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The Structure of the Ukrainian Foreign Trade and its Development after the Russian Invasion

Abstract. Introduction. *The Russian aggression against Ukraine in 2022 not only disrupted existing international markets and dealt a severe blow to the post-Cold War recovery of the global economy, but also highlighted Ukraine's role as a supplier of food and agricultural commodities. Following the start of the invasion, numerous articles were published by international organizations and independent scholars attempting to predict or model the impact of the war on food prices, exploring worst-case scenarios of global or local food shortages or even famine. However, most of the research on this topic has focused on the impact of disrupted trade on the global food market and its effect on the economies of Third World countries in Africa and Asia. In contrast, the impact of the war on the Ukrainian economy is often overlooked.*

Purpose. *The article aims to analyze contemporary international trade in Ukraine and structural changes in Ukrainian export and import patterns after the annexation of Crimea and the Donbass conflict in 2014, and after the start of the Russian invasion in 2022. The article aims to identify possible threats and provide recommendations to minimize the negative impact of trade on the Ukrainian economy. The author used several methods to achieve these goals, including the quantitative analysis of export and import flows, the decomposition of exports at the technology level, the Revealed Comparative Advantage Index, and the Trade Complementarity Index for Ukraine and the European Union.*

Results. *The conducted analysis proves the serious changes in Ukrainian trade patterns due to the collapse of several industries caused by the Russian aggression and the increasing role of agriculture and food industry, which will shape the future of the Ukrainian economy in the next decade.*

Conclusion. *To fully realize its potential as a producer and exporter of agricultural products, Ukraine must liberate the occupied territories of Kherson and Zaporizhzhya oblasts. The renewal of Ukraine's foreign trade is possible only by liberating the coastal regions of southern Ukraine.*

Keywords: *International trade; Export structure; Revealed Comparative Advantage; Trade Complementarity Index; Ukraine.*

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Структура української зовнішньої торгівлі та її розвиток після початку російського вторгнення

Російська агресія проти України у 2022 році не лише порушила існуючу систему міжнародної торгівлі та завдала серйозного удару по відновленню світової економіки після глобальної пандемії, але й підкреслила роль України як постачальника продовольства та сільськогосподарської продукції. Після початку вторгнення міжнародні організації та незалежні дослідники опублікували численні статті, в яких намагалися спрогнозувати або змодельувати вплив війни на ціни на продовольство, досліджуючи найгірші сценарії глобальної та локальної нестачі їжі чи навіть голоду. Проте більшість досліджень з даної тематики зосереджено на впливі порушення торговельних зв'язків на світовий продовольчий ринок та наслідках для економік африканських та азійських країн третього світу, тоді як вплив війни на українську економіку у цих дослідженнях було фактично проігноровано. В цій статті було здійснено аналіз зовнішньої торгівлі в Україні та структурних змін українського експорту та імпорту після початку активної фази війни у лютому 2022 року. Мета дослідження полягає в тому, щоб визначити можливі загрози та надати рекомендації щодо мінімізації негативного впливу зовнішньої торгівлі на економіку України. Для досягнення цих цілей автор використав кількісний аналіз експортних та імпортних потоків, декомпозицію експорту на технологічному рівні, індекс виявлених порівняльних переваг та індекс комплементарності торгівлі між Україною та Європейським Союзом. Проведений аналіз доводить серйозні зміни в структурі української торгівлі, спричинені колапсом кількох галузей промисловості та зростанням ролі сільського господарства. Дослідження доводить, що для повної реалізації свого потенціалу як виробника та експортера сільськогосподарської продукції, Україні необхідно відновити контроль над південними областями та добитися розблокування портів у Азовському та Чорному морях.

Ключові слова: *міжнародна торгівля; структура експорту; індекс виявлених порівняльних переваг; індекс комплементарності зовнішньої торгівлі; Україна.*

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Formulation of the problem. In 2021, the Ukrainian economy reached a GDP of \$200 billion, with foreign investment of \$6.7 billion and a 38.35% increase in exports of goods (from \$49.2 billion in 2020 to \$68.07 billion in 2021) and positive dynamics of its normalized trade balance (State Statistics Service of Ukraine, 2023). This unprecedented growth signaled a successful recovery from the COVID-19 pandemic. It was also a historic record for Ukraine's GDP, reaching and surpassing the previous record set in 2013 (USD190 billion).

