

ANALYSIS OF CHANGES IN THE WORLD ECONOMY CAUSED BY THE RUSSIAN-UKRAINIAN WAR

Victoria O. Shcherbachenko¹, Anastasiia V. Teslyk²

The Russian invasion of Ukraine caused a number of negative consequences for both Ukraine and the world economy in general. Among them is a significant humanitarian catastrophe, the growth of emigration, the impoverishment of the population, as well as the growth of the global food crisis. The purpose of the article is to analyze the impact of the Russian-Ukrainian war on the world economy and outline the changes that occurred as a result of armed aggression in the system of international economic relations. To achieve the goal, the authors conducted a thorough analysis of current scientific publications and statistical data on the forecast of the level of inflation due to the Russian-Ukrainian war in 2022 and 2023 by global regions; the arrival of world food from Ukraine and Russia in the pre-war period; compared food price indices for 2020–2022. It was determined that global food prices had risen even before the full-scale invasion of Ukraine due to the impact of the COVID-19 pandemic on supply chains, but Russian aggression caused prices to rise to their highest levels in recent years. Although the value aspect is stabilizing, there is a threat of an intensification of the crisis due to the effect of sanctions against Russia, further destruction of infrastructure in Ukraine, relatively lower capacity of the grain corridor, uncertainty of Ukrainian farmers regarding further activities and lands unsuitable for growing crops due to the Russian invasion. The countries most dependent on wheat imports from Ukraine were identified, including African countries, Moldova, Pakistan, Israel, and others. In addition to the direct impact on agricultural production and exports, the war affects the trade in fertilizers and minerals (oil, gas). In addition, there is a need to build new logistics chains due to the closure of airspace and blocking of ports. The next negative trend in the world economy, caused by the Russian-Ukrainian war - fluctuations in energy prices is one of the key factors of changes in the world economy, in particular due to the fact that the export of energy goods makes up a much larger share of world trade than food. Russia's invasion of Ukraine and the subsequent international response in the form of sanctions have caused another negative shock and disruption to the global economy, with immediate consequences for foreign direct investment (FDI) and other capital flows. The trends in the field of world tourism, which suffered significant losses due to the pandemic in 2020, as well as after the full-scale invasion of Ukraine by Russia on February 24, 2022, are studied.

Keywords: Russian-Ukrainian war, international relations, world economy, food security, inflation.

JEL Classification: F01, F51, F52

Formulation of the problem. The years of Russian aggression in the east of Ukraine, as a result of which about 14,000 people died, 1.5 million citizens became internally displaced persons, and 2.9 million people needed humanitarian assistance, created a difficult humanitarian situation. In February 2022, Russia exacerbated the crisis by launching a full-scale war [1]. As a result, a third of Ukrainians were forced to leave their homes: more than 7.4 million people left Ukraine [2], and about 7 million were displaced within the country. Another approximately 13 million citizens are in the affected areas or cannot leave due to the Russian occupation, damaged infrastructure or increased threat to life [3]. These data indicate the biggest refugee crisis since the Second World War. However, in addition to exacerbating the humanitarian crisis, Russia's invasion led to faster and more tangible shifts in the world economy.

Analysis of the recent research and publications. Due to the importance of the topic of the Russian-Ukrainian war on a global scale, scientific discourse pays great attention to the impact of armed aggression on the world

economy. The economic cost of a full-scale invasion of Russia into Ukraine was studied by Ya. Liadze, K. Macchiarelli, P. Mortimer-Lee, and P. Sanchez Juanino [4].

Appealing to the critical impact of the Russian invasion on the global food supply chain, scientists Amat Nasir M., Dvi Nugroho A. and Lackner Z. write in their article about the danger to global food security [5].

The Russian-Ukrainian war caused a wave of rapid changes with consequences that have a huge social and economic impact. Researchers P. Pereira, V. Zhao, L. Simochko, M. Inacio, I. Bohunovych, and D. Barcelo consider in their work how the invasion poses a serious threat to the achievement of the UN Sustainable Development Goals [6].

