity also confirms that in 2022, as in 2021, the biggest contribution to Ukrainian exports was made by commodities from the agricultural and metallurgical sectors. The only difference is that the structural and quantitative indicators of metallurgical products significantly decreased as a result of the war.

In terms of weight, Ukrainian exports in 2022 underwent significant changes (see Table 3). First of all, the total weight of exported commodities decreased by 38.4%, i.e. by 62.1 million tons. At the same time, some commodities recorded increases in terms of weight: sunflower seeds (33.8 times); soybeans (by 81.6%); rapeseed or rapeseed (by 16.6%); corn (by 1.2%). In the case of the remaining commodities, the weight of exports declined significantly. Taking into account the percentage structure of commodities in terms of weight, the highest shares in 2021-2022 were recorded for wheat, corn, iron ore and concentrates. In 2022, these three commodity items accounted for 60% (compared to 55% in 2021) of all Ukraine's commodity exports by weight.

A comparison of changes in commodity exports by value and weight (Tables 2 and 3) shows a number of significant differences. While the decline in the country's commodity exports measured in monetary terms was nearly the same as that by weight (-33.8% vs -34.0%), interesting discrepancies can be observed for some commodities, as in the case of meat and edible poultry offal, whose exports

by value increased by 19% but, measured by weight, decreased by 10%. Similar discrepancies were recorded for the following commodity positions: soybeans; rapeseed or rapeseed; cake, solid waste from the extraction of vegetable fats and oils, except for 2304, 2305; iron ores and concentrates; hollow, seamless pipes, tubes and profiles made of ferrous metals; electric heating devices and devices; electric irons.

Table 3. Top 21 commodities of Ukraine's exports by weight

Commodity	Export volume. net weight. etc		Per- cent- age in- crease/ de- crease	Percentage share in merchandise exports		Price in USD per tonne	
	2021	2022		2021	2022	2021	2022
Meat and edible poultry offal	459,059	413,197	-10.0	0.3	0	1561	2064
Wheat	20,071,253	11,218,042	-44.1	12.4	11	253	239
Barley	5,656,314	2,142,365	-62.1	3.5	2	225	209
Corn	24,674,925	24,978,483	1.2	15.2	25	239	238
Soybeans	1,097,803	1,993,550	81.6	0.7	2	552	433
Rapeseed or rapeseed	2,670,705	3,115,332	16.6	1.6	3	633	494
Sunflower seeds	79,031	2,754,099	3,384.8	0.0	3	496	456
Sunflower. safflower or cottonseed oil	5,132,146	4,290,336	-16.4	3.2	4	1245	1274
Cakes. solid waste from the ex- traction of vegetable fats and oils. except 2304. 2305	4,330,228	3,308,272	-23.6	2.7	3	296	231
Iron ores and concentrates	44,357,727	23,984,623	-45.9	27.4	24	156	121
Artificial corundum; aluminum oxide; aluminum hydroxide	1,796,387	252,665	-85.9	1.1	0	364	586
Wood materials are processed. more than 6 mm thick	1,926,637	1,126,228	-41.5	1.2	1	361	420
Cast iron and mirror cast iron in ingots. ingots or other primary forms	3,235,772	1,325,275	-59.0	2.0	1	508	482
Ferroalloys	668,539	349,560	-47.7	0.4	0	1561	1614
Carbon steel semi-finished products	6,776,441	1,899,729	-72.0	4.2	2	604	627
Flat rolled carbon steel 600 mm wide or more. hot-rolled. unplated. without galvanic or other coating	4,732,428	1,301,324	-72.5	2.9	1	789	774
Hot-rolled rods and bars made of carbon steel in bundles	926,162	406,574	-56.1	0.6	0	733	765
Hollow. seamless pipes. tubes and profiles made of ferrous metals	480,989	341,622	-29.0	0.3	0	1334	1830
Electric heating devices and devices; electric irons	33,796	28,054	-17.0	0.0	0	15049	16601
Insulated wires. cables and other insulated electrical con- ductors; fiber optic cables	76,418	65,995	-13.6	0.0	0	20785	20130

Commodity	Export volume. net weight. etc		Per- cent- age in- crease/ de- crease	Percentage share in merchandise exports		Price in USD per tonne	
	2021	2022		2021	2022	2021	2022
Total	129,182,760	85,295,325	-34.0	79.8	85	x	x
Other products	32,724,647	14,469,149	-55.8	20.2	15	x	x
Total exports by weight	161,907,407	99,764,474	-38.4	100.0	100	x	x

