

The Economic Effects of the Russian-Ukrainian War of 2022 on Global Food Security

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Abstract

This study aims to shed light on the economic effects of the Russian-Ukrainian war of 2022 on global food security and to examine its repercussions on international food markets and the global food supply shortage. The war has directly contributed to further disruptions in global food supply chains due to rising shipping costs. Both Ukraine and Russia play major roles in global food markets, as they are among the world's most significant producers and exporters of arable crops. Consequently, the war has had profound global repercussions, particularly on food security, leading to a surge in the prices of most food products.

Keywords: Economic Effects, Russian-Ukrainian War, Global Food Security.

1. Introduction

International conflicts and crises weaken the ability of countries and populations to secure their food needs. These conflicts can hinder efforts to achieve high economic growth rates and disrupt the proper functioning of food systems and supply chains. Additionally, they may lead to lower production rates due to the involvement of producers in war, rendering them unable to sustain agricultural output. Conflicts can also disrupt agricultural inputs in foreign markets or result in the destruction of crops and water infrastructure due to military operations.

Armed conflicts can further impact consumers' access to adequate food by reducing their purchasing power or creating food availability issues. Such conflicts often lead to rising food prices in both local and international markets, which can have severe consequences for low-income countries dependent on food imports. Additionally, disruptions in energy markets negatively affect the affordability of both energy and food in importing nations and reduce the availability of international food aid during crises. Consequently, food insecurity is a significant characteristic of armed conflicts and must be considered in any approach to conflict management (Kemmerling, Schetter, & Wirkus, 2022).

The disruption caused by the Russia-Ukraine war, with its far-reaching implications for global food security, follows a series of pre-existing challenges that had already strained prices and supply chains. These include the COVID-19 pandemic, the global energy crisis, shipping restrictions, and climate change. The ongoing Russia-Ukraine war is expected to exacerbate food

insecurity, with estimates suggesting that between 7.6 and 13.1 million people may face hunger. As a result, the International Monetary Fund (IMF) lowered its global growth forecast for 2022-2023, stating that "the economic impact of Russia's invasion of Ukraine" will be widespread, intensifying price pressures and exacerbating major policy challenges (Behnassi & El Haiba, 2022).

Similarly, the World Bank revised its global growth forecast for 2022 downward by nearly a full percentage point, from 4.1% to 3.2%, highlighting the significant economic strain imposed by the Russian invasion of Ukraine (Nicas, 2022). Given the substantial agricultural production capacities of both Russia and Ukraine, this study examines the effects of the war on global food security.

1.1 Terminology of the Study

Global Food Security: The Committee on World Food Security (CFS) defines food security as: *"When all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life."*

Absolute food security refers to a country's ability to produce food in quantities that meet or exceed the needs of its local population. Relative food security, on the other hand, is defined as *"the ability of one or multiple countries to produce or provide food commodities either fully or partially."* In the case of absolute food security, the concept aligns with food sufficiency, whereas relative food security ensures that a country or group of countries can secure the minimum required amount of food commodities needed by their society, either in full or in part (FAO, 2022).

The Russian-Ukrainian Crisis: This refers to the invasion launched by Russia against Ukraine on February 24, 2022, following a prolonged military buildup and Russia's recognition of the self-declared Donetsk People's Republic and Luhansk People's Republic. The conflict escalated on February 21, 2022, when Russian forces entered the Donbas region in eastern Ukraine. On February 24, after a speech in which Russian President Vladimir Putin announced a military operation aimed at demilitarizing Ukraine and pursuing de-Nazification, bombings began across Ukraine, including in the capital, Kyiv (Bouchaia, 2022).

1.2 Previous Studies

Al-Subaitly's Study (2022): *The Economic and Political Repercussions of the Russian-Ukrainian War in Africa*

This study examines the economic and political repercussions of the Russian-Ukrainian war on Africa. The conflict marks a historical turning point not only for Europe but also for Africa and the world. Since the Cold War, the world has not witnessed a geopolitical event with such far-reaching implications as the Russian military operation in Ukraine. The effects of the war vary across continents and countries, depending on their integration into the global economy, political and economic relations with Russia, dependence on Ukrainian wheat, and access to international markets for strategic raw materials. The study concludes that while the roots of the crisis are political, its economic consequences are inevitable due to international sanctions on Russia, disruptions in food supply chains, and price surges in global markets. Given the deep political,

geopolitical, and economic ties between Africa and Russia, the trajectory and duration of the war will have profound political and economic ramifications.

