Scientific Bulletin
of Mukachevo State University
Series
Economics

Volume 11, No. 1, 71-82
Journal homepage: https://economics-msu.com.ua/en

UDC 338.245
Doi: 10.52566/msu-econ1.2024.71

Analysis of Ukraine's external military-economic relations during the war with Russia

Oleh Semenenko*
Doctor of Military Sciences, Professor
Central Research Institute of the Armed Forces of Ukraine
03049, 28B Povitroflotskiy Ave., Kyiv, Ukraine
https://orcid.org/0000-0001-6477-3414

Vitalii Onofriichuk
PhD in Economics
Ministry of Foreign Affairs of Ukraine
01018, 1 Mykhailivska Sq., Kyiv, Ukraine
https://orcid.org/0000-0001-6990-2537

Polina Tolok
PhD in Economics, Doctoral Student
The National Defence University of Ukraine named after Ivan Cherniakhovskyi
03049, 28 Povitroflotskyi Ave., Kyiv, Ukraine
https://orcid.org/0000-0002-2481-8152

Volodymyr Rieznik
PhD in History, Professor
The National Defence University of Ukraine named after Ivan Cherniakhovskyi
03049, 28 Povitroflotskyi Ave., Kyiv, Ukraine
https://orcid.org/0000-0003-1479-4852

Dmytro Momot
Doctor of Philosophy, Senior Researcher
The National Defence University of Ukraine named after Ivan Cherniakhovskyi
03049, 28 Povitroflotskyi Ave., Kyiv, Ukraine
https://orcid.org/0000-0003-3805-4031

Received: 11.12.2023, Revised: 14.02.2024, Accepted: 27.03.2024

Suggested Citation: Semenenko, O., Onofriichuk, V., Tolok, P., Rieznik, V., & Momot, D. (2024). Analysis of Ukraine's external military-economic relations during the war with Russia. *Scientific Bulletin of Mukachevo State University. Series "Economics"*, 11(1), 71-82. doi: 10.52566/msu-econ1.2024.71.

*Corresponding author

Abstract. The relevance of this study is determined by the need to identify the consequences of the war for the economy and the prospects for the development of military-economic relations between Ukraine and other countries. The purpose of this study was to investigate the dynamics of the volume and structure of Ukraine's foreign economic relations during the wartime period and to outline future ways of expanding Ukraine's foreign activities. To fulfil this purpose, the following methods were used: statistical data analysis; comparison; graphical; and data generalisation. The main results obtained in this paper include the identification of the dynamics of volumes and goods that occupy a considerable part of Ukraine's exports and imports after the beginning of the Russian invasion in 2014; analysis of the geographical structure of foreign trade and trends in trade with the European Union in 2013-2022; assessment of the commodity and geographical structure of exports and transfers of defence goods from Ukraine in 2014-2021; determining Ukraine's share in the total volume of exports and imports of defence-related items, the main consumers of exported products, and tracking changes in this share over 2018-2022 compared to 2013-2017; analysis of defence imports in the first half of 2023; substantiation of the proposal to develop the production of defence items, namely drones and long-range missiles, which can be used both to increase the protection of Ukraine's territory and to strengthen the country's position in the international market for the export of weapons and equipment during and after the war. The results and conclusions are of practical importance for the Government of Ukraine in developing areas for the development of the country's defence sector and military-economic relations with other countries

Keywords: armed aggression; exports and imports; defence; commodity structure; arms production

Introduction

In the context of globalisation, foreign economic relations between countries play a vital role, reflecting the system of economic relations in trade, investment, finance, and other activities. Well-established economic ties allow countries to function fully and successfully in the global space and maintain a competitive environment around the world. War is the most unfavourable factor that slows down the development of any country's economy and threatens the security of the entire world. During armed conflicts in the world, the structure of exports and imports of goods in many countries' changes, and the production and supply of defence products between countries intensifies. russia's armed aggression against Ukraine, which began in 2014, has led to difficulties in exporting certain goods and has also increased the need to import military-industrial products. Therefore, there is a need to investigate the volume of Ukraine's foreign trade, specifically in military goods and equipment, which will allow improving the mechanisms of state regulation of foreign economic activity, determining Ukraine's place in the world's military-industrial market and outlining the prospects for developing relations with other countries in the defence sector.

Ukrainian, Polish, German, Brazilian, and other scholars have investigated the development of the defence industry and military-economic relations between Ukraine and other countries in the context of the war with russia. The study of the conceptual framework of economic relations in the military-industrial complex was conducted by O. Usachenko *et al.* (2021), who proved that the required level of Ukraine's defence capability can be achieved by improving the mechanism of economic support for the country's defence. Trends in the development of Ukraine's military-economic cooperation with other countries of the world in the current context were investigated by L. Shemayeva & P. Tolok (2021), who analysed the types of military-economic activities, assessed the development of the Ukrainian defence industry, and stressed the need to expand the possibilities of Ukraine's international military-economic cooperation in the world arena.

The nature of relations between countries regarding the arms trade was studied by O. Pamp *et al.* (2021), and the structure of the arms transfer network between countries was considered. Scientists have proven that the past topological properties of a retail network have a substantial impact on its future evolution. The regulation of foreign economic activity under martial law was investigated by S. Skrypnyk *et al.* (2022), who noted that the complexity of the conditions of the wartime period in Ukraine necessitates the search for improved mechanisms to influence this activity. The complexity of regulating foreign economic activity is caused by the need to maintain competitiveness in the global market. O.V. Levchuk (2023) analyses the specific features of integration processes between the countries of the European Union (EU) and covers the prospects for Ukraine's participation in international military-economic cooperation.