Source: Based on data from SSSU (2023)

There are also structural differences in commodity exports by value and weight. As already mentioned, three commodity items (wheat, corn, ore, and iron concentrates), which in 2022 accounted for 60% of commodity exports by weight (against 55% in 2021) accounted for only 26% by value in 2021 and 2022. The percentage share of sunflower oil, safflower oil, or cottonseed oil in total commodity exports by value (12.4%) was three times as high as by weight (4%). High differences in the structural indicators of commodity exports by value and weight can also be observed for a number of other commodity items: insulated wires, cables and other insulated electrical conductors; fiber optic cables; wheat; barley; cake, solid waste from the extraction of vegetable fats and oils, except for 2304, 2305; ferroalloys; hollow, seamless pipes, tubes and profiles made of ferrous metals; electric heating devices and devices; electric irons.

There are also differences in the export value of related commodity items. For example, the value of sunflower, safflower, or cottonseed oil products exported in 2022 was 2.8 times as high as, and in 2021, 2.5 times as high as the export value of sunflower seed products.

The value of iron ore and concentrates exported in 2022 (USD 2,912,974) was less than half of that recorded in 2021 (USD 6,899,816), whereas the value of pipes, tubes and hollow, seamless profiles of ferrous metals remained almost unchanged (USD 641,876 vs USD 625,327). The value of commodity items such as wheat, corn, ores and iron concentrates exported in 2022 decreased in comparison with 2021, while it increased for sunflower, safflower or cottonseed oil.

According to information from Ukraine's Ministry of Economy, in 2022, 63% of commodities were exported to the EU (USD 27.9 billion) (ME, 2023). According to SSSU data published in 2023, in 2021 exports to the EU countries accounted for 39.4% of all Ukrainian exports (USD 26.8 billion).

In terms of value, the largest contribution to Ukraine's foreign trade in 2022 came from exports to Poland (USD 6.6 billion), Romania (USD 3.8 billion), Hungary (USD 2.0 billion), Germany (USD 2.23 billion), Italy (USD 1.5 billion) and Spain (USD 1.5 billion). In 2021, Ukraine's largest export markets in the EU were:

Poland (USD 5.2 billion), Italy (US\$3.5 billion), Germany (USD 2.9 billion), the Netherlands (USD 2.3 billion). USD), Spain (USD 1.7 billion), Hungary (USD 1.6 billion) (SSSU, 2023).

The largest export markets outside the EU in 2022 included Turkey, with a share of 6.6% (USD 2.9 billion) and China, with a share of 5.7% (USD 2.46 billion). However, compared to 2021, exports to Turkey decreased by 29%, and to China – by 69%. Given the role that EU countries, in particular Poland and Romania, played in Ukrainian commodity exports in 2022, Table 4 presents a more detail breakdown.

Table 4. Ukrainian commodity exports by country and commodity in 2022

Product position	Indicator				
Meat and edible poultry offal	Country	Netherlands	Saudi Arabia	Slovakia	Others
	Share	29.55	25.82	7.58	37.06
Wheat	Country	Turkey	Romania	Egypt	Others
	Share	17.76	12.41	9.03	60.8
Barley	Country	Turkey	Romania	Spain	Others
	Share	21.14	19.97	19.76	39.13
Corn	Country	China	Romania	Spain	Others
	Share	17.76	13.82	11.06	57.36
Soybeans	Country	Turkey	Romania	Germany	Others
	Share	32.05	9.77	9.14	49.04
Rapeseed or rapeseed	Country	Poland	Romania	Germany	Others
	Share	24.56	22.29	12.94	40.21
Sunflower seeds	Country	Bulgaria	Romania	Turkey	Others
	Share	33.4	21.52	15.73	29.35
Sunflower. safflower or cottonseed oil	Country	India	Turkey	Poland	Others
	Share	14.13	12.11	8.94	64.82
Cakes. solid waste from the extraction of vegetable fats and oils. except 2304. 2305	Country	China	Poland	France	Others
	Share	44.9	19.84	4.49	30.76
Iron ores and concentrates	Country	Slovakia	Czechia	Poland	Others
	Share	19.23	17.32	16.49	46.97
Electricity	Country	Poland	Slovakia	Romania	Others
	Share	26.43	25.13	21.38	27.06
Artificial corundum; aluminum oxide; aluminum hydroxide	Country	russia	Germany	Italy	Others
	Share	87.3	2.23	2.11	8.36
Wood materials are processed. more than 6 mm thick	Country	Hungary	Poland	Italy	Others
	Share	12.04	10.53	8.55	68.88
Cast iron and mirror cast iron in ingots. ingots or other primary forms	Country	USA	Poland	Turkey	Others
	Share	38.47	32.91	8.12	20.5