Boson's Study (2022): *The End of Globalization? The Impact of the Russian War in Ukraine on the Global Economy*

This study explores the impact of the Russian war in Ukraine on globalization, economic growth, and innovation. It discusses the erosion of globalization and identifies the winners and losers of this crisis. The study concludes with recommendations for Western policymakers to mitigate the economic repercussions of the war.

Kibrom, Clemens, & Joseph Sikandra's Study (2022): *The Implications of the Russian Ukrainian Crisis on Global and Regional Food Security*

This study analyzes how the Russian-Ukrainian crisis affects food security in vulnerable regions, particularly the Middle East and North Africa (MENA), which heavily rely on food imports. It examines how food systems and policies contribute to vulnerability in MENA countries such as **Egypt, Sudan, and Yemen**. The findings suggest that poor and non-poor households, as well as rural and urban populations, experience the crisis differently. However, food insecurity remains more severe in rural areas due to higher numbers of low-income families. In contrast, urban poor populations are disproportionately affected by rising food prices, especially in countries with weak social protection and food support systems.

Hassen & El Bilali's Study (2022): *The Relationship Between Food Security and Stability in the Era of Globalization*

This study highlights the correlation between food security and political stability, particularly in the age of globalization. It argues that armed conflicts significantly contribute to food insecurity, affecting regions far beyond the immediate conflict zone. The food crises of the past decade have exposed systemic challenges in addressing food insecurity during conflicts, revealing why governments and warring parties often lack the capacity or will to resolve them. The study also explains why humanitarian aid faces difficulties in reaching affected populations. The ongoing war between Russia and Ukraine has exacerbated food insecurity and exposed existing vulnerabilities in international food security systems.

Havlik's Study (2014): *The Economic Consequences of the Ukraine Conflict*

This study examines the economic consequences of the Ukraine conflict for Russia, Ukraine, and Europe. It concludes that while Ukraine is the primary victim, facing an economic contraction of up to 8% in a single year, Russia also suffers, with the conflict estimated to cost around 1% of GDP between 2014 and 2016, mainly due to increased investment risks. The effects on individual EU countries vary, with the Baltic states, Finland, and several new EU member states being the most affected due to their economic exposure to Russia.

2. Study Problem and Questions

The Russian-Ukrainian crisis is one of the most significant international crises affecting the global system, with both immediate and long-term impacts on countries worldwide. Its effects will vary between poor and non-poor households, particularly in developing nations, but the

absolute level of food insecurity is likely to remain higher in rural areas, where low-income families are more prevalent.

This study examines the economic effects of the Russian-Ukrainian crisis of 2022 on global food security by highlighting the critical role of Ukraine and Russia in global agricultural markets and agricultural inputs. It also explores the war's repercussions on global food markets and the resulting shortages in the world's food supply.

2.1 Study Questions

The study seeks to answer the following questions:

1. What are the economic effects of the Russian-Ukrainian war of 2022 on global food security?
2. What is the significance of Ukraine and Russia in global agricultural markets and agricultural inputs?
3. What are the repercussions of the war on global food markets and the shortage in global food supplies?

3. Importance of the Study

The significance of this study lies in its analysis of the role of Ukraine and Russia in global agricultural markets and agricultural inputs, as well as its examination of the war's repercussions on global food markets and the resulting shortages in the world's food supply. The findings will serve as a valuable resource for Arab and Jordanian libraries and researchers interested in analyzing this critical issue. Additionally, the study aims to monitor and assess the impact of Ukraine and Russia on global agricultural markets and inputs, while explaining the consequences of the war on food markets and global food security.

4. Study Objectives

This study aims to:

1. Shed light on the economic effects of the Russian-Ukrainian war of 2022 on global food security.
2. Analyze the significance of Ukraine and Russia in global agricultural markets and agricultural inputs.
3. Examine the repercussions of the war on global food markets and the shortage in the world's food supply.

5. Study Hypothesis

This study seeks to validate the following hypothesis: "The repercussions of the Russian-Ukrainian crisis of 2022 have negatively affected global food security, given the significant agricultural production of both countries."

6. Study Methodology

The study adopts a descriptive-analytical approach, which is used to examine a case by collecting quantitative and qualitative data on its characteristics and elements. This information is then classified to derive accurate insights into the existing conditions as they are in contemporary reality, without delving into the underlying causes, motives, or influencing factors. This method has been employed to analyze the economic effects of the Russian-Ukrainian crisis of 2022 on global food security.

Distinguishing Features of the Current Study

The current study differs from previous research in its examination of an ongoing international crisis, the political repercussions of which remain uncertain due to the continuing war and its potential implications for the global system. Unlike previous studies, this research assesses the impact of the Russian-Ukrainian war on food security based on financial statements issued by international organizations.