Since the outbreak of Russian hostilities in Ukraine, many industries have faced problems with the supply of raw materials, sales of products, and the overall normal functioning of production. S. Ishchuk & L. Sozanskyy (2023) investigated the causes and consequences of the problematic functioning of machine building in Ukraine, demonstrating the transformation in the structure of machine building since 2014. Scientists have observed the growing need for the Ukrainian government to act to support the development of machine building. Given the considerable contribution of scientists to the study of this issue, in the context of Russia's full-scale armed aggression against Ukraine, the relevance of scientific substantiation of the priorities of international military-economic cooperation is increasing.

The main purpose of this study was to analyse Ukraine's international economic relations, specifically in the military-industrial sphere, and to identify ways to increase

Ukraine's export potential during the war and after its end. The main objectives of this study were to investigate the dynamics of Ukraine's export and import activities, determine Ukraine's place in the global defence market, and outline measures that will help strengthen Ukraine's defence capabilities and enhance its competitiveness in the global arms market.

Materials and Methods

The investigation of Ukraine's military-economic relations with other countries utilised diverse methods. These included statistical analysis to examine the volumes of imports and exports of goods and services, comparisons of external trade across different time periods, graphical representation of findings, and generalisation to summarise information on the development of Ukraine's military-economic relations from 2014 to 2023 and to draw appropriate conclusions.

The theoretical framework for this paper included the scientific studies of Ukrainian, Polish, Brazilian, American, German, and other scholars who have examined the theory of international relations, their development since the First World War, the diversity of modern models of international trade, the impact of various factors on the volume of global exports of defence goods, the compliance of arms exports with international legal norms, etc. Statistical data on exports and imports of goods, trade balance indicators, commodity and geographical structure of exports and imports for 2014-2023 were analysed based on information obtained from the State Customs Service of Ukraine (2023) and State Export Control Service of Ukraine (2020). Information on the planning of the development and production of unmanned aerial vehicles for the military was analysed based on the Resolution of the Cabinet of Ministers of Ukraine No. 763 "On the Implementation of a Pilot Project for The Production, Procurement and Supply of Ammunition for Unmanned Systems and Unmanned Systems' Warheads" (2023).

Using the method of comparison, the author compares the volumes of trade turnover in Ukraine's foreign activities in 2013, which preceded the beginning of Russia's armed aggression against Ukraine, in 2015, 2021, and 2022. Comparison of the volume of exports of defence products from Ukraine by country and for each year of the war period was made based on information on the volume of international transfers and exports of arms for 2014-2021 obtained from the State Export Control Service of Ukraine (2020). The comparison of data on international arms transfers for 2013-2017 and 2018-2022, as well as Ukraine's share in global exports and imports for these periods, is based on the data from the Stockholm Peace Research Institute Report, which monitors arms sales agreements around the world (Wezeman *et al*., 2023). The use of the graphical method made it possible to display data on Ukraine's foreign trade in goods for 201-2023 in the form of a graph, which allowed showing the dynamics of changes in exports, imports, and trade balance for each year of the analysed period.

The application of the generalisation method allowed summarising the results obtained in the study on the trends in the development of Ukraine's external military-economic relations and determine Ukraine's place in the world export of military goods; formulate conclusions that serve as a summary of the study results and substantiate proposals for the future strengthening of the country's defence capability and strengthening its position in the international arena.

Results

The country's foreign economic activity under martial law is characterised by certain specifics and limitations of the state's capabilities. Wartime affects the economy both internally and externally, in terms of economic relations with other countries. The circumstances in which Ukraine found itself during the war point to the need to find ways to rationally apply and combine instruments to stimulate and deter the country's foreign trade activities to achieve the desired trade balance.

Since 1991, Ukraine has been actively developing foreign trade in goods and services with other countries. However, the war unleashed by Russia has had a negative impact on all areas of activity in Ukraine (Fig. 1).

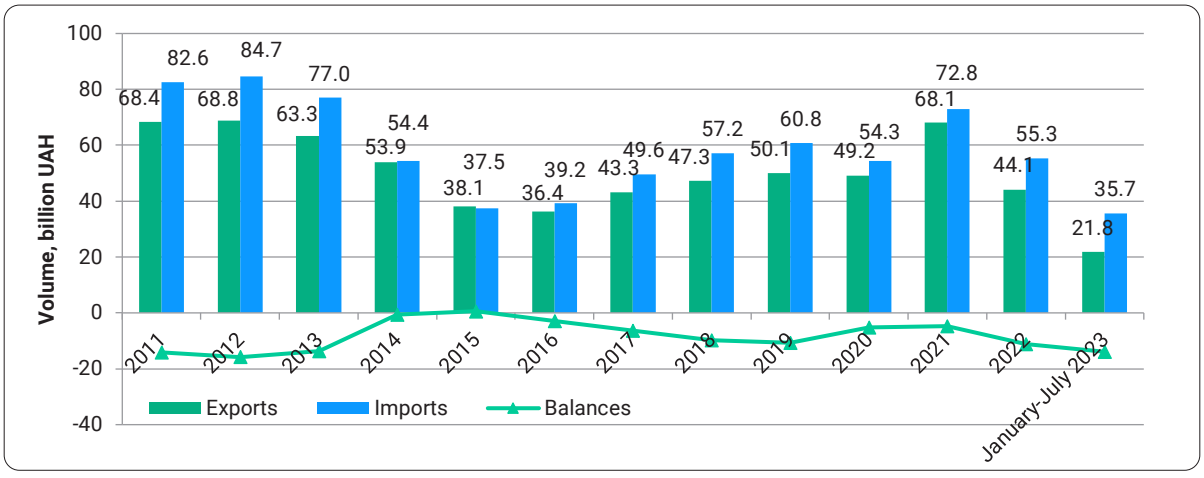

Figure 1. Dynamics of Ukraine's foreign trade in goods in 2011-2023
Source: compiled by the authors based on State Customs Service of Ukraine (2023)