Ferroalloys	Country	Poland	Netherlands	Romania	Others
	Share	53.25	13.13	5.66	27.96
Carbon steel semi-finished products	Country	Bulgaria	Poland	Italy	Others
	Share	26.55	13.97	12.13%	47.35%
Flat rolled carbon steel 600 mm wide or more. hot-rolled. unplated. without galvanic or other coating	Country	Poland	Turkey	Bulgaria	Others
	Share	24.46	15.87	9.25	50.42
Hot-rolled rods and bars made of carbon steel in bundles	Country	Romania	Poland	Ghana	Others
	Share	35.48	31.38	4.76	28.38
Hollow, seamless pipes, tubes and profiles made of ferrous metals	Country	USA	Germany	Italy	Others
	Share	36.72	16.94	7.79	38.55
Electric heating devices and devices; electric irons	Country	Hungary	Poland	Germany	Others
	Share	92.26	1.97	1.04	4.72
Insulated wires, cables and other insulated electrical conductors; fiber optic cables	Country	Germany	Poland	Czechia	Others
	Share	27.49	16.38	13.93	42.21

Source: Based on data from SCSU (2023)

A number of conclusions can be drawn from the information presented above.

The decrease in the value of Ukrainian commodity exports in 2022 by 35.1% (or 38.4% by weight) can be considered catastrophic change, given the fact that export revenues are crucial in ensuring the country's financial and socio-economic stability.

Completely opposite conclusions can be drawn when one compares the figures for 2022 with earlier data, in particular for the 2008-2009 (the global financial crisis) and 2014 (the beginning of the Russian-Ukrainian war).

In particular, Ukraine's merchandise exports in 2009 compared to 2008 decreased by 40.7%. In the same year, declines were recorded in commodity exports to Canada (-31%); USA (-19%); Poland (-20%); Germany (-23%); Japan (-26%); Nicaragua (-45%) (Trademap, 2023). The main reason for these falls was the global financial and economic crisis. In addition, the export decline in Ukraine and developing countries was exacerbated by the economy's excessive openness and dependence on the situation on global commodity markets. At the same time, compared to 2008, the hryvnia depreciated against the dollar by 32% (from UAH 5.27 to UAH 7.79 per 1 USD). Such devaluation was supposed to make prices of Ukrainian products more competitive on global markets. However, that did not happen and, unfortunately, Ukraine, with its great industrial potential, almost reached the same low level of exports as Nicaragua.

In 2014, Ukraine's commodity exports declined by 15%; in 2015 — by 29%; in 2016 — by 5%, and over these three years — by 49%. The drop in exports during this period was mainly due to the beginning of the Russian-Ukrainian war

in 2014, Ukraine's temporary loss of Crimea and parts of Donbas, and market reorientation. In addition, this period, particularly 2015, coincided with a global recession accompanied by a fall in oil prices. As a result, in 2015 Ukraine's commodity exports generally decreased: Germany (-12%); Poland (-9%); USA (-7%); Norway (-27%); Canada (-14%); Australia (-24%); Lithuania (-22%); Great Britain (-9%); Kazakhstan (-42%); Kuwait (-45%). During 2014-2016, the Ukrainian hryvnia depreciated against the US dollar by 220% (from 8.0 to 25.6 hryvnias per 1 US dollar) (Trademap, 2023). Such a high depreciation, combined with Ukraine's growing economic ties with the EU, even despite the beginning of the Russian-Ukrainian war, should have contributed, if not to the growth of commodity exports, then at least limiting the scale of their decline. Unfortunately, this did not happen.