Intense fighting on the territory of Ukraine has, in addition to human casualties and a humanitarian crisis, an impact on the surrounding natural environment. In their work, scientists P. Pereira, F. Bashych, I. Bohunovych and D. Barcelo substantiated the effect of Russian aggression on global and regional ecosystems [7].

Dependence on export goods from Ukraine and Russia immediately after the outbreak of a full-scale war

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created a number of problems for importers, who were unable to replace the products they needed. Inflationary pressure, sanctions and global economic consequences were described in a study by scientists H. Saridakis, Alexius K., Hossein R., and Satnarine-Singh N. [8].

The impact of the Russian-Ukrainian war on world financial markets was investigated in the work of scientists Izeldin M., Muradoglu Y. G., Pappas V., Petropoulos A. and Sivaprasad Sh. [9]. In their work, the reaction of European and world stock markets to the invasion of the Russian Federation in Ukraine was analyzed and compared with the COVID-19 pandemic and the global financial crisis of 2008.

The purpose of research. It is aimed at analyzing the impact of the Russian-Ukrainian war on the world economy and outlining the changes that occurred as a result of armed aggression in the system of international economic relations.

Presentation of the main material of the study. Due to the close ties between the national economies of different countries, the echoes of the February invasion are felt in every corner of the world. In addition, the global economy has faced full-scale war during a difficult pandemic period, during which, in anticipation of new strains of the virus and the associated costs of stabilizing critical situations, its recovery from the crisis has slowed down. It is expected that the Russian-Ukrainian war could lead to a decrease in world GDP by 1% by 2023, which in monetary terms is about 1 trillion dollars [4]. At the same time, global inflation is forecast to rise to 3% in 2022 and about 2% next year (Figure 1). These figures represent the totality of losses in various branches of production and the sphere of

services of various national economies, which have their place in the world economy and individually affect its final indicators.

The Russian invasion has a particularly sharp impact on the world's food security due to the fact that over the past three decades, the countries of the Black Sea region have become key suppliers of basic food products. Ukraine and Russia are among the seven leading global producers and exporters of wheat, corn, barley, sunflower seeds and sunflower oil. Most of these products are supplied to countries in North Africa and the Middle East, as well as Europe and China. The risks of disruption in the world market for wheat, which is a staple food, are too high for several reasons. First, Russia and Ukraine together export approximately a quarter of the world's wheat (Table 1). Secondly, on February 15, Russia introduced a new quota for the export of wheat and other grain crops to countries that are not part of the Eurasian Economic Union. Thus, interruptions in the production and export of Ukrainian wheat will worsen the situation, which is already under pressure [11].

Global food prices rose even before the full-scale invasion of Ukraine due to the impact of the COVID-19 pandemic on supply chains, but Russian aggression has caused prices to rise to their highest level in recent years (Figure 2).

Although the value aspect is stabilizing, there is a threat of an intensification of the crisis due to the effect of sanctions against Russia, further destruction of infrastructure in Ukraine, relatively lower capacity of the grain corridor, the uncertainty of Ukrainian farmers regarding further activities and lands unsuitable for growing crops due to the

Table 1 – World food receipts from Ukraine and Russia in percentages as of 2019 [12]

Product	Country	Ukraine, export in %	Russia, export in %
Corn		16,43	1,60
Sunflower oil		42,21	21,40
Wheat		8,91	14,20
Barley		9,74	9,50