Chapter One: The Importance of Ukraine and Russia in Global Agricultural Markets and Agricultural Inputs

Section One: The Role of Ukraine and Russia in Food Production

Ukraine and Russia are among the world's leading producers and exporters of arable crops, particularly grains and oilseeds. Between 2018 and 2021, the two countries accounted for approximately 3%–10% of global wheat production, with Russia and Ukraine ranking as the first and fifth largest wheat exporters, respectively. Together, they contribute 10%–20% of global wheat exports, playing a crucial role in supplying global markets, particularly in the Middle East and North Africa (MENA) region, where wheat is a staple food source.

Although Ukraine and Russia produce less than 5% of global corn, Ukraine holds the largest share. Due to limited domestic consumption, most of its production is exported, making Ukraine the third-largest corn exporter worldwide. Additionally, both countries are significant producers and exporters of barley, contributing 20% of global production. Russia ranks as the third-largest and Ukraine as the fourth-largest barley exporter globally (FAO, 2022).

Ukraine and Russia also play a dominant role in oilseed production, particularly in sunflower seeds. Ukraine is the world's largest producer, followed by Russia, and together they account for over 50% of global sunflower seed production between 2016 and 2022. The two countries also dominate sunflower oil exports, contributing 25%–50% of global exports, respectively. While rapeseed and soybean production in both countries are relatively small (less than 5% of global production), Ukraine is the world's third-largest rapeseed exporter. It is also the largest soybean exporter outside of North and South America, playing a key role in the global market, particularly as the largest exporter of non-GMO soybeans (IEA, 2022).

Beyond crop production, Russia holds a strategic position in the global fertilizer market. It is the largest exporter of nitrogen fertilizers and ranks as the second and third-largest supplier of potash and phosphorus fertilizers, respectively, accounting for over 15% of global fertilizer exports in 2020 (UNCTAD, 2022).

Given the significant role of Russia and Ukraine in global agricultural and input markets, the ongoing war and its political repercussions have had profound and potentially long-term effects on both producers and consumers. The reduction in grain and oilseed availability from Ukraine has contributed to rising international food and feed prices. Additionally, although global energy and fertilizer prices have fluctuated, the uncertainty surrounding the availability of Russian energy and fertilizers continues to impact global supply chains. Since the agri-food sector is highly energy-intensive, increased energy and fertilizer costs have led to higher production costs, ultimately driving up food prices worldwide.

Section Two: The Ukrainian-Russian Crisis and Its Impact on the Global Food Price Index and Shipping Operations

1. FAO Food Price Index

The repercussions of the Russian-Ukrainian war led to a sharp increase in global food prices, causing the FAO Food Price Index to reach its highest recorded level in March 2022. The index averaged 159.3 points, marking an increase of 17.9 points (12.6%) compared to February 2022 and an increase of 40.1 points (33.6%) from its 2021 levels.

According to the FAO Food Price Index report issued on May 5, 2022, the index showed a slight decline in April 2022, decreasing by one point (0.5%) from its peak in March 2022. However, the Cereal Price Index reached an average of 170.1 points in March 2022, an increase of 24.9 points (17.1%) from February 2022 and 37.3% higher than its 2021 level. This surge represents the highest level since 1990, driven mainly by disruptions in wheat and coarse grain supplies due to the suspension of exports from Ukraine and, to a lesser extent, from Russia.

By the end of April 2022, the FAO Cereal Price Index recorded a slight decrease of 0.7 points (0.4%) compared to May 2022 (FAO, 2022).

2. Global Grain Market Trends

The impact of the war extended beyond general food prices, significantly affecting the global grain market. Wheat prices surged in April 2022, reflecting uncertainty regarding global supply due to potential export disruptions from Ukraine and Russia.

According to the Global Grain Market Report issued by the International Grains Council (IGC) on April 21, 2022, the grain price index experienced a yearly increase of 33.2%, reaching 357 points. Key developments in grain prices included:

1. Wheat Price Index: Increased by 62.0% year-on-year, reaching 360 points.
2. Corn Prices: Recorded an annual increase of 32.0%.
3. Barley Prices: Rose by 61.6 points on an annual basis.

These price surges highlight the global market imbalances resulting from the war, with reduced supply from Ukraine and Russia driving higher international food prices and greater uncertainty in global trade. The following table presents grain and seed prices for 2022, as shown in table (1).