So, in view of the above comparisons and the fact that the challenges faced by Ukraine and the Ukrainian nation in 2022 were much more serious and bigger than all the crises faced by any European country since the Second World War, including the very real risk of a complete destruction of the state, the nation, the economy, the fact that commodity exports declined by only 35.1% and not by several dozen times, should be considered an economic achievement. This relatively high scale of exports was the result of rational, inventive decisions, the unity of the Ukrainian government, the business sector and the nation, as well as the strong support of the united civilized world. Thus, on July 22, 2022, thanks to the mediation of the UN and Turkey, an agreement was concluded on the opening of a safe maritime humanitarian corridor in the Black Sea (Black Sea Grain Initiative). Since then, "Over 1000 ships full of grain and other foodstuffs left Ukraine from three Ukrainian ports (Chornomorsk, Odesa and Yuzhny/Pivdennyi) during the implementation of the initiative" (Infographic — Ukrainian grain exports explained, 2023). "As of March 2023, more than 33 million tons of grain and other food products were exported as part of the Black Sea Grain Initiative". In particular, these are: maize (49%); wheat (28%); sunflower products (11%); others (12%). "65% of the wheat exported through the Black Sea Grain Initiative reached developing countries. Maize was exported almost equally to developed and developing countries" (Infographic — Ukrainian grain exports explained, 2023).

The noticeable increase in Ukraine's commodity exports to EU countries in 2022 was the result of resolution adopted by the EU that opened the way for a temporary full trade liberalization and the suspension of trade protection measures for one year. These measures entered into effect on 4 June 2022 and remained in force until 5 June 2023, with the prospect of an extension to Regulation (EU) (2022). Infrastructure hubs for Ukrainian exports, mostly grain and oil products, were also created in Poland and Romania.

As a result, thanks to the multifaceted, diplomatic, organizational work of the Ukrainian government and the business sector, the grain corridor, the liberalization of trade with the EU, in 2022 Ukraine managed to export 99.8 million tons of goods. 53.8 million tons were exported by sea, of which 16.3 million tons through the grain corridor; 33.7 million tons by rail and 2 million tons by road (Entrepreneurship and Export Promotion Office, 2023).

Based on the information presented above the authors have identified the threats and opportunities of Ukraine's exports in the post-war period.

1. Strengthening of the export specialisation in several agricultural commodity items. The analysis of trends in the dynamics and structure of Ukrainian commodity exports during the war and pre-war period reveals a high risk of Ukraine developing a highly specialised export of primary plant products, with a focus on 4-5 commodity items. In this case, Ukraine's export revenues will continue to depend entirely on the situation on the global markets of raw materials, geopolitical decisions regarding the admission/non-admission of Ukrainian agricultural products into certain countries, customs tariffs and quotas. This, in turn, will be accompanied by further instability of the exchange rate, inflation, low social standards, complete monopolization of the agricultural sector, and other negative demographic and migration processes. From the state's point of view, such a specialization in commodity exports would mean a loss of potential economic benefits and opportunities and an irrational use of land resources. This risk could materialise if effective normative, organizational and economic stimulating measures are not adopted to preserve and protect national interests in foreign trade and to strengthen the state's position in special international economic agreements with the WTO, the EU, etc. and to improve the currently low investment attractiveness of the country's economy.

2. Expanding the range of raw commodity items of the primary agricultural and metallurgical sectors and the share of toll manufacturing¹ in the high- and medium-high-tech segments of Ukrainian commodity exports. Given Ukraine's significant potential and positive experience in the export of agricultural products (both crops and livestock) in the pre-war period, there is a risk that in the post-war period the diversification of the Ukrainian agricultural export structure will increase at the expense of livestock raw products. In order to prevent such a development, the following prerequisites must be met: the investment climate must improve, effective financial and credit support for the livestock sector must be implemented, especially for small and medium-sized businesses, and, most importantly, potential niches for Ukrainian livestock products on foreign markets

¹ The arrangement where one company processes materials for another.

must be restored and expanded. All these prerequisites require appropriate economic and political support not only from the state, but also from its partners in the civilized world. Thanks to modernization or reconstruction efforts, Ukrainian metallurgical sector, largely destroyed by the Russian Federation, is likely to recover and exceed the pre-war output levels in terms of volume and range of raw and low-tech metallurgical products. Favorable conditions that Ukraine enjoyed in the pre-war period for indirect exports and toll manufacturing, a high import component of exports, a low level of wages, and high unemployment can become prerequisites for an even greater increase in the share of finished products in the export of products of the chemical and machine-building industry. Such a scenario for the development of Ukraine's export potential will require a significant inflow of foreign capital, mainly large specialized and trans-national companies. Possible economic benefit for Ukraine from the development of exports in these directions (expansion of the range of materials and toll manufacturing) include an increase in the volume of exports above pre-war levels, stabilization and a decrease in the level of inflation, higher employment in labor-intensive sectors of production, signs of short-term socio-economic stability. At the same time, the level of wages will continue to be relatively low, and budget revenues will increase slightly compared to pre-war indicators.