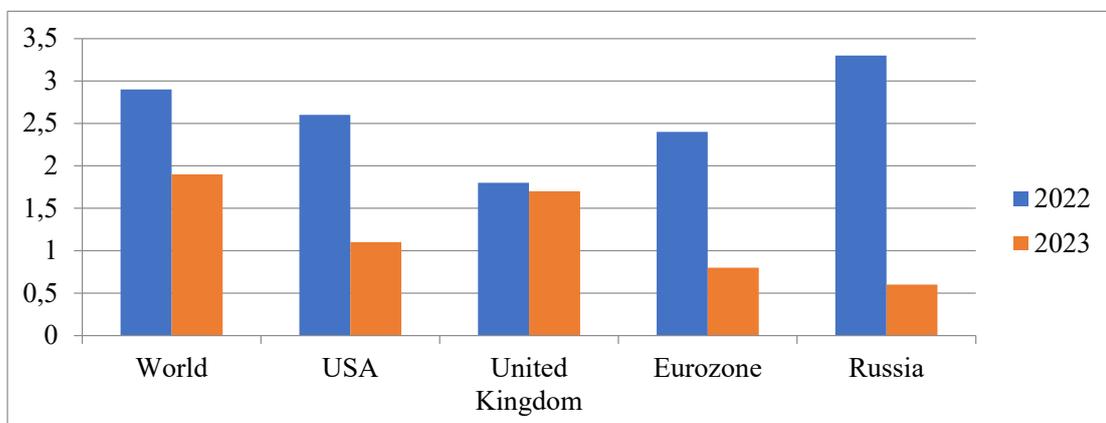


Figure 1 – Forecast of the level of inflation due to the Russian-Ukrainian war in 2022 and 2023 by global regions [10]

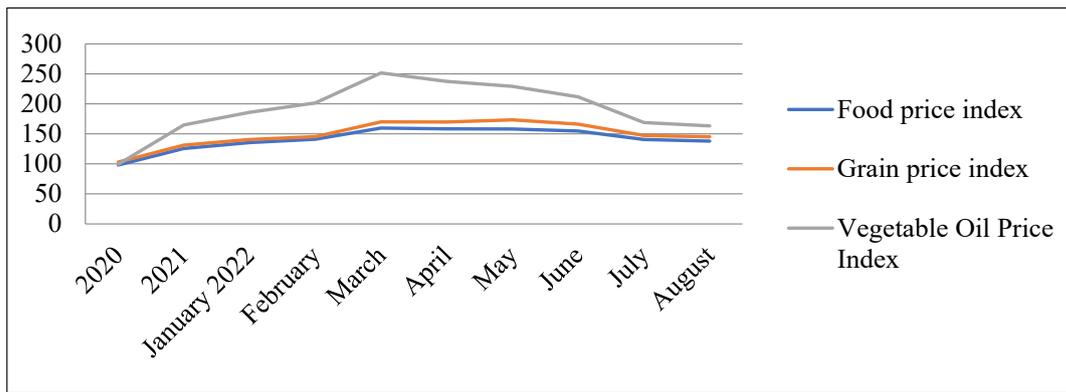


Figure 2 – Food price index for 2020–2022 [13]

Russian invasion. The countries that buy the most wheat from Ukraine – mainly in Africa and the Middle East – will have to pay the hardest due to rising prices. This is evidenced by the ratio of the largest exporters of Ukrainian grain (Table 2). In addition, the UN's World Food Program, the largest distributor of food aid, purchases more than half of its grain in Ukraine and Russia. The organization is already paying 30 percent more for food products than a few years ago [14].

Table 2 – Countries most dependent on wheat imports from Ukraine [11]

Importer	Ukraine's share in total imports, in %	Importer	Russia's share in total imports, in %
Gambia	84	Indonesia	20
Lebanon	67	Morocco	19
Moldova	57	Yemen	18
Djibouti	57	Egypt	18
Libya	45	Thailand	16
Tunisia	41	Jordan	15
Pakistan	39	Tanzania	14
Somalia	31	Malaysia	12
Bangladesh	24	Philippines	12
Mauritania	22	Qatar	11
Israel	21	Korea	10
Eritrea	20		

In addition to its direct impact on agricultural production and exports, the war affects the fertilizer trade. Russia and Belarus rank second and third in the world in the production of potash fertilizers, respectively. In 2019, Russia accounted for 14% of global exports of coal briquettes and 13% of crude oil, making it the second largest exporter of this commodity. Russia is also a significant exporter of refined oil and natural gas, accounting for 10 and 9 percent of world exports, respectively. Oil is critical for transportation, so gasoline prices rose significantly immediately after the Russian invasion. At the same time, natural gas accounts for more than half of the costs of production of ammonia fertilizers, which increases the impact on the cost of fertilizers. With

this in mind, rising prices create incentives for exporters of agricultural products to expand production and replace part of exports from the Black Sea region [11].