The Russian aggression of 2022 severely crippled the Ukrainian economy, especially its international component, including foreign trade. Ukrainian ports were partially blocked and partially destroyed in the first months of the invasion, which forced the remaining trade routes to be redirected through the neighboring countries of the European Union, creating additional challenges and political tensions. The structure of Ukraine's foreign trade was distorted by the collapse of key industries (most notably metallurgy), with billions of dollars in physical assets and potential profits lost.

The damage caused to Ukraine's foreign trade is widely discussed in Ukrainian academic circles, where authors discuss the war's impact on the structure of exports, imports, and foreign trade security of regions, as well as its effect on the development of foreign trade in the urbanized areas of Ukraine [1; 2; 3; 4]. Shortly after the start of the war, the World Trade Organization published a report on the impact of the war on world trade and development, focusing on a scenario of a global food crisis caused by rising prices, with an almost apocalyptic prognosis for African countries [5]. A similar report was prepared by World Bank Analytics, also focusing on the war's impact on global trade and the economic environment [6]. In these reports, both the WTO and the World Bank are primarily concerned with the possible worsening of international food security due to the war and the post-Cold War recovery, possible political instability due to increased food prices, reduced availability of fertilizers, and the impact this will have on African and Asian countries. After a year of war, the worst-case scenario of the food crisis was averted by the diversification of supply and the "decoupling" of traditional trading partners, with countries such as Egypt and Ethiopia switching from Ukrainian and Russian wheat supplies to American producers, a success praised by the WTO. In contrast, the immediate impact on Ukraine's trade and economy is rarely discussed or completely ignored [7].

Analysis of recent research and publications. In this article, a quantitative analysis of Ukraine's foreign trade was conducted using data provided by Ukrainian and international sources [8; 9]. This basic analysis compares exports and imports using the export/import index, the normalized trade balance, and the openness index (the value of total trade as a percentage of GDP) [10; 11].

In order to determine the volume and share of high-tech trade in total merchandise trade turnover, the general trade portfolio of Ukraine was decomposed to highlight the technological component of different commodity groups. For this purpose, the classification of industries by their level of technological intensity according to the method of the Organization for Economic Cooperation and Development (OECD) was used. According to this classification, all foreign trade can be divided into four categories: 1) high technology (R&D expenditure is more than 5%); 2) medium-high technology (R&D expenditure is 3.0-4.9%); 3) medium-low technology (R&D expenditure is 1.0-2.9%); 4) low technology (R&D expenditure is less than 0.9%) [12].

In addition, the Revealed Comparative Advantage Index (RCA) was used to measure comparative advantage from the perspective of commodity exports. The RCA uses the trade pattern to identify the sectors in which an economy has an advantage by comparing the trade profile of the country of interest with the world average [10; 11]. It is calculated using the following formula:

$$RCA = \frac{\sum_d x_{isd} / \sum_d x_{sd}}{\sum_{wd} x_{iwd} / \sum_{wd} x_{wd}} \quad (1)$$

Where S is the country of interest; d and W are the set of all countries in the world; i is the sector of interest; x is the commodity export flow; X is the total export flow. The index can take a range of values between 0 and $+\infty$. The level of comparative advantage is considered to be very high if the RCA index exceeds 2.5, high if it takes values between 1.25 and 2.5, mediocre/unstable if it takes values between 0.8 and 1.25, and low if the RCA index is less than 0.8.

To assess the impact of the war and changes in the trade portfolio on Ukraine's cooperation with the European Union, the Trade Complementarity Index was used. The Trade Complementarity Index (TCI) is an indicator that allows to determine whether the goods exported by a country are in demand by its trading partners. The Trade Complementarity Index can be calculated using the following formula:

$$TCI_{js} = \left[1 - \left(\sum \left| \frac{m_{ij}}{M_j} - \frac{x_{is}}{X_s} \right| \div 2 \right) \right] \times 100, \quad (2)$$

Where j – is the exporting country of interest; s – is the importing country of interest; i – a certain commodity group; x_i – the export flow of i -commodity group; x_m – the import from of i -commodity group; X – total export flow; M – total import flow.

Changes in TCI over time may help to determine whether the trade profiles are becoming more or less compatible. When TCI equals 100, the exports and imports of the two partner countries are fully matched (a favorable prospect for a profitable trade); with the TCI being equal to 0, it is assumed that the countries do not have conditions to conduct profitable bilateral trade of any kind.

The index can be used to compare Ukraine's export pattern with the import patterns of potential trade partners (TCIX) or to compare Ukraine's import pattern

with the export patterns of potential trade partners (TCIM).