As Figure 1 demonstrates, in 2015 and 2016, Ukraine's foreign trade declined on average: exports by 45% and imports by 55%, due to the outbreak of Russia's war against Ukraine in 2014. In 2017, the level of international trade began to recover, and in 2021 it almost reached the pre-war level. However, in 2022, with the beginning of the full-scale Russian invasion, trade volumes again fell to the level of 2017. Throughout the analysed period, there was a negative trade balance, which indicates that imports exceeded exports and Ukraine's dependence on goods from other countries (State Customs Service of Ukraine, 2023). For an in-depth analysis of foreign trade activity, it is worth examining the commodity structure of Ukraine's exports and imports since 2013, which precedes the military period starting in 2014. The study of exports should be carried out by commodity items that are the most important in the commodity structure (Table 1).

Table 1. Commodity structure of exports from Ukraine in 2013, 2015, 2021, and 2022 (in mln USD)

Product name	2013	in % of total volume	2015	in % of total volume	2021	in % of total volume	2022	in % of total volume
Total	63,312	100	38,127.1	100	68,072.3	100.0	44,135.6	100.0
Live animals; products of animal origin	1,084.1	1.7	823.4	2.2	1,345.2	2.0	1,471.8	3.3
Plant-based products	8,875.9	14	7,971.5	20.9	15,538.0	22.8	13,472.7	30.5
Fats and oils of animal or vegetable origin	3,507.1	5.5	3,299.8	8.7	7,037.2	10.3	5,948.6	13.5
Ready-to-eat food products	3,557.2	5.6	2,468.4	6.5	3,788.5	5.6	2,496.9	5.7
Mineral products	7,494.9	11.8	3,099.5	8.1	8,414.4	12.4	4,322.5	9.8
Products of chemical and related industries	4,327.3	6.8	2,130.8	5.6	2,815.6	4.1	1,286.8	2.9
Wood and wood products	1,144.4	1.8	1,107.2	2.9	2,005.8	2.9	1,884.9	4.3
Precious metals and products made of them, including:	17,570.7	27.8	9,470.7	24.8	15,991.0	23.5	6,003.5	13.6
• ferrous metals	14,319.3	22.6	8,077.6	21.2	13,950.1	20.5	4,532.4	10.3
• ferrous metal products	2,589.8	4.1	917.0	2.4	1,293.0	1.9	1,051.4	2.4
Machinery, equipment and mechanisms; electrical equipment, including:	6,975.0	11	3,940.9	10.3	5,260.2	7.7	3,732.3	8.5
• nuclear reactors, boilers, machinery	3,840.9	6.1	1,961.6	5.1	2,120.9	3.1	1,175.0	2.7
• electric machines	3,134.1	4.9	1,979.2	5.2	3,139.3	4.6	2,557.3	5.8
Land transport vehicles, aircraft, floating craft	3,344.0	5.3	679.2	1.8	676.4	1.0	360.5	0.8

Source: compiled by the authors based on State Customs Service of Ukraine (2023)

Table 1 shows that the most important in the overall structure of Ukrainian exports in the pre-war period (2013) were non-precious metals and products from them, accounting for 27.8%. After the outbreak of the Russian-Ukrainian war in 2014, the share of these goods in exports gradually decreased, reaching a decline of 14.2 percentage points (p.p.) in 2022. There was also a noticeable decrease in exports of nuclear reactors (by 3.4 p.p.), which were mainly exported to Russia. The commodity structure of imports also underwent certain changes during the war period (Table 2).

Table 2. Commodity structure of imports from Ukraine in 2013, 2015, 2021, and 2022 (in mln USD) USA)

Product name	2013	in % of total volume	2015	in % of total volume	2021	in % of total volume	2022	in % of total volume
Total	76,964	100	37,516.4	100	72,843.1	100	55,295.7	100.0
Live animals; products of animal origin	1,892.1	2.5	548.2	1.5	1,594.0	2.2	1,175.2	2.1
Plant-based products	2,669.8	3.5	1,146.2	3.1	2,130.5	2.9	1,927.0	3.5
Ready-to-eat food products	3,218.8	4.2	1,607.7	4.3	3,578.4	4.9	2,645.1	4.8

Table 2, Continued

Product name	2013	in % of total volume	2015	in % of total volume	2021	in % of total volume	2022	in % of total volume
Mineral products	22,362.1	29.1	11,690.0	31.2	14,968.8	20.5	13,123.5	23.7
Products of chemical and related industries	8,435.3	11	5,009.2	13.4	9,743.0	13.4	6,213.4	11.2
Polymeric materials, plastics, and products made from them	4,592.9	6	2,646.2	7.1	4,816.7	6.6	3,247.3	5.9
Precious metals and products from them	5,002.9	6.5	2,004.2	5.3	4,372.5	6.0	2,591.4	4.7
• ferrous metals	2,230.7	2.9	685.7	1.8	1,550.0	2.1	953.8	1.7
• ferrous metal products	1,205.1	1.6	522.0	1.4	1,126.2	1.5	642.4	1.2
Machinery, equipment and mechanisms; electrical equipment	12,470.1	16.2	6,273.4	16.7	14,206.0	19.5	9,159.2	16.6
• nuclear reactors, boilers, machinery	6,909.6	9	3,578.2	9.5	8,000.0	11.0	4,199.7	7.6
• electric machines	5,560.5	7.2	2,695.2	7.2	6,206.0	8.5	4,959.5	9.0
Land transport vehicles, aircraft, floating craft	5,901.5	7.7	1,743.6	4.6	7,572.4	10.4	5,658.6	10.2