The impact of the Russian invasion in February is also felt in the state of world non-food trade. Ukraine was the second largest exporter of ferrosiliconmanganese, with 18.2% of global exports in 2019, while Europe overall imported 49% of the steel-making alloy. In addition, Ukraine was the fifth largest supplier of titanium, which is used in the aerospace, aviation, automotive, and medical industries. Also, the Ukrainian state is one of the most powerful exporters of cast iron, and together with the Russian Federation accounted for more than half of the world trade in this product, and is an important partner of some European markets in providing them with sets of ignition wires for vehicles [11]. In addition, Ukraine exported 70% of the world's neon gas, which is important in the production of semiconductor microcircuits [15].

On an international scale, Russia is important as an exporter of raw and intermediate goods and services used in the early stages of production. Thus, a wide range of sanctions and restrictions disrupted Russian trade and led to disruptions in logistics, resource shortages, and spikes in raw material prices. Specific bans on exports to Russia undermine its manufacturing capabilities, particularly in electronics, automobiles, iron and steel, and aviation. At the same time, several key export goods of the Russian Federation, which are, for example, rare metals, are difficult to replace in the short term. At the same time, Russia has a large share of the world market for precious metals, such as palladium, which accounts for 24% of the world supply and is mostly used in the manufacture of catalytic converters. And also such as platinum, the Russian supply of which made up 8.7% of the world market. This metal is used in the manufacture of jewelry and dentistry, and it is also an important material for the production of electrical contacts, thin support wires, and medical and laboratory instruments [11].

Jumps in energy prices (Figure 3) are one of the key factors of changes in the world economy, in particular, due to the fact that the export of energy products makes up a much larger share of world trade than food.

Механізм регулювання економіки

By comparison, in 2019, total global crude oil exports were \$986 billion, natural gas exports were \$300 billion, and total grain exports were estimated at \$115 billion. Rising crop and energy prices will increase the burden, especially on the poorest households, who spend an estimated 54% of their consumer spending on food, 7% on energy, and 4% on transport. A different situation is observed in the richest households, where approximately only 21% of consumer spending is on food, 3% is spent on energy, and 19% on transport, which makes rich households relatively more vulnerable to inflation [11]. Thus, Russia's war against Ukraine primarily affects the most vulnerable

and developing countries, causing even greater global inequality.

The direct impact of the Russian-Ukrainian war on global container shipping is quite limited, given the small volumes and few intercontinental routes in the region. However, the rerouting of cargo bound for Russia and additional customs checks for dual-use goods are worsening port congestion in Europe and indirectly affecting the rest of the world. In addition to the rapid growth in marine cargo insurance, container shipping lines will also try to circumvent rising fuel costs [18]. Airspace closures mean longer routes and higher rates between Europe and East

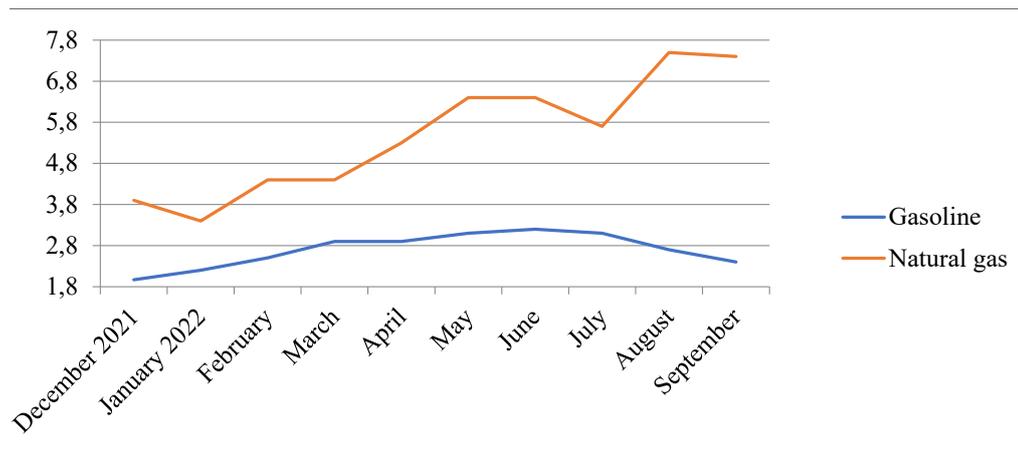


Figure 3 – Price for 1 MMBtu of natural gas and 1 gallon of gasoline in US dollars as of the first of each month [16; 17]