Formulation of research goals. The goal of this article is to provide a comprehensive and detailed analysis of the changes in Ukraine's foreign trade after one year of war, to assess the losses suffered by Ukrainian exporters and the amount of lost income for the Ukrainian budget, and to forecast the development of Ukraine's international trade after the war and its possible impact on the ongoing European integration of Ukraine.

Outline of the main research material. The quantitative analysis of Ukraine's foreign trade was

conducted for the period 2013-2022 to compare the impact of the annexation of Crimea and the start of the insurgency in the Donbas region of eastern Ukraine in 2014, the impact of the COVID-2019 pandemic in 2020, and the start of the full-scale Russian invasion in February 2022. According to the results of this analysis (see Table 1), the war in 2022 had the most devastating impact on Ukraine's foreign trade, far surpassing the loss of territory (and part of GDP) in 2013 and the pandemic in 2020.

Table 1 Dynamics of the basic indicators of Ukraine's foreign trade, 2013-2023

Year	Export, bn USD	Import, bn USD	Trade turnover, bn USD	Balance, bn USD	Export/Import coverage	Normalized trade balance	Openness index
2013	63.32	76.99	140.31	-13.67	0.82	-9.74	0.74
2014	53.91	54.38	108.29	-0.47	0.99	-0.43	0.81
2015	38.13	37.52	75.65	0.61	1.02	0.81	0.83
2016	36.36	39.25	75.61	-2.89	0.93	-3.82	0.81
2017	43.26	49.61	92.87	-6.34	0.87	-6.84	0.83
2018	47.33	57.19	104.52	-9.85	0.83	-9.43	0.8
2019	50.05	60.8	110.85	-10.75	0.82	-9.7	0.72
2020	49.19	54.34	103.53	-5.14	0.91	-4.97	0.66
2021	68.07	72.84	140.91	-4.77	0.93	-3.39	0.71
2022	44.44	55.22	99.66	-10.78	0.8	-10.82	0.62

Source: International Trade Center (ITC), 2023; Author's calculations.

The annexation of Crimea and the start of the insurgency in Eastern Ukraine in 2014 caused losses of 32.02 bn USD in total trade turnover. Compared to 2013, exports decreased by 14.86% (-9.41 bn USD) and imports by 29.36% (-22.61 bn USD). With imports falling less than exports, a neutral or even slightly positive trade balance was achieved in 2015. The main difference with the 2022

crisis is the fact that exports decreased significantly more than imports, resulting in a huge negative trade balance of -10.78 bn USD, with the Export/Import Coverage and Openness Index falling to the lowest point in Ukraine's recent history (0.8 and 0.62 points, respectively) (see Figure 1).

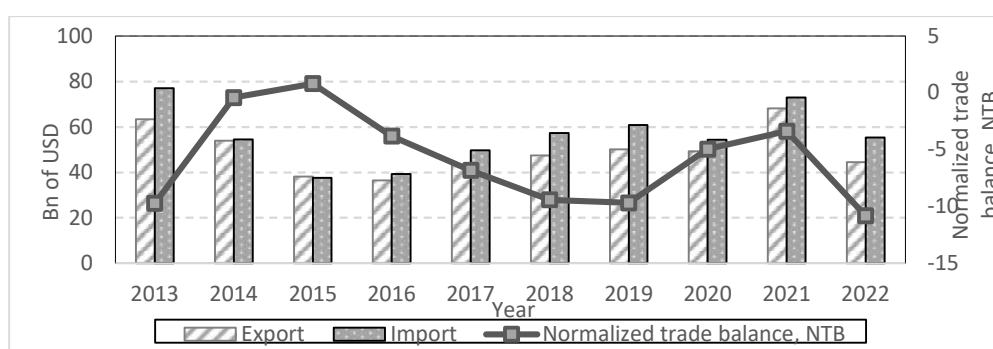


Figure 1 – Dynamics of the basic indicators of international trade of Ukraine in commodities, 2013-2022

Source: International Trade Center (ITC), 2023; Author's calculations

The destruction of traditional trade routes, the Russian occupation of Southern Ukrainian regions, and the blockade of Ukrainian ports changed the geographical structure of foreign trade, with both exports and imports declining with most of Ukraine's trade partners (see Table 2).