The first two scenarios correspond to the export-oriented model of economic development, which has been promoted in Ukraine in recent years. Small countries with limited resources and human capital are forced to use the export model. Such a model assumes a very narrow specialization of exports and production, the economy's excessively high dependence on the import and export of products of final and intermediate consumption, a high import component of export and production. Some highly developed economies are also forced to resort to this economic model as a result of overproduction of medium and high-tech products, overpopulation, oversaturation of the domestic market with national goods, etc. The implementation of the export model in the conditions of global instability threatens the national security of countries through dependence on imports and exports, the situation in world markets, economic specialization, irrational use of the country's resources, etc.

3. A radical change in the structure of Ukrainian commodity exports by increasing the share of products made from highly processed raw materials, air freight, a higher share of added value, high-tech products. Ukraine still has sufficient potential and experience, scientific capital for the production of high-tech products of the defense-industrial complex, machine-building, chemical industry, products with advanced processing of raw materials, both for the domestic and foreign markets. Therefore, it can be assumed that if the special prerequisites

are met, the share of raw materials in Ukraine's structure of commodity exports will be zero or minimal. The base of Ukrainian exports will be domestic medium- and high-tech products with no or minimal import components and a share of toll manufacturing from the chemical and machine-building industry. This change in commodity exports could be achieved through the structural transformation of the Ukrainian industry and economy in favor of innovative, science-intensive, high- and medium-high-tech industries.

These structural transformations require the development and implementation of a new model of economic development. The basic principles of such a model include high social standards, national security and the Ukrainian identity. Ukraine's economic development model should include the best practices and methods of post-Keynesian economics. In particular, the role of the state in regulating, planning, restoring and developing strategic sectors of the economy (primarily machine-building, the chemical industry, the defense industry, the energy industry), restoring and strengthening inter-sectoral ties, eliminating vinter-regional socio-economic imbalances, must necessarily and indisputably significantly increase to ensure financial and credit, organizational and economic, regulatory and legal foundations for improving the country's investment attractiveness. Economic development should be directed in the direction of import substitution, primarily products of high- and medium-high-tech industries by filling the domestic market with appropriate domestic competitive products, economic impracticability or a complete ban on the export of any raw materials from Ukraine. Increasing the competitiveness of domestic products of high- and medium-high-tech industries on the domestic and foreign markets will require the application of innovative economic model approaches. At the same time, the economic development of Ukraine's new economic model must take into account the cultural and spiritual value system of the Ukrainian nation. The implementation of these proposals could contribute to a significant increase in exports, budget revenues, new jobs, an increase in social standards, the level of national security of the country, and the preservation of Ukrainian identity.

5. Conclusions

As demonstrated by the data presented above, the Russian Federation's full-scale aggression against Ukraine did not destroy Ukrainian exports. Given the difficult circumstances and challenges connected with the war, the level of decline in Ukraine's commodity exports in 2022 can be considered an economic achievement. The structure of commodity exports of Ukraine in 2022 did not undergo

drastic changes. However, both the share of raw material and several agricultural commodity items in Ukrainian commodity exports increased, while the share of metallurgical products decreased significantly. These authors point out that by exporting raw materials, Ukraine loses potential added value and budget revenues that could be obtained as a result of the processing of these raw materials.

The analysis of Ukrainian exports of specific commodity items revealed a number of discrepancies between the dynamics and structure in terms of value and weight, which are due to significant differences in the cost of exporting raw materials and processed products, for example, sunflower seeds and sunflower oil. Another significant change observed in 2022 was a significant increase in the share of exports to EU countries.

The main obstacles to the growth of Ukrainian exports include the country's high dependence on changes in the prices of raw materials on global markets and the deterioration of trade conditions.

Based on the analysis, the authors have proposed three scenarios of possible risks and opportunities for the development of Ukraine's exports. Two scenarios reflect the possible risks of applying an export-oriented model of economic development in Ukraine. In contrast, the third model emphasises the development of the domestic market by supporting domestic producers and significant participation of the state in the development of strategic sectors of the economy: the defense industry, mechanical engineering, the chemical industry.