Table (1): Grain and seed price index for the year 2022

January 2000= 100	Grain Market Report 531	Change m/m	Change y/y
Cereals and seeds price index International Grains Council	357	1.0% +	33.2%+
Wheat index	360	2.4% +	62.0%+
Corn sub-index	367	-2.0%	-32.0%
Barley sub-index	399	1.3% +	61.6% +
Rice sub-index	171	0.4% +	9.4% -
Soybeans sub-index	346	0.8% +	26.1% +

Source: International Grains Council, Freight Rates. 19 Apr 2022. <https://www.igc.int/en/markets>

Second: Global Grain Shipping Price Index

Freight rates have become a central risk factor in global grain markets, reflecting the direct impact of the ongoing crisis. According to the International Grains Council, the grain freight price index showed a significant rise as of April 19, 2022. The index experienced a weekly increase of 13% and an annual increase of 34%. The rise varied across different sub-indicators within the grain freight prices, with notable increases recorded in specific regions.

1. Europe saw the highest annual increase, with a rise of 46%.
2. Canada followed with a 44% annual increase.
3. Argentina experienced an annual growth of 37%.

This upward trend in freight rates has been driven by the reduction in shipments from the Black Sea, largely due to the ongoing conflict. However, potential increases in exports from other major agricultural producers, such as India, the United States, the European Union, and Brazil, could partially offset the decline in shipments from the region. The increase in grain freight prices has significant implications, as it directly impacts global food prices (Kibrom, 2022).

Table (2) presents the grain freight price index for the year 2022.

Table (2): Grain shipment price index for the year 2022

2022	Indicator Point	Weekly change %	Annual change %
Cereals and oilseeds shipment index	232	13+	34%
Argentina sub-index	295	13+	37%
Australia sub-index	164	14+	25%
Brazil sub-index	311	17+	32%
Black Sea sub-index	229	11+	31%
Canada sub-index	174	11+	44%
Europe sub-index	197	10+	46%
US sub-index	182	11+	34%

Source: International Grains Council, Freight Rates. 19 Apr 2022. <https://www.igc.int/en/markets>

The following table illustrates the grain shipment prices in April 2022, highlighting the rise in freight rates. The data shows that freight rates experienced a weekly increase of approximately

4%, while annual growth ranged between 22-45%. This significant increase underscores the concerns regarding the potential impact of high freight rates on global food prices, as it may exacerbate the already escalating cost of food production and distribution, as shown in table (3).

Table (3): Prices of grain shipments for the year 2022 (dollar/ton) and change in percentage

Country	April 19	Weekly change%	Yearly change%
Australia - Iran	\$37	4+	22%
Brazil - EU	\$47	4+	45%
Japan - United States (Gulf)	\$74	4+	24%

Source: International Grains Council, Freight Rates. 19 Apr 2022. <https://www.igcint/en/markets>

The Impact of the Russian-Ukrainian Crisis on Global Food Security

The Russian-Ukrainian war primarily affects food production and export capacity. One of the major consequences has been the closure of ports and a reduction in oil-seed production, which, in turn, has disrupted exports. While production prospects for winter crops in May 2022 were initially favorable, they remained uncertain due to challenges faced by farmers, such as limited access to fertilizers.

It is anticipated that the areas dedicated to spring crops—such as sunflower seeds, corn, and spring barley—will be 20% less than in 2021. Moreover, the expected harvests for 2022 are likely to be smaller due to both the direct damage caused to winter crops by the ongoing war and rising input costs (USDA, 2022; FAO). Despite these setbacks, production is still expected to exceed local requirements.

Historical Context and Relevance of the Crisis

In his article “The Eighteenth Brumaire of Louis Bonaparte”, Marx remarked, “Hegel remarks somewhere that all world-historical facts and figures appear twice, so to speak.” This observation is particularly relevant to the current crisis in Ukraine and its repercussions on the Middle East (Rivlin & Parker, 2022). A decade ago, the rising international prices of oil and foodstuffs contributed to a marked divide between oil-rich nations in the Middle East, who became wealthier, and non-oil-producing countries, who became more impoverished. This economic disparity was one of the key factors that contributed to the Arab Spring (Rivlin, 2012).

The following figure illustrates the evolution of world food prices since 2000, showcasing the fluctuating dynamics and the far-reaching effects of geopolitical tensions on global food security.