Source: compiled by the authors based on State Customs Service of Ukraine (2023)

As Table 2 demonstrates, mineral products (29.1%) and nuclear reactors (9%) and electrical machinery (7.2%) accounted for the largest share of Ukraine's imports in the pre-war period, including in 2013. The analysis shows that during the period of intensified hostilities (2015 and 2022), imports of mineral products increased by an average of 2.1 p.p. After the full-scale invasion, imports fell mainly in nuclear reactors (by 3.4 p.p.), chemical products (by 2.2 p.p.), and ferrous metals (by 0.4 p.p.). An analysis of exports and imports of goods by geographical structure allowed identifying the main areas in the global space of Ukraine's foreign economic relations (Table 3).

Table 3. Geographical structure of Ukraine's exports and imports in 2013, 2015, 2021, and 2022

Indicator	2013	2015	2021	2022
Exports (%)				
Russia	23.8	12.7	5.0	1.1
Europe	27.0	34.1	39.4	63.2
Other countries	49.3	53.2	55.6	35.7
Total	100	100	100	100
Imports (%)				
Russia	30.2	20.0	8.4	10.0
Europe	37.1	40.9	39.7	48.8
Other countries	32.7	39.2	51.9	41.2
Total	100	100	100	100

Source: compiled by the authors based on State Customs Service of Ukraine (2023) and State Export Control Service of Ukraine (2020)

As Table 3 shows, before the war, a considerable part of trade was with European countries and Russia. However, during the 2014-2022 war, exports and imports with Europe increased significantly. The war changed the geographical structure of trade, mainly due to the severance of ties with Russia, which had diplomatic relations with Ukraine until 24 February 2022.

The development of modern international relations in wartime is characterised by the international transfer of defence goods. Ukraine's international military-economic cooperation in times of war, economic downturn and limited financial capabilities of the state is still an important factor in strengthening the country's defence capability in the face of the enemy, as well as a factor in the transformation and development of the defence industry, and in strengthening its competitiveness in the international arena in the field of modern defence technologies.

In the early 2000s, the right to export weapons, develop technologies and provide services in this area was granted to the following companies, among others:

Spetstechnoexport, Progress, Ukrinmash, Promoboronexport (terminated on 14.02.2020), TASKO-Export, Ukroboronservice. Ukraine's international relations with other countries have always been actively developing in the defence industry since the country gained independence.

In January 1994, representatives of the governments of Ukraine, the United States and Russia officially signed a joint document on the intention to deprive Ukraine of all its nuclear weapons. Later, in December 1994, the Budapest Memorandum was signed, which prescribed the substantial disarmament of Ukraine (Tolub, 2023). The consequences of the signing of this document are being witnessed by the entire world today. At the time of signing the Budapest Memorandum, Russia acted as a security guarantor for Ukraine, which in turn handed over to Russia 176 intercontinental ballistic missiles, 4,200 tactical nuclear warheads: 581 X-55 cruise missiles. Many weapons were disposed of. Also sold during 2001-2014: 762 aircraft, 2,815 tanks, and 1,910 missile launchers (Tolub, 2023). This arsenal of weapons far exceeds the amount that Ukraine had available before the full-scale invasion in 2022. Prior to the full-scale invasion, Ukraine's defence industry was actively working to export to other countries. In 2005-2014, military equipment and weapons were sold for almost USD 2 billion. USA: 202 aircraft, 232 helicopters, 714 infantry fighting vehicles and armoured personnel carriers, 832 tanks, 4,930 vehicles, 28,555 rocket and artillery weapons, and 1.824 million small arms and ammunition (Tolub, 2023).

Following Russia's annexation of the Republic of Crimea in 2014 and the outbreak of hostilities in eastern Ukraine, the situation with arms exports has changed somewhat, as the need for weapons has increased in Ukraine. Since 2015, exports have gradually stabilised, but Ukraine has not managed to reach pre-war export volumes. The bulk of exports was shifted to high-tech products (Table 4).

Table 4. Volumes of international transfers and exports of defence products in 2014-2021

Name	Consumer state	Number by year, units								
		2014	2015	2016	2017	2018	2019	2020	2021	Total
International transfers of certain categories of weapons										
Battle tanks	USA								5	5
	Ethiopia	11	4							15
	Nigeria	12	11							23
	Thailand		5	10	16	13				44
	Democratic Republic of the Congo (DRC)			25						25
Armoured combat vehicles	USA	1							1	2
	Thailand	17	20	34		2				73
	Nigeria	10								10
	Indonesia			5				2		7
	United Arab Emirates (UAE)			108						108
	Uganda							1		1
	Saudi Arabia								60	60
	Myanmar						14			14
Large-calibre artillery systems	Nigeria	6	12							18
	USA								1	1
Combat aircraft	Croatia	5								5
	Chad	1								1
Combat helicopters	Belarus	6								6
	Nigeria	2								2
	South Sudan		5							5
	UAE								2	2
Military ships	China	1								1
Missiles and missile launchers	Algeria	18				9				27
	Indonesia		2	3						5
	Poland			40						40
	Kazakhstan					6				6
Export of small arms and light weapons, portable air defence systems										
I. Small arms										
Revolvers and pistols	DRC	2								2
	Moldova	2								2
	Peru	580	4							584
	UAE		2							2