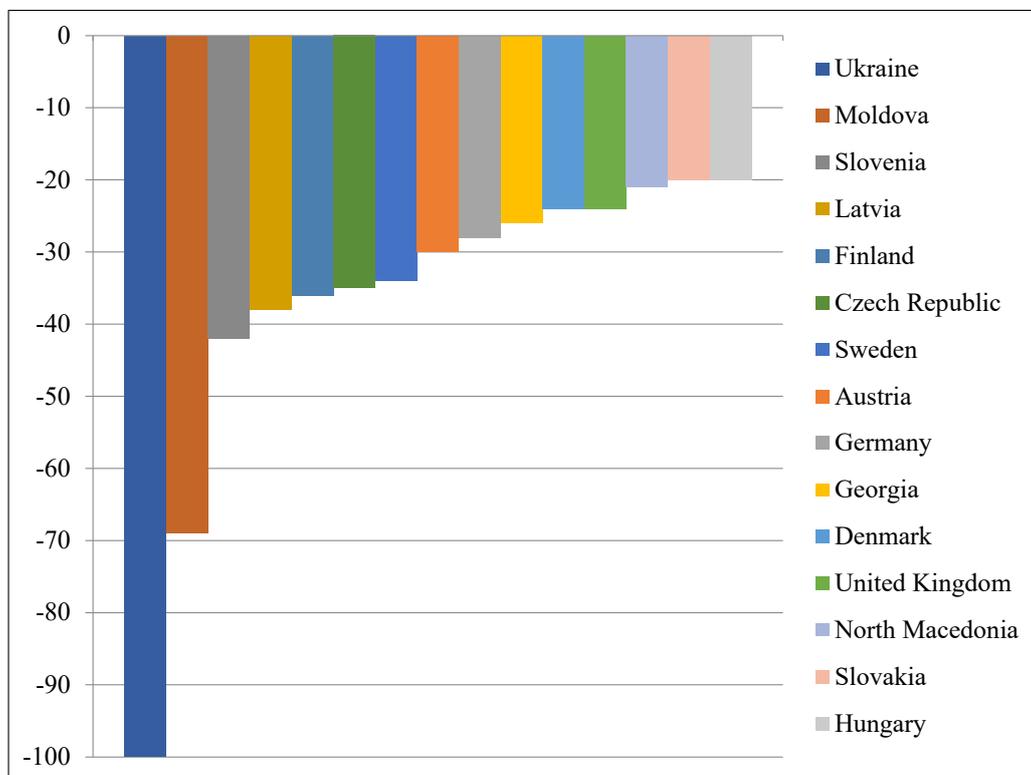


Figure 4 – European countries with the largest reduction in the number of flights from February 24 to May 11, 2022, change in %, compared to 2019 [20]

Asia. Rerouted alternatives add 5 to 10 hours to the one-way leg and may require a stopover on the way [11].

World tourism faced a full-scale Russian-Ukrainian war at the moment of gradual recovery from the pandemic crisis: in 2019, the share of global GDP created by travel was 10.3%; in 2020, this indicator almost halved to 5.3%, and a year later showed a slight increase and was recorded at 6.1% of the total gross product [19]. Russian aggression risks hindering the normalization of international tourism. This could significantly affect the US and Asian outbound markets, especially for travel to Europe. As of 2020, Russia and Ukraine as source markets account for 3% of global spending on international tourism. Prolonged war could result in a loss of \$14 billion in global tourism receipts in 2022. The importance of both markets is important for neighboring countries, as well as for European air (Figure 4) and sea routes in general [20].