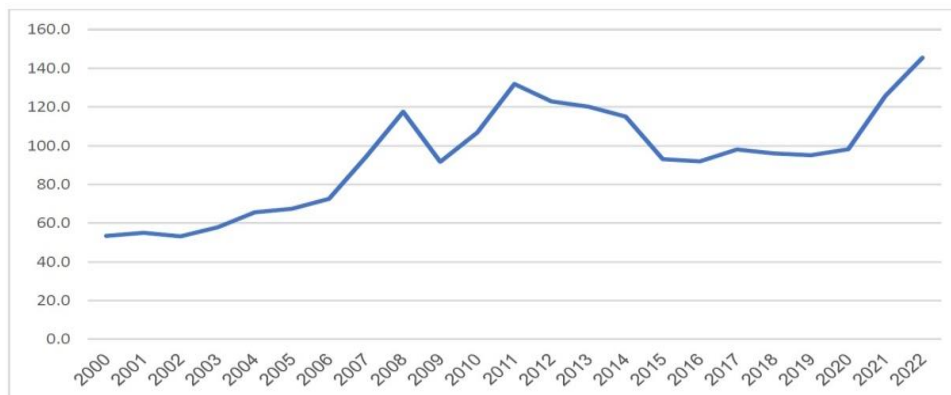


Fig (1): Food prices

Source <https://www.fao.org/worldfoodsituation/foodpricesindex/en/>

Over the past 25 years, the Black Sea region has transitioned from a food importer to a significant supplier of grains and oilseeds. Russia and Ukraine together have accounted for approximately:

- 34% of globally traded wheat
- 17% of global corn exports
- 73% of sunflower oil exports
- 17-27% of global barley and corn trade

These exports represent a substantial share of global consumption, amounting to around 12% of the total international trade (Glauber, Laborde, 2022).

Fertilizer and Energy Export Impact

Russia is also a major exporter of fertilizers. It controls about 15% of world trade in nitrogen and potash fertilizers, while Russia and Belarus together account for 33% of global potash fertilizer exports. Additionally, Russia is a key producer of oil and gas, which are vital for the transportation, production, and processing of both food and fertilizers. Consequently, the Russian-Ukrainian war has directly and indirectly impacted global food markets through disruptions in fertilizer and energy trade (Glauber, Laborde, 2022).

Russia as a Geopolitical Weapon

Russia has recognized that influencing international grain markets has become an effective geopolitical tool. Former Russian President Dmitry Medvedev stated: “Food security for many countries depends on our supplies, and it turns out that our food is our silent weapon” (Caitlin, 2022). The rising food shortages and high prices, compounded by increased energy costs, have further exacerbated tensions in the conflict between Russia and Western countries.

The FAO and United Nations World Food Program (WFP) have warned that food insecurity would likely worsen in over 20 countries by the end of 2022, especially in the Middle

East and North Africa. Countries such as Afghanistan, Lebanon, South Sudan, Sudan, Syria, Yemen, Somalia, and Ethiopia—already suffering from conflict and government instability—are particularly vulnerable (World Food Programme, 2022).

Impact on Grain Supply Chains

Global supply chains are highly interconnected, meaning that minor disruptions in one area can have far-reaching effects. Agriculture and the food industry are major consumers of energy, using electricity for irrigation and fuel for agricultural machinery. Additionally, the production of pesticides and fertilizers involves high levels of indirect energy consumption.

In developed economies like the United States, energy and fertilizer costs can account for 40-50% of the total variable costs in agriculture. Consequently, rising energy and fertilizer prices lead to higher production costs, resulting in increased food prices (Saudi Monetary Agency, 2022).

Inflation and Vulnerability in Oil-Importing Countries

The war in Ukraine has caused a rise in food and energy prices, with consumer inflation averaging 7.7% in April 2022. However, this inflation varies significantly across countries. For example:

- In Egypt, the pound depreciated by 18% between March and April 2022, causing inflation to double.
- In Lebanon, consumer prices surged by over 200% from 2021, primarily due to the collapse of the exchange rate and economic mismanagement (UAE Central Bank, 2021).

Countries dependent on wheat imports from Russia and Ukraine, such as Egypt, Lebanon, and Tunisia, are especially vulnerable. These countries sourced 40% of their grain imports from these two nations between 2017 and 2019.

In conflict-prone regions like Syria and Yemen, the situation is even more dire, with existing food insecurity and poverty exacerbated by the war's impact on grain imports. As much as one-third of the calories consumed in these regions come from subsidized wheat products, underscoring the link between food security and political stability (Brück, 2016).

The Impact on Global Food Aid

Before the war, over 90% of Ukrainian crop exports were routed through ports in the Azov Sea and the Black Sea. However, due to the ongoing war, these routes are no longer accessible, and alternative export channels such as roads, railways, and river ports are unable to handle the same volume. As a result, Ukrainian exports have been reduced to only 20% of normal quantities, and storage facilities have been damaged, further limiting exports (Kyiv School of Economics, 2022).

International food aid organizations, such as the World Food Program (WFP), which sources 50% of its grain from Ukraine, have been forced to reduce food rations due to higher costs. This has left millions without food aid, while the war has diverted global attention from ongoing food insecurity challenges in the Global South, particularly in countries already facing poverty,

natural resource scarcity, and the effects of climate change (Rice, Hernandez, Glauber, & Vos, 2022).