Trade with 47 partners experienced positive or no significant impact after the Russian invasion in 2022, while trade with 173 partner countries suffered losses. The largest negative effects were observed in trade with China, Russia and Belarus. In the case of China, export losses far exceeded import losses (-\$5.5 billion or -68% of exports versus -2.3 billion or -21.15% of imports), causing

the negative trade balance to increase from -\$3 billion in 2021 to \$6.2 billion in 2022. In trade with India, imports to Ukraine increased by 74.98% (or 0.72bn USD). Poland and Romania experienced a significant increase in trade with Ukraine, both in exports and imports. This is mainly

due to the fact that with the sea routes cut off or blockaded, Ukraine has to rely on land transportation routes, using neighboring countries as a transshipment point and the only way to reach the global market.

Table 2 Changes in geographical structure of Ukraine's foreign trade, 2021-2022, millions of USD, %

№	Trading partner	Exports			Imports			Turnover	Balance
		2021	2022	Δ%	2021	2022	Δ%	Δ%	Δ%
1	China	8003.56	2489.55	-68.89	10981.71	8658.73	-21.15	-29.27	-125.99
2	Poland	5227.4	6694.96	+28.07	4962.49	5486.78	+10.57	+19.55	+356.08
3	Russia	3414.09	492.76	-85.57	6083.49	1541.57	-74.66	-78.58	+60.71
4	Germany	2866.37	2270.44	-20.79	6284.27	4561.24	27.42	-25.34	-32.98
5	Türkiye	4142.63	2947.35	-28.85	3260.26	3359.74	+3.05	-14.8	-146.74
6	Belarus	1479.57	189.11	-87.22	4822.98	1381.54	-71.36	-75.08	+64.34
7	Italy	3471.15	1653.71	-52.36	2678.03	1800.62	-32.76	-43.82	-118.52
8	USA	1615.69	892.77	-44.74	3337.88	2175.6	-34.82	-38.06	+25.51
9	India	2494.44	892.68	-64.21	961.27	1681.99	+74.98	-25.5	-151.48
10	Netherlands	2262.53	1544.17	-31.75	1012.59	1090.41	+7.69	-19.56	-63.7
11	Hungary	1622.07	2276.91	+40.37	1571.02	1021.1	-35	+3.29	+2359.92
12	Czech Rep.	1414.53	1254.21	-11.33	1480.8	1538.38	+3.89	+3.55	-328.77
13	Switzerland	177.62	129.32	-27.19	2498	1011.64	-59.5	-57.36	+61.98
14	France	903.99	592.05	-34.51	1765.53	1232	-30.22	-31.67	+25.72
15	Spain	1677.24	1577.49	-5.95	975.87	700.55	-28.21	-14.14	+25.03
16	Romania	1543.45	3904.66	+152.98	796.43	1503.34	+88.76	+131.12	+221.46
17	UK	1083.53	440.86	-59.31	1115.21	762.56	-31.62	-45.27	-915.39
18	Egypt	1944.56	807.99	-58.45	149.12	171.43	+14.96	-53.22	-64.55
19	Slovakia	999.28	1510.43	+51.15	923.21	987.22	+6.93	+29.92	+587.89
20	Lithuania	576.9	664.17	+15.13	1290.9	1321.27	+2.35	+6.3	+7.97

Source: International Trade Center (ITC), 2023; Author's calculations

The geographic concentration of Ukraine's exports has already begun to create additional political tensions; agricultural products coming from Ukraine to Europe are often stuck at the borders of Ukraine's neighboring countries, creating a glut, driving down food prices, and threatening local farmers. Poland, Slovakia and Hungary

have already responded by banning food exports from Ukraine. Currently, this conflict is being resolved by rerouting Ukrainian products to the Baltic ports of Lithuania, but this problem will exist as long as Ukraine's ports are blocked by the Russian navy [13].