Russia's invasion of Ukraine and the subsequent international response in the form of sanctions have caused another negative shock and disruption to the global economy, with immediate consequences for foreign direct investment (FDI) and other capital flows. However, the impact on global FDI flows will be limited, as Russia's role as a recipient and source of foreign direct investment is insignificant, according to statistical data [21]. But the economies of Eastern Europe and Central Asia will suffer due to the impact of Russian aggression and Western

sanctions on Russian TNCs operating in these economies due to the complication of cross-border operations, the weakening of their parent companies, and the disruption of logistics. In addition, the decline of the Russian economy and the depreciation of the ruble will reduce the inflow of foreign investments and remittances to these countries, suppress domestic demand, and disrupt their economic growth [11].

Conclusions. It should be pointed out that the Russian-Ukrainian war had an immediate impact on the world economy, which at the time of the invasion was gradually recovering from the pandemic crisis, in the form of disruption of supply chains, inflationary shock, sanctions, negative effect on global trade, financial markets, and tourism. The most potent challenges, which as a result mobilized the governments of all countries and caused the international community to worry, were the humanitarian crisis in Ukraine, the lack of food, especially in low-income countries with a high dependence on Ukrainian and Russian imports, and energy security.

Thus, full-scale war and the COVID-19 pandemic have pointed to the importance of market diversification as one of the key criteria for the resilience of economies to global challenges. The countries face the need for a quick response to the problems caused by Russian aggression and opportunities to replace key export destinations where Ukraine and Russia were the leaders to prevent greater destruction of the world economy.

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АНАЛІЗ ЗМІН У СВІТОВІЙ ЕКОНОМІЦІ, ВИКЛИКАНИХ РОСІЙСЬКО-УКРАЇНСЬКОЮ ВІЙНОЮ

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Російське вторгнення в Україну спричинило низку негативних наслідків як для України, так і світового господарства загалом. Серед них – значна гуманітарна катастрофа, зростання еміграції, зuboження населення, а також наростання глобальної продовольчої кризи. Метою статті є аналіз впливу російсько-української війни на світову економіку та окреслення змін, що відбулися внаслідок збройної агресії у системі міжнародних економічних відносин. Для досягнення поставленої мети автори провели ґрунтовний аналіз актуальних наукових публікацій та статистичних даних щодо прогнозу рівня інфляції через російсько-українську війну у 2022 та 2023 рр. за глобальними регіонами; надходження світового продовольства з України та Росії у довоєнний період; порівняли індекси цін на продукти харчування за 2020–2022 рр. Визначено, що глобальні ціни на продовольство зросли ще до повномасштабного вторгнення в Україну завдяки впливу пандемії COVID-19 на ланцюги поставок, проте російська агресія спричинила зростання цін до максимуму за останні роки. Хоч вартісний аспект стабілізується, існує загроза посиленню кризи через дію санкції проти Росії, подальше руйнування інфраструктури в Україні, порівняно меншу пропускну здатність зернового коридору, невизначеність українських фермерів щодо подальшої діяльності та непридатних для вирощення культур земель через російське вторгнення. Визначено найбільш залежні країни від імпорту пшениці з України, серед яких країни Африки, Молдова, Пакистан, Ізраїль та ін. Крім прямого впливу на сільськогосподарське виробництво та експорт, війна впливає на торгівлю добривами та корисними копалинами (нафта, газ). Крім того, виникає необхідність у побудові нових логістичних ланцюгів через закриття повітряного простору та блокування портів. Наступна негативна тенденція у світовій економіці, спричинена російсько-українською війною, – коливання цін на енергоносії є одним із ключових факторів змін у світовій економіці, зокрема через те, що експорт енергетичних товарів становить набагато більшу частку світової торгівлі, аніж продовольство. Вторгнення Росії в Україну та подальша міжнародна реакція у вигляді санкцій спричинили ще один негативний шок і підри в світовій економіці з безпосередніми наслідками для прямих іноземних інвестицій та інших потоків капіталу. Досліджено тенденції у галузі світового туризму, який зазнав значних збитків через пандемію у 2020 році, а також після повномасштабного вторгнення Росії в Україну 24 лютого 2022 року.

Ключові слова: російсько-українська війна, міжнародні відносини, світова економіка, продовольча безпека, інфляція.

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