The Impact on Russian Agricultural Trade

Despite the sanctions imposed on Russia, agricultural trade remains relatively unaffected as food and fertilizers are exempt. However, the 2014 annexation of Crimea and ongoing sanctions have already disrupted Russia's agricultural exports. The war in Ukraine further complicates Russia's ability to access key ports and continues to increase export restrictions on grains, sugar, and fertilizers. Even so, some agricultural exports from Russia continue.

As sanctions limit Russia's access to foreign markets for agricultural commodities, Russian wheat prices have been discounted, widening the price gap between Russian and Western wheat. For instance, the price gap between Russian wheat and U.S. and EU wheat peaked at -30% and -12% in May 2022, respectively, but has since returned to average levels (FAO, 2022).

Economic sanctions and the disruption of agricultural inputs—such as pesticides, seeds, and machinery—have further hampered Russian agricultural production. This could have long-term impacts on Russia's future production capacity (UAE Central Bank, 2022).

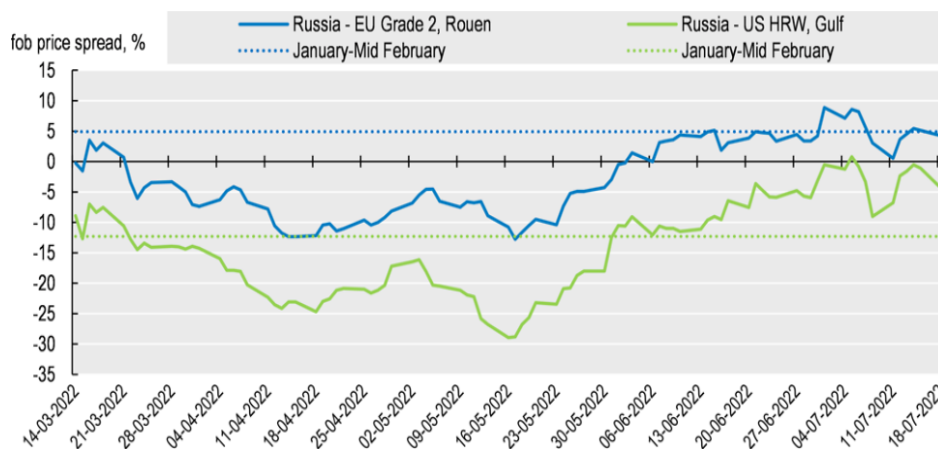


Fig. (2) The export price gap between Russian wheat and international references

Source: UAE Central Bank, (2021). Annual Report

The ongoing crisis in Ukraine has exacerbated global food security concerns, particularly in countries that are heavily dependent on Russian and Ukrainian grain supplies. The large number of displaced Ukrainians—around 8 million internally displaced and 6.3 million externally displaced—has strained local food distribution networks and logistics. These efforts to meet the food security needs of displaced people are crucial, as many of them are seeking refuge in areas affected by active conflict. Consequently, ensuring that distribution channels remain open and functional becomes a priority.

In addition to the internal displacement, around 1.9 million Ukrainians returned to their homeland during 2022. However, for those who remain displaced, whether within Ukraine or in neighboring countries, securing essential goods and services, including food, is a significant

challenge. Efforts to provide food either directly or through maintaining the supply chain continue to be a focus for humanitarian organizations.

The Russian-Ukrainian war is also posing a significant threat to global food security. Many low-food-deficit countries that rely heavily on food imports from Russia and Ukraine are facing food shortages and higher prices, which jeopardize their ability to meet basic consumption needs. Countries that import large amounts of wheat from these two nations have seen their food security compromised, as their usual supplies are disrupted.

In response to these challenges, the affected nations need to find alternative sources of grain and other foodstuffs to mitigate the impact of the crisis. This urgent need is reflected in the increasing global concern over the war's long-term impact on food supply chains and the stability of food prices worldwide. As the situation unfolds, the world will need to develop adaptive strategies to ensure global food security remains intact.