Table 4, Continued

Name	Consumer state	Number by year, units								
		2014	2015	2016	2017	2018	2019	2020	2021	Total
Revolvers and pistols	Turkey			4		200				204
	Jordan				1					1
	Malaysia					1				1
	USA					1		10		11
	Poland							16	583	599
Rifles and carbines	USA	10,166	10,000	10,000		5,068				35,234
	Georgia	100								100
	Canada	10,400					5,800			16,200
	Czech Republic	5,000								5,000
	DRC	1								1
	Uganda	3,000								3,000
	Zambia		2,544							2,544
	Mongolia			10	10	20	180			220
	Poland						3,502			3,502
	Qatar						20			20
	UAE							5		5
Assault rifles and submachine guns	USA				15,040					15,040
	Uzbekistan				2,000					2,000
	Indonesia						21	21		42
Assault rifles	DRC	2								2
	Zambia		104							104
Light machine guns	DRC	1								1
	South Sudan	830		170						1,000
	Zambia		17							17
	Turkey			46					2	48
	Israel							1		1
II. Light weapons										
Heavy machine guns	South Sudan	62		88						150
	USA					177				177
Hand-held, under-barrel, and easel grenade launchers	Jordan				2					2
	USA						2			2
	Turkey								2	2
Portable anti-tank rifles and grenade launchers	Jordan						24			24
	UAE								2	2
Portable anti-tank guided missiles and missile systems	Belarus	1	18							19
	USA		89	85	790					964
	Saudi Arabia					950	2,060			3,010
	Jordan				22					22
	Qatar							51	459	510
	Bangladesh							23		23
	Turkey								315	315
	Morocco							124	1,000	1,124
	Chad							53		53
III. Portable air defence systems										
Triggers	Germany	10								10
	UAE		8							8
	USA		3				6			9
	Turkey				3					3
Rockets	USA		226							226
	UAE		8							8
Total		30,247	13,082	10,628	17,884	6,447	11,629	307	2,432	92,656

Source: compiled by the authors based on State Customs Service of Ukraine (2023) and State Export Control Service of Ukraine (2020)

Table 4 shows that in 2014-2021, of the total volume of international transfers, the largest number of armoured combat vehicles were transferred to the UAE, Thailand, and Saudi Arabia, and the largest number of missiles and launchers were transferred to Poland in 2016. The bulk of small arms, including rifles and carbines, as well as assault rifles and submachine guns, were exported from Ukraine to the United States and Canada in 2014-2017. The largest number of defence products was exported in 2014, and gradually decreased until 2021. A report presented by the Stockholm Peace Research Institute shows that Ukraine was the 17th largest arms exporter in the world in 2018-2022. During this period, its share decreased by 70% compared to 2013-2017, namely from 1.7% to 0.5% of global exports. The main recipients of Ukraine's military products in 2018-2022 were China (48%), Saudi Arabia (13%), and Thailand (7.5%). In 2021, global defence spending totalled USD 1.98 trillion USD, of which USD 5.9 billion was the share of Ukraine, which was 0.3%. At the same time, Ukraine ranked 14th among importers in 2018-2022. Therewith, the share of imports to Ukraine in the global volume increased from 0.05% in 2013-2017 to 2% in 2018-2022. The main suppliers of defence products are USA (34%), Poland (17%) and Germany (11%). Specifically, in 2022, Ukraine became the third largest importer of major weapons after Qatar and India (Wezeman *et al.*, 2023).

According to the German Ministry of Economy, in the first half of 2023, Ukraine received military weapons and equipment worth more than 1.65 billion EUR (Federal Ministry for Economic Affairs and Climate Action, 2023). Notably, Russia's armed aggression has forced Ukraine not only to become one of the world's main arms importers, but to start developing the production of its own modern weapons, which Ukraine plans to supply to the entire world in the future. One of the first steps in this area was the adoption Resolution of the Cabinet of Ministers of Ukraine No. 763 "On the Implementation of a Pilot Project for the Production, Procurement and Supply of Ammunition For Unmanned Systems and Unmanned Systems' Warheads" (2023). This regulatory document will accelerate the production and supply of Ukrainian drones for the needs of the army, as well as create conditions for the development of Ukrainian military technologies. Furthermore, it is important for Ukraine to develop and establish mass production of long-range missiles, which are a valuable weapon for winning a war and a competitive product for entering the international market.

Thus, during the war with Russia, Ukraine's economic relations with other countries of the world, both in the field of trade in goods for various purposes and in the field of exports and imports of defence products, have undergone certain changes. The decline in foreign trade in certain goods, especially in the industrial sector, gradually slowed the development of Ukraine's economy. Since its independence, Ukraine has transferred to other countries and destroyed many weapons in compliance with international agreements, which has weakened its defence capabilities in the war with Russia. In 2014-2021, Ukraine continued to export defence products in large volumes, gradually decreasing them. Today, as one of the world's major importers, Ukraine is taking many steps towards establishing its own arms production, which will help it become one of the major arms exporters in the future and boost economic development in the post-war period.

Discussion

The study of the development of Ukraine's foreign economic relations during the war started by Russia in 2014 allowed analysing the dynamics of trade volumes over this period, identifying the main types of commodity products that were imported and exported during the war, as well as the volume of exports and imports of defence goods. The results obtained made it possible to formulate the main trends in the export of military products and outline the prospects for Ukraine's participation in global arms exports.

The analysis of the essence of economic international relations suggests that there is a scientific interest in the theory and common models of such relations, as well as in the strategic trade behaviour of developed countries. A critical explanation of theories of international trade was provided by Bharat *et al.* (2023), who rightly emphasised that attention should be paid to models that incorporate income inequality across countries, political trade strategies, and real-world factors. At the same time, Z. Chen (2022) studied the traditional theory of international trade and noted that, given the current development of science and technology, international trade theories should be changed, as regional economic development should aim to achieve the goal of sustainable and healthy development.