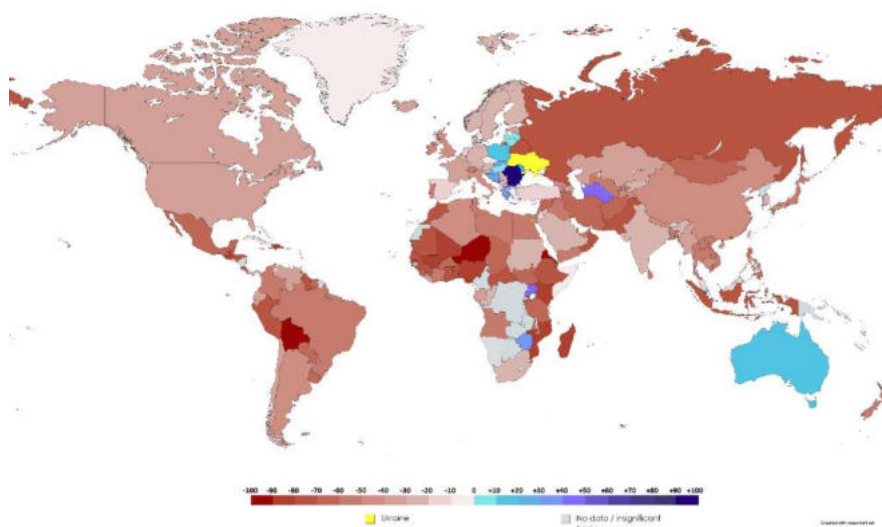


Figure 2 – Changes in total trade turnover of Ukraine after the start of the Russian invasion, 2021-2023, %

Source: International Trade Center (ITC), 2023; Author's calculations

To better understand the impact of the annexation of Crimea, the insurgency in Donbas, and the full-scale Russian invasion on Ukraine's export portfolio, the decomposition of trade by level of technological intensity was conducted for the period 2013-2022 (see Figure 3). The results show that the technological structure of exports deteriorated significantly: the share of low-technology goods in total exports increased from 33.87% (21.25 bn USD) in 2013 to 62.29% (27.67 bn USD) in 2022, while the share of medium-low technology goods decreased from 45.44% (28.51 bn USD) to 26.51% (11.78 bn USD), and the share of medium-high technology goods decreased from 19.32% (12.12 bn USD) to 10.34% (4.59 bn USD). The share of high technology goods in Ukraine's world exports was insignificant in the last

decade, decreasing from 1.37% (0.86 bn USD) to 0.87% (0.38 bn USD).

The share of high-tech and medium-tech manufactured goods in exports began to shrink even before 2014. However, the transformation of Ukraine from an exporter of final and intermediate goods to an exporter of raw materials accelerated after the annexation of Crimea and reached its peak after the start of the Russian invasion in 2022. The main reason for this transformation was the shift decline of Ukraine's metallurgical industry after the actualization of geopolitical tensions with the Russian Federation and the reorientation of export flows from post-Soviet countries to the European Union due to the European Union Association Agreement.

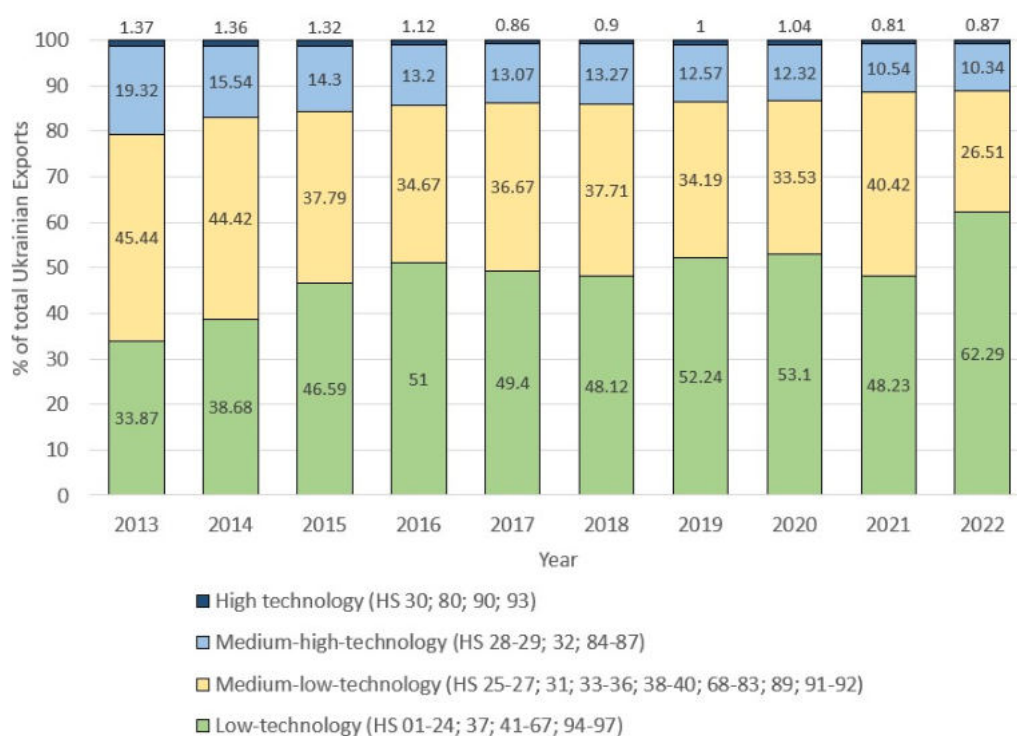


Figure 3 – Structure of Ukraine's world commodity exports by level of global technological intensity, 2013-2022, %