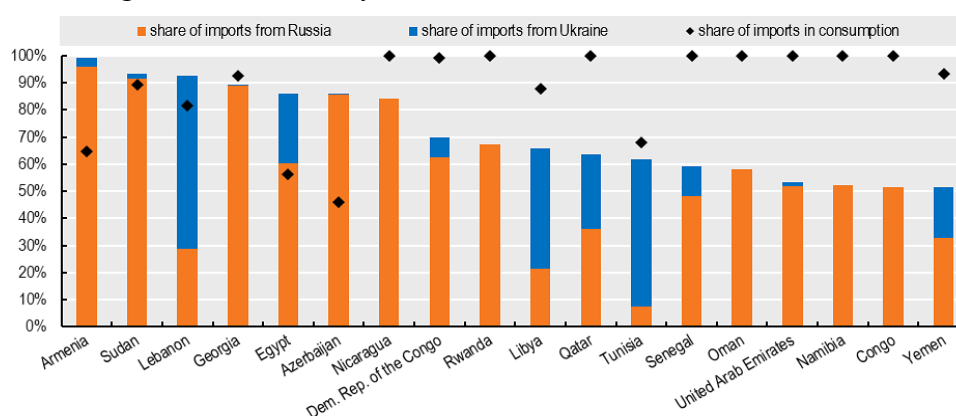


Fig. (3): Dependence on wheat imports from Russia and Ukraine during the period (2018-2022)

Source: UAE Central Bank, (2021). Annual Report

This study addresses the significant economic repercussions of the Russian-Ukrainian crisis, with a particular focus on global food security. The ongoing conflict has disrupted global food supply chains, particularly wheat and other agricultural commodities, which have seen a dramatic increase in prices. According to the AMIS (2022), while the global food supply in June 2022 remained sufficient, the markets are fragile, and trade flow adjustments, along with rising energy costs, have contributed to price increases in agricultural commodities.

The FAO's (2022) Food Price Index reached its highest level in March 2022, driven primarily by vegetable oils and cereals. Despite a slight decline in April and May 2022, prices remained significantly higher than in 2021. These price increases are particularly detrimental to vulnerable populations in Low-Income Food-Deficit Countries (LIFDCs), where a substantial portion of household income is spent on food.

In the worst-case scenario, if Ukraine were only able to harvest 25% of its territory, wheat prices could increase by 19%. If Russian exports were also reduced by 50%, wheat prices would

surge by 34%. These disruptions in supply have led to higher prices for agricultural commodities, further threatening global food security and contributing to a rise in undernourishment.

The war in Ukraine has had a disparate impact on emerging markets and low-income developing countries, which rely heavily on food imports and are already struggling with the financial consequences of the COVID-19 pandemic. Despite the financial support received from some developed economies, many of these countries lack the resources to mitigate the economic shocks caused by the war. The IMF report (2022) highlighted that these nations do not have sufficient financial space to withstand the combined effects of the pandemic and the war. In contrast, some commodity exporters, especially those dealing with oil, stand to benefit from the crisis.

The rise in food prices, especially wheat, corn, and fertilizers, has had widespread consequences. Wheat prices jumped by 53% in the first week of March 2022 compared to January, and corn prices rose by 23%. Fertilizer prices also skyrocketed due to disruptions in supplies from Russia and Belarus, both major exporters of fertilizers. This has led to a ripple effect on energy prices, which have quadrupled, the highest increase since the 1973 oil crisis.

The war has had substantial consequences on global food security, particularly for countries that are highly dependent on food imports from Russia and Ukraine. Countries already struggling with hunger and food insecurity are bearing the brunt of the increased costs and shortages. Disruptions in global food supply chains have been exacerbated by rising transportation costs, with sea freight and container shipping prices reaching record highs.

7. Conclusion

The Russian-Ukrainian crisis has had a significant negative impact on global food security, exacerbating challenges faced by food-importing countries, especially in low-income regions. The conflict has disrupted global food supplies, led to an increase in food prices, and threatened the stability of food security for millions of people worldwide.

8. Results

1. There was a significant rise in the price of wheat and corn, with future projections indicating further increases.
2. Fertilizer prices saw record increases due to the conflict, affecting agricultural production worldwide.
3. Energy prices surged to unprecedented levels, impacting global supply chains.
4. Vulnerable countries, particularly in food-insecure regions, have been severely affected by the rising costs of food and energy.

9. Recommendations

1. The international community should establish legal mechanisms to prevent armed conflicts due to their economic and social repercussions.

2. More research is needed to analyze the long-term effects of the Russian-Ukrainian crisis on global food security.
3. Governments should explore reclaiming desert areas for agriculture, focusing on producing essential food and goods, and working to address water shortages through desalination.
4. There should be a concerted effort to increase agricultural production through expanding suitable lands for agriculture, adopting advanced agricultural technology, improving water management, and embracing green energy solutions.

This study concludes that while some nations may gain from higher commodity prices, the overall global economic outlook is grim, and the long-term effects on food security will require urgent attention and adaptive strategies from the international community.