As international trade takes place in a globalised environment, it has recently seen rapid growth, which has also been facilitated by the reduction of tariff and non-tariff barriers. This has led to a rapid increase in the total value of exports and imports, making international trade larger and more complex (Tyas *et al.*, 2023). The paper emphasises that military events have had a significant impact on the development of Ukraine's economy and the structure of exports and imports of foreign trade. An analogous view is supported by L. Karlsson & P. Hedberg (2021), who investigated the impact of war on trade between 1830 and 1913 and argued that one of the main reasons for the rapid integration of commodity markets was the peaceful nature of a certain period of the 19th century. It is true that war reduces trade between the belligerents and with other countries not involved in the conflict.

At the same time, returning to international trade patterns, as O. Krpec & V. Hodulak (2019) rightly point out, the impact of military conflicts on the smoothness of trade flows leads to changes in the economic structures of countries, trade policies, and changes in established trade patterns. This undoubtedly affects the position of countries in the international trade system. When studying international trade in wartime, a special emphasis is placed on the transfer (export) of defence products between countries.

Investigating this issue, B. Vroege (2021) examines the involvement of the European Defence Fund in the development of weapons and emphasises that international and EU norms are not effective enough, as they allow EU member states to export weapons despite the serious risk of their use and violation of international humanitarian law.

At the same time, G. Maletta (2021), studying the issue of responsibility for the arms trade to reduce human suffering in Yemen, emphasises that there has been some inconsistency in the actions to control arms exports by EU member states: specifically, in the application of international humanitarian law standards in their decisions to transfer weapons to coalition members involved in the conflict. Agreeing with the opinion of J. van Lieshout & R. Beeres (2021), it should be noted that the impact of legislation on arms export control requires in-depth research. In a different context, namely how arms trade is conducted within an international network of alliances, this issue was addressed by C.C. Chou *et al*. (2023), who showed that two states connected in a network of political alliances have links in the arms sales network, i.e., the network of alliances is a strong incentive for bilateral arms sales.

The paper examines the dynamics of arms transfers between countries, but in this aspect, it is important to investigate the nature and essence of international relations in the course of such transfers. The main theories on how states strengthen their military power are taken for granted in the study of international relations. However, S.L. Willardson & R.A. Johnson (2021) put forward and tested seven hypotheses using aircraft traffic data from 1990-2010, finding support for some hypotheses drawn from the democratic peace literature, but most of the hypotheses were argued to be liberal trade. Studying the globalisation of arms production, C. Choi & S. Park (2023) note that this has not led to the convergence of the national defence industry to a liberal market model. The researchers conducted an in-depth study of South Korea's defence industry reform, which began in 2008, and the subsequent increase in arms exports (Choi & Park, 2023) and noted that the goal of South Korea's defence industry reform was to maintain its advantage among other countries.

The paper emphasises the need for Ukraine to develop the potential to produce long-range missiles, which are a valuable combat resource. Supporting this opinion, H.C. Farias *et al*. (2023) note that missiles have become a modern weapon and an important defence product with high technological potential. Studies of the evolution of missile transfers in the period from 1950-2010 show:

- steady growth of international missile transfers relative to other categories of defence products;
- high concentration of the market of missile suppliers, with the US, Russia, and France exporting an average of 84.6% of the total (Farias *et al*., 2023).

The current international arms trade market is unevenly distributed, due to considerable differences in the development of military technologies in different countries. Supporting this opinion, X.-Y. Wang *et al*. (2023) note that there is a fixed hierarchical structure in the arms trade, but the emergence of developing countries may change this situation. International arms trade relations are built on economic forces, followed by political, security, and strategic factors.

Scholars have investigated the impact of certain factors on changes in international arms exports and imports in many ways. For instance, A. Baronchelli *et al*. (2021) studied the effectiveness of the embargo on the trade in small arms and light weapons, which showed that the embargo reduces exports of these weapons to sanctioned countries by 33%; the EU embargo leads to a 37% reduction in arms supplies, and the United Nations embargo has little impact. The impact of sanctions, specifically the different consequences of diverse sanctions instruments, was also investigated by S.K. Afesorborg (2019), who rightly noted that imposed sanctions lead to a decrease in trade flows, but the threat of sanctions leads to an increase in sales flows. This is because economic entities increase their turnover before the actual imposition of sanctions to minimise any adverse consequences. The impact of advertising on the market of arms and military equipment was investigated by G. Jasiński (2023), whose opinion should be agreed with that although advertising used in the arms market does not directly affect the country's desire to obtain it, it is still crucial in terms of image and information, and helps to draw attention to some aspects of the arms sector (increased security, improved international cooperation, technological development, etc.).

Thus, the analysis of the results of scholars' research on foreign economic relations of countries and the development of the arms export-import market demonstrates the scientific interest in studying this issue. The main conclusions drawn in this paper regarding the impact of military events in Ukraine on the development of foreign trade, including arms transfers to other countries, are consistent with the opinions formulated in the studies of other scholars and may also help to identify ways to strengthen Ukraine's position as an arms exporter in the global market.

Conclusions

The findings of this study strongly suggest that Ukraine's external military-economic relations have weakened under the influence of Russia's armed aggression and require the identification of areas for their development in the current conditions.