Source: The International Trade Center (ITC), 2023; State Statistics Service of Ukraine (2023); Author's calculations

This shift from a medium-low to a low-tech export portfolio is illustrated in Figure 4. The graph shows the dynamics of Ukraine's top five export commodities in 2013-2022: non-precious metals (medium-low tech), mineral products (medium-low tech), products of vegetable origin (low-tech), and animal or vegetable fats and oils (low-tech).

The share of non-precious metals (consisting mainly of HS 72 Iron and steel) in Ukraine's total exports decreases from 27.75% (17.6 bn USD) in 2013 to 13.59% (6.04 bn USD) in 2022.

The start of the Donbass insurgency in 2014 effectively crippled Ukraine's metallurgical industry by denying access to the mining regions that produced thermal and steelmaking coal, while natural gas prices

also rose significantly after Russian annexation of Crimea [14]. This decline was further exacerbated by the COVID-19 pandemic of 2020, which triggered a collapse in metal demand and a decline in metal prices. However, the biggest blow to Ukraine's metal exports (-9.9% or -9.95 bn USD) came after the start of the Russian invasion. This was mainly due to the destruction of the Azovstal Metallurgical Combine in the city of Mariupol, the third largest national steel producer. As a result, Ukraine's steel production fell by more than 70% in 2022 [15]. At the same time, the share of products of plant origin (mainly HS10 cereals) in Ukraine's total exports increased from 5.54% (0.74 bn USD) to 30.52% (13.56 bn USD) in 2022.

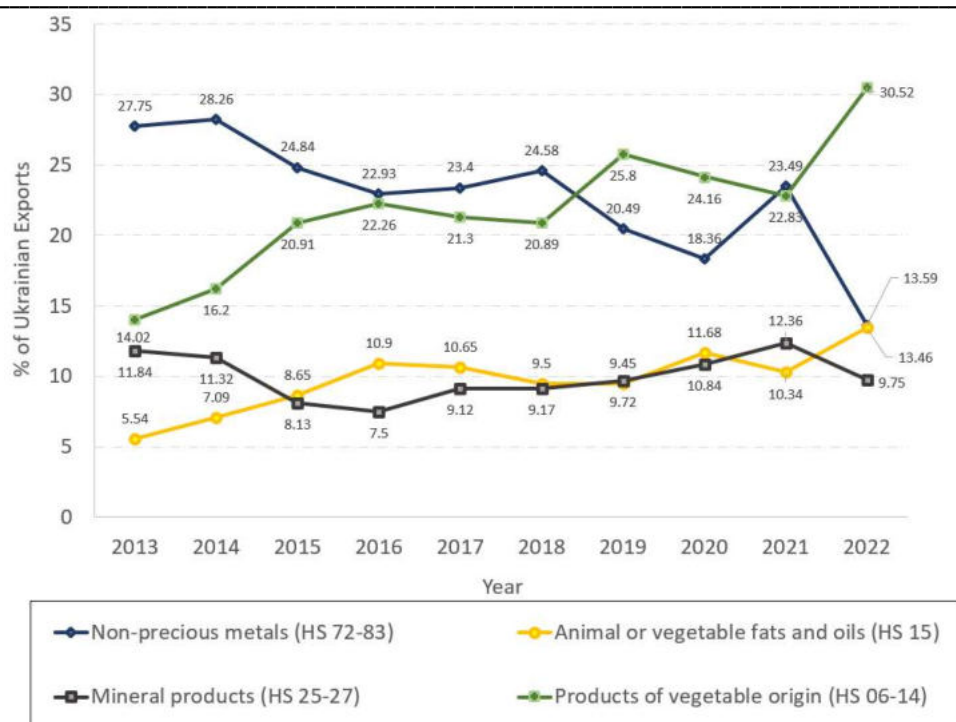


Figure 4 – Primary commodities of Ukraine's world exports, 2013-2022

Source: The International Trade Center (ITC), 2023; State Statistics Service of Ukraine (2023); Author's calculations

A similar process can be observed for mineral products (11.84% or 3.5 bn USD in 2013 to 9.75% or 4.3 bn USD in 2022) and animal and vegetable fats and oils (5.54% or 0.56 bn USD in 2013 to 13.46% or 5.98 bn USD in 2022).