References

- Entrepreneurship and Export Promotion Office. (2023). <https://export.gov.ua>
- Infographic — Ukrainian grain exports explained. (2023). <https://www.consilium.europa.eu/en/infographics/ukrainian-grain-exports-explained/>
- ME. (2023). *In 2022, Ukraine exported almost 100 million tons of goods*. <https://me.gov.ua/News/Detail?lang=uk-UA&id=1487b1f5-eeb7-4946-b9c8-3370f20568a2&title=Ukrain-aV2022-RotsiEksportuvala>
- Melnyk, T.M., & Pugachevska, K.S. (2017). The Tendencies in Ukraine's Exports Development in the Context of European Integratio. *Business Inform*, 10, 66–73. http://nbuv.gov.ua/UJRN/binf_2017_10_11
- Melnyk, T. (2008). Export potential of Ukraine: methodology for evaluation and analysis. *International Economic Policy*, 10, 241–271. http://nbuv.gov.ua/UJRN/Mep_2008_1-2_11
- Puhachevska, K.S. (2017). Instrumenty eksportpromoushn za umov hlobalizatsii. *Problems of the Economy*, 4, 36–41. http://nbuv.gov.ua/UJRN/Pekon_2017_4_6
- Regulation (EU). (2022). *2022/870 of the European Parliament and of the Council of 30 May 2022 on temporary trade-liberalisation measures supplementing trade concessions applicable to Ukrainian products under the Association Agreement between the European Union and the European Atomic Energy Community and their Member States, of the one part, and Ukraine, of the other part*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2022.152.01.0103.01.ENG&toc=OJ%3AL%3A2022%3A152%3ATOC

- Savchenko, M.V., Khadzhynov, I.V., & Zavydovska, A.O. (2021). Ukraine's export potential and its implementation in trade and economic relations with EU countries. *Economic Bulletin of Dnipro University of Technology*, 4(76), 89–98. <https://doi.org/10.33271/eb-dut/76.089>
- SCSU. (2023). State Customs Service of Ukraine. <https://customs.gov.ua/statistika-ta-reiestri#statistika>
- SSSU. (2023). State Statistics Service of Ukraine. <http://www.ukrstat.gov.ua>
- Trademap. (2023). https://www.trademap.org/Country_SelProduct_TS.aspx?nvpm=1%7c%7c%7c%7c%7cTOTAL%7c%7c%7c2%7c1%7c1%7c2%7c2%7c1%7c2%7c5%7c1%7c1
- Ukraine: a global granary. (2023). <https://www.consilium.europa.eu/en/food-for-the-world-eu-countries-mitigate-impact-Russiasia-war/#group-section-Ukraine-a-global-granary-f4NKt8Im8j>
- What is the Ukraine grain deal and what good has it done? (2023). <https://www.bbc.com/news/world-61759692>
- World Economic Outlook. (2023). <https://www.imf.org/en/Publications/WEO/weo-database/2023/April/weo-report?a=1&c=001,&s=PWHEAMT,PMAIZMT,PSUNO,&sy=1980&ey=2028&ssm=0&scsm=1&sc=0&ssd=1&ssc=0&sic=0&sort=country&ds=.&br=1>

Aktualny stan i perspektywy ukraińskiego eksportu towarowego w warunkach pełnoskalowej agresji Rosji

Streszczenie. W artykule przedstawiono analizę struktury i dynamiki ukraińskiego eksportu towarowego w 2022 r. Biorąc pod uwagę katastrofalne wyzwania, z jakimi zmaga się naród ukraiński, spadek odnotowany w 2022 r. można uznać za osiągnięcie gospodarcze. Struktura ukraińskiego eksportu towarowego w 2022 r. nie uległa większym zmianom. Jednak ze względu na złożone problemy wywołane agresją Rosji wzrósł eksport surowców i szeregu produktów rolnych, a udział wyrobów metalurgicznych znacznie spadł.

Autorzy wskazują, że eksportując surowce, Ukraina traci potencjalną wartość dodaną i dochody budżetowe, które można by uzyskać ze sprzedaży przetworzonych surowców. Omawiają prawdopodobne ryzyka i perspektywy dotyczące eksportu towarów, biorąc pod uwagę dotychczasowy model ukraińskiego eksportu. Na koniec proponują alternatywny model rozwoju gospodarczego i jego wpływu na strukturę i efektywność społeczno-ekonomiczną ukraińskiego eksportu.

Słowa kluczowe: eksport, surowce, struktura, produkcja na zlecenie, indeks cen