The purpose of this study and the analysis of Ukraine's foreign economic relations during the wartime period allowed formulating the following conclusions. The war launched by Russia in 2014 against Ukraine has led to a change in the commodity structure of exports and imports, namely a decrease in ferrous metals and products and nuclear reactors in the commodity structure of both exports and imports. An analysis of the geographical structure of foreign trade showed that since 2014, the volume of trade with European countries has been on the rise. The study revealed that Ukraine's defence sector has been constantly developing, which allowed the country to occupy a prominent place among the world's exporters of military equipment

and weapons even after the outbreak of hostilities in eastern Ukraine. It was proved that in 2014-2017, most of the exported equipment and goods were armoured combat vehicles and small arms. A comparison of exports and imports of military goods showed that exports in 2018-2022 decreased by 1.2 p.p. compared to 2013-2017, while imports increased by 1.95 p.p., indicating an increase in Ukraine's demand for military products. The study substantiated the need for Ukraine to develop its defence sector, specifically by introducing the production of drones and long-range missiles. This will contribute to the development of the defence sector to improve the country's defence capability in times of war and expand opportunities to increase exports of military products.

The conclusions are of practical importance for the Government of Ukraine and can be used in the development of measures for the development of foreign trade and economic policy and national arms production. The principal areas of further research will be an in-depth investigation of the conditions and features of the international arms market.

Acknowledgements

None.

Conflict of Interest

None.

References

[1] Afesorborg, S.K. (2019). The impact of economic sanctions on international trade: How do threatened sanctions compare with imposed sanctions? *European Journal of Political Economy*, 56, 11-26. doi: 10.1016/j.ejpoleco.2018.06.002.

[2] Baronchelli, A., Caruso, R., & Ricciuti, R. (2021). Trade in small arms and light weapons: Are embargoes effective? *The World Economy*, 45(5), 1336-1361. doi: 10.1111/twec.13217.

[3] Bharat, Kumar, V., Sharma, S., Sehgal, S., & Jakhar, B. (2023). Literature review on theories of international trade and policies behind modern world trade. *Journal of Indonesian Applied Economics*, 11(2), 75-83. doi: 10.21776/ub.jiae.2023.011.02.6.

[4] Chen, Z. (2022). Research on international trade theory and the status quo of world international trade. *American Journal of Industrial and Business Management*, 12(6), 1079-1087. doi: 10.4236/ajibm.2022.126057.

[5] Choi, C., & Park, S. (2023). Globalization of arms production and hierarchical market economies: Explaining the transformation of the South Korean defense industry. *Pacific Affairs*, 96(2), 229-252. doi: 10.5509/2023962229.

[6] Chou, C.C., Teng, C.-S., & Tung, H.H. (2023). How do alliances trade arms? Political alliance networks and global arms transfers. *PLoS ONE*, 18(3), article number e0282456. doi: 10.1371/journal.pone.0282456.

[7] Farias, H.C., Garcia Marques, G.R., & Marinho, R.C. (2023). The evolution of global missile transactions between the 1950s and 2010s. *Revista Brasileira de Estudos de Defesa*, 9(2), 41-71. doi: 10.26792/RBED.v9n2.2022.75322.

[8] Federal Ministry for Economic Affairs and Climate Action. (2023). *Export licences for military equipment in the first half of 2023: 90% of all licenses are for close partner countries Ukraine is main recipient.* Retrieved from https://www.bmwk.de/Redaktion/EN/Pressemitteilungen/2023/07/20230704-export-licences-for-military-equipment-in-the-first-half-of-2023.html.

[9] Ishchuk, S., & Sozanskyy, L. (2023). Mechanical engineering development in Ukraine: Trends and threats. *Economic Herald of State Higher Educational Institution "Ukrainian State University of Chemical Technology"*, 1, 31-40. doi: 10.32434/2415-3974-2022-17-1-31-40.

[10] Jasiński, G. (2022). Building competence for modernisation and maintenance of heavy armored equipment on the example of military automotive plants S.A. in Poznań. *Wiedza Obronna*, 280(3), 345-362. doi: 10.34752/2022-p280.

[11] Karlsson, L., & Hedberg, P. (2021). War and trade in the peaceful century: the impact of interstate wars on bilateral trade flows during the first wave of globalization, 1830-1913. *The Economic History Review*, 74(3), 809-830. doi: 10.1111/ehr.13053.

[12] Krpec, O., & Hodulak, V. (2019). War and international trade: Impact of trade disruption on international trade patterns and economic development. *Brazilian Journal of Political Economy*, 39(154), 152-172. doi: 10.1590/0101-35172019-2854.

[13] Levchuk, O.V. (2023). Economic aspects of Ukraine's cooperation with the European Union countries. *Collection of Scientific Works of the Center for Military and Strategic Research of the National Defense University of Ukraine*, 1(77), 32-39. doi: 10.33099/2304-2745/2023-1-77/32-39.

[14] Maletta, G. (2021). Seeking a responsible arms trade to reduce human suffering in Yemen. *The International Spectator*, 56(1), 73-91. doi: 10.1080/03932729.2021.1876862.

[15] Pamp, O., Lebacher, M., Thurner, P.W., & Ziegler, E. (2021). Explaining destinations and volumes of international arms transfers: A novel network Heckman selection model. *European Journal of Political Economy*, 69, article number 102033. doi: 10.1016/j.ejpoleco.2021.102033.

[16] Resolution of the Cabinet of Ministers of Ukraine No. 763 "On the Implementation of a Pilot Project for the Production, Procurement and Supply of Ammunition for Unmanned Systems and Unmanned Systems' Warheads". (2023, December). Retrieved from https://zakon.rada.gov.ua/laws/show/763-2023-%D0%BF#Text.