To further prove Ukraine's transformation from a metallurgical industrial state to a supplier of agricultural products, the Relative Comparative Advantage was calculated for the same time interval (2013-2022) (see Table 3).

Table 3 Revealed Comparative Advantage Index (RCA) of major commodity groups according to Ukrainian classification of foreign economic activity goods (UKTZED), 2013-2014, 2021-2022

Group	Title of chapter	2013	2014	$\Delta 1$	2021	2022	$\Delta 2$
I	Live animals; products of animal origin	0.91	0.94	+0.03	1.03	1.79	+0.76
II	Products of vegetable origin	5.43	6.17	+0.74	8	11.01	+3.01
III	Animal or vegetable fats and oils...	10.56	13.77	+3.21	15.37	18.94	+3.57
IV	Prepared foods; beverages...	1.86	1.86	0	1.75	1.86	+0.11
V	Mineral products	0.62	0.65	+0.03	0.92	0.54	-0.38
VI	Chemicals and related industries	0.8	0.65	-0.15	0.41	0.29	-0.12
VII	Polymeric materials, plastics...	0.29	0.25	-0.04	0.35	0.25	-0.1
VIII	Genuine leather, natural fur...	0.36	0.44	+0.08	0.47	0.46	-0.01
IX	Wood and wood products; charcoal...	2.54	3.1	+0.56	3.42	5.52	+2.1
X	Pulp of wood or cellulosic materials...	1.43	1.32	-0.11	0.63	0.51	-0.12
XI	Textiles and textile products	0.3	0.33	+0.03	0.31	0.39	+0.08
XII	Shoes, hats, rain and sun umbrellas...	0.4	0.43	+0.03	0.33	0.43	+0.1
XIII	Articles made of stone, cement...	0.99	0.92	-0.07	0.82	0.71	-0.11
XIV	Pearls, precious or semi-precious stones...	0.04	0.08	+0.04	0.05	0.03	-0.02
XV	Non-precious metals and articles thereof	4.26	4.2	-0.06	3.2	1.93	-1.27
XVI	Machinery, electrical equipment...	0.48	0.44	-0.04	0.29	0.34	+0.05
XVII	Vehicles, transport devices...	0.54	0.27	-0.27	0.11	0.1	-0.01
XVIII	Optical instruments and apparatus...	0.14	0.13	-0.01	0.07	0.09	+0.02
XIX	Weapons, ammunition...	0	0	0	0	0	0
XX	Various goods and products	0.54	0.67	+0.13	0.73	0.97	+0.24
XXI	Works of art, non-specified goods	0.41	0.1	-0.31	0.16	0.03	-0.13

Source: The International Trade Center (ITC), 2023; State Statistics Service of Ukraine (2023); Author's calculations

The results of the RCA analysis support the conclusions of the technological decomposition of exports. It is clearly visible that Ukraine is rapidly losing the comparative advantage in the production and export of non-precious metals (-1.27 in 2021-2022), while the comparative advantage and importance of agricultural products is rapidly increasing (+3.01 for products of

vegetable origin and +3.57 for animal and vegetable fats).

These fundamental changes in national exports do not pose a threat to Ukraine's European integration. According to the results of the Trade Complementarity Index calculation, the war did not have a devastating effect on Ukraine's trade portfolio in terms of exports to the countries of the European Union (see Figure 5).

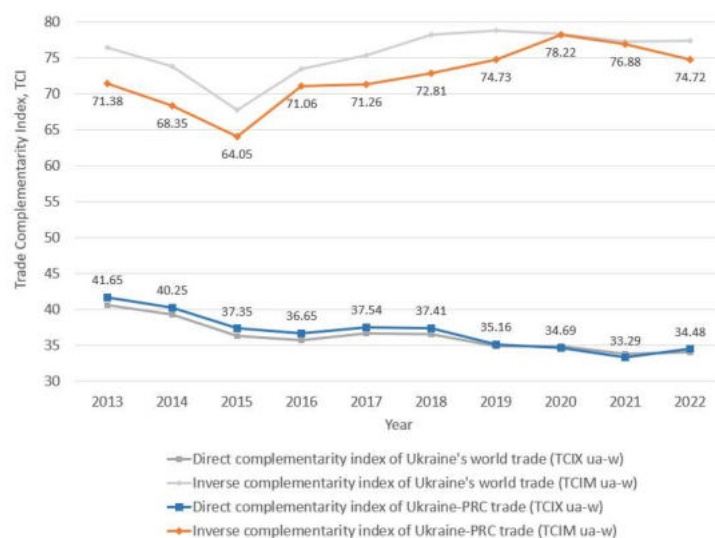


Figure 5 – The dynamics of the trade complementarity indexes between Ukraine and the European Union, 2013-2022