[17] Shemayeva, L., & Tolok, P. (2021). Current trends in the development of international military and economic cooperation between Ukraine. *Academic Notes of KROK University*, 4(64), 21-27. doi: 10.31732/2663-2209-2021-64-21-27.
[18] Skrypnyk, S., Protseviat, O., & Voronova, O. (2022). Peculiatiries of regulation of foreign economic activity in the conditions of martime. *Economy and Society*, 38. doi: 10.32782/2524-0072/2022-38-47.
[19] State Customs Service of Ukraine. (2023). *Statistics and registers*. Retrieved from https://customs.gov.ua/en/statistika-ta-reiestri.
[20] State Export Control Service of Ukraine. (2020). *Volume of international arms transfers.* Retrieved from https://www.dsecu.gov.ua/ua/obsiagy-peredach-ozbroyen.
[21] Tolub, N. (2023). *How many weapons Ukraine gave away and sold before the war and full-scale invasion*. Retrieved from https://thepage.ua/ua/politics/skilki-zbroyi-ukrayina-prodala-do-vijni.
[22] Tyas, S.W., Valentya, G.F., Aditama, M.F., & Nidaul Husna, L.A. (2023). International trade in the era of globalization. *ASIAN Economic and Business Development*, 6(1), 65-71. doi: 10.54204/AEBD/Vol6No1August2023009.
[23] Usachenko, O., Rodchenko, L., & Rodchenko, I. (2021). Peculiarities of economic relations in the military-industrial complex. *Investments: Practice and Experience*, 19, 51-55. doi: 10.32702/2306-6814.2021.19.51.
[24] van Lieshout, J., & Beeres, R. (2021). Economics of arms trade: What do we know? In R. Beeres, R. Bertrand, J. Klomp, J. Timmermans J. & Voetelink (Eds.). In *NL ARMS Netherlands annual review of military studies 2021 "Compliance and integrity in international military trade"* (pp. 13-30). Hague: T.M.C. Asser Press. doi: 10.1007/978-94-6265-471-6_2.
[25] Vroege, B. (2021). Exporting arms over values: The humanitarian cost of the European Defence Fund. *European Papers*, 6(3), 1575-1601. doi: 10.15166/2499-8249/539.
[26] Wang, X.-Y., Chen, B., & Song, Y. (2023). Dynamic change of international arms trade network structure and its influence mechanism. *International Journal of Emerging Markets*. doi: 10.1108/IJOEM-07-2022-1058.
[27] Wezeman, P.D., Gadon, J., & Wezeman, S.T. (2023). Trends in international arms transfers. *SIPRI Fact Sheet*. doi: 10.55163/CPNS8443.
[28] Willardson, S.L., & Johnson, R.A. (2021). Arms transfers and international relations theory: Situating military aircraft sales in the broader IR context. *Conflict Management and Peace Science*, 39(2), 191-213. doi: 10.1177/0738894221992034.

Аналіз зовнішніх військово-економічних відносин України під час війни з Росією

Олег Михайлович Семененко
Доктор військових наук, професор
Центральний науково-дослідний інститут Збройних Сил України
03049, просп. Повітрофлотський, 28Б, м. Київ, Україна
https://orcid.org/0000-0001-6477-3414

Віталій Петрович Онофрійчук
Кандидат економічних наук,
Міністерство закордонних справ України
01018, пл. Михайлівська, 1, м. Київ, Україна
https://orcid.org/0000-0001-6990-2537

Поліна Олександрівна Толок
Кандидат економічних наук, докторант
Національний університет оборони України імені Івана Черняховського
03049, просп. Повітрофлотський, 28, м. Київ, Україна
https://orcid.org/0000-0002-2481-8152

Володимир Ігорович Рєзнік
Кандидат історичних наук, професор
Національний університет оборони України імені Івана Черняховського
03049, просп. Повітрофлотський, 28, м. Київ, Україна
https://orcid.org/0000-0003-1479-4852

Дмитро Сергійович Момот
Доктор філософії, старший науковий співробітник
Національний університет оборони України імені Івана Черняховського
03049, просп. Повітрофлотський, 28, м. Київ, Україна
https://orcid.org/0000-0003-3805-4031

Анотація. Актуальність дослідження визначається необхідністю виявлення наслідків війни для економіки та перспектив розвитку військово-економічних відносин між Україною та іншими країнами. Метою даної роботи є дослідження динаміки обсягу та структури зовнішньоекономічних зв'язків України у воєнний період та окреслення подальших шляхів розширення зовнішньоекономічної діяльності України. Для досягнення цієї мети було використано такі методи: статистичний аналіз даних, порівняння, графічний, узагальнення даних. Основні результати, отримані в роботі, включають визначення динаміки обсягів та товарів, які займають значну частину експорту та імпорту України після початку російського вторгнення у 2014 році; аналіз географічної структури зовнішньої торгівлі та тенденцій у торгівлі з Європейським Союзом у 2013-2022 роках; оцінку товарної та географічної структури експорту та передач товарів оборонного призначення з України у 2014-2021 роках; визначення частки України в загальному обсязі експорту та імпорту товарів оборонного призначення, основних споживачів експортованої продукції та відстеження змін цієї частки протягом 2018-2022 рр. порівняно з 2013-2017 рр.; аналіз оборонного імпорту у першому півріччі 2023 року; обґрунтування пропозиції щодо розвитку виробництва товарів оборонного призначення, а саме безпілотників та ракет дальньої дії, які можуть бути використані як для підвищення захищеності території України, так і для посилення позицій країни на міжнародному ринку експорту озброєння та техніки під час та після війни. Результати та висновки мають практичне значення для уряду України при розробці напрямів розвитку оборонного сектору країни та військово-економічних відносин з іншими державами

Ключові слова: збройна агресія; експорт та імпорт; оборона; товарна структура; виробництво озброєнь