Source: The International Trade Center (ITC), 2023; State Statistics Service of Ukraine (2023); Author's calculations

While the Inverse Complementarity Index for Ukraine has significantly decreased (from 76.88 in 2021 to 74.72 in 2022), marking the changes in the Ukrainian import portfolio, the Direct Complementarity Index has increased from 33.29 in 2021 to 34.48, meaning that the new export portfolio of Ukraine, with a focus on agriculture at the expense of metallurgy, is even more compatible with the European import structure.

Discussion & Recommendations. The tendency to switch from industrial to agricultural exports did not start in 2022 or 2014; it existed for decades and was caused by the logic of the development of the Ukrainian economy. The share of the commodity group HS72 Iron and steel in Ukraine's total exports began to decrease in 2006; in 2006-2013 it shrank at an average rate of -1.63% per year (from 34% of total exports in 2006 to 22.6% in 2013). At the same time, the share of HS10 Cereals increased at an average rate of 0.93% per year (from 3.53% in 2006 to 10.06% in 2013), and the share of HS15 Vegetable oils and fats increased at an average rate of 0.43% (from 2.53% in 2006 to 5.54% in 2013). This proves that the deindustrialization of Ukrainian exports and the switch to agricultural products was an objective trend that was accelerated, but not caused by the conflict with the Russian Federation, the annexation of Crimea, the insurgency in Donbass, and the invasion of 20-22.

This process has accelerated since 2014 due to the loss of thermal and steel-making coal mining areas in

Donetsk, the rising price of natural gas imported from Russia and other countries, and the disruption of traditional trade routes in post-Soviet countries. Territory can be reclaimed and liberated, but the loss of capital on this scale is almost irreversible and cannot be solved by financial aid. In the coming decades, Ukraine will have to rely on agriculture as its main export and a means of balancing foreign trade. Given the fact that agriculture cannot replace the metallurgical industry as a source of employment for the country's 40 million people, this crisis may be of existential importance for the Ukrainian nation.

The main obstacle to the development of Ukrainian agriculture is the ongoing war. About 19% of all irrigated agricultural land in Ukraine is located in the temporarily occupied Kherson region, and another 10% in the partially occupied Zaporizhzhia Oblast. According to the war damage audit conducted by the Kyiv School of Economics in April 2023, the total direct and indirect (including lowering of crops and lost profits) damage to Ukrainian agriculture exceeds 40 billion USD with an estimated reconstruction cost of \$29.7 billion. The number will be significantly higher after the destruction of the Kakhovka Dam in June of 2023 [16].

Conclusions. The destruction and damage caused by the war severely crippled Ukraine's foreign trade, resulting in immense losses both in terms of assets and lost profits. The structure of Ukrainian exports changed

significantly, both in terms of trade nomenclature and geographical destinations. The destruction of Mariupol effectively ended the long process of deindustrialization, transforming Ukraine into an exporter of mainly agricultural products, with a focus on grain and sunflower oil. The trade complementarity index of Ukraine-EU26 trade did not change after the start of the war, proving that a rapid shift from metallurgical to agricultural exports alone will not hinder the process of Ukrainian integration with the European Union.

Agriculture as the main product of Ukrainian exports is impossible without the Kherson and Zaporizhzhia Oblasts. To fully realize its potential as a producer and exporter of agricultural products, Ukraine will have to liberate the currently occupied regions of Kherson and Zaporizhzhia Oblasts. An additional challenge will be the

reconstruction of the Kakhovka Dam, which is vital to the agricultural development of all of southern Ukraine.

There will continue to be trade problems between Ukraine, Poland, Hungary, Slovakia and Romania as long as Ukraine has to use them as transit points for its food exports. This problem can only be solved by unblocking Odesa and other Ukrainian ports on the Black Sea.

Any attempt to freeze or postpone the liberation of Ukrainian territory will significantly increase the cost of the support necessary for the existence of Ukraine as a political entity and for the survival of the Ukrainian people. Without Ukrainian agriculture, global food security will be under constant threat of instability and crisis, endangering Third World countries and giving additional political leverage to the largest suppliers of agricultural products on the world market, namely Russia.

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