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Ethics Declarations

This study was conducted in accordance with the Declaration of Helsinki (1964) guidelines and was approved by the Research and Ethics Committee of The University of Jordan, Jordan. The following ethical principles were strictly followed throughout the research process:

- The principle of voluntary consent (Informed consent was obtained from the relevant authorities at The University of Jordan).
- The principle of minimizing risks for participants.
- The principle of confidentiality.
- The principle of informing participants about the research content and objectives.
- The principle of mandatory documentation of research stages and results.
- The principle of reliability of the research methodology and instruments used.
- The principle of validity in processing research data.

Data Availability Statement

The datasets collected and analyzed during this study are available upon request from the researcher.

Funding

No funding was received to conduct this research.

Conflicts of Interest

The author declares no conflict of interest.

Author Contribution

- Ahmed Al-Hiyary conceptualized and designed the study, as well as collected and analyzed the data.
- The first draft of the manuscript was written by Ahmed Al-Hiyary.
- The researcher reviewed and edited the manuscript and approved the final version for publication.

Consent for Publication

The author consents to the submission of this paper for publication and, pending the editorial board's decision following the peer-review process, agrees to its publication. The work has not been previously published nor submitted to any other journal for consideration.

References

- Al-Subaitly, M. (2002). *The economic and political repercussions of the Russo-Ukrainian war in Africa*. King Faisal Center for Research and Islamic Studies, 1(1), 1–4.
- AMIS. (2022). *AMIS market monitor* (No. 99). Available at: <https://docs.google.com>
- Behnassi, M., & El Haiba, M. (2022). Implications of the Russia–Ukraine war for global food security. *Nature Human Behaviour*, 1(6), 754–755.
- Berlinger, P. (2022). Ukraine war exacerbates famine in the Global South. *Helvetas*. Available at: <https://www.helvetas.org/en/switzerland>
- Bouchaia, H. (2022). Is nuclear war imminent? Quoted from the link: www.annaharar.com
- Brück, T. (2016). The relationship between food security and violent conflict. Available at: <https://isdc.org/wp-content/uploads>
- Byjoel, B. (2022). War in Ukraine could plunge world into food shortages. *National Geographic*. Available at: <https://www.nationalgeographic.com>
- Caitlin, W. (2022). Food is Russia's silent weapon. *Newsweek*, June 22, 2022.
- FAO. (2021). *State of food security and nutrition in the world*. Available at: <https://docs.wfp.org/>
- FAO. (2022). The importance of Ukraine and the Russian Federation for global agriculture: 10 June 2022 update. Available at: <http://file://main.oecd.org/Homedir2>
- Glauber, J., & Laborde, D. (2022). How will Russia's invasion of Ukraine affect global food security? *International Food Policy Research Institute*, February 24, 2022.
- Harvey, F. (2022). Ukraine invasion may lead to worldwide food crisis, warns UN. *The Guardian*. Available at: <https://www.theguardian.com/world>

- Hassen, T., & El Bilali, H. (2022). Impacts of the Russia-Ukraine war on global food security: Towards more sustainable and resilient food systems? *MDPI*, 1(11), 1–17.
- Havlik, P. (2014). *Economic consequences of the Ukraine conflict*. Policy Notes and Reports, (14), 1–32.
- IEA. (2022). *Imports/exports*. Available at: <https://www.iea.org/data-and-statistics>
- Kemmerling, B., Schetter, C., & Wirkus, L. (2022). The logics of war and food (in)security. *Global Food Security*, 33, 100630-100642.
- Kibrom, A. (2022). *International Food Policy Research Institute*, CGIAR Research Center, Washington.
- Kyiv School of Economics. (2022). Agricultural war damages review. Ukraine. Available at: <https://kse.ua/agricultural-war-damages-review/>
- Nicas, J. (2022). Ukraine war threatens to cause a global food crisis. *New York Times*. Available at: <https://www.nytimes.com/2022/03/20>
- Oil World. (2022). Available at: <https://www.oilworld.biz/>
- Posen, A. (2022). The end of globalization? The impact of the Russian war in Ukraine on the global economy. Translated and revised by Yasar Abu Khashum. *PLO Research Center*. Available at: <https://www.prc.ps/wp>
- Rice, B., Hernandez, M., Glauber, J., & Vos, R. (2022). The Russia–Ukraine war is exacerbating international food price volatility. Available at: <https://www.ifpri.org/blog/>
- Rivlin, P., & Parker, J. (2022). The Ukraine war and the Middle East: The rich get richer, and the poor get poorer. *Middle East Economy, Iqtisadi*, 12(3), 1–15.
- Rivlin, P. (2012). Winners and losers in the Middle East economy. *Middle East Economy, Iqtisadi*, 2(4), 1–7.
- Saudi Monetary Agency. (2022). *Key economic developments, First Quarter*. OPEC, Annual Statistical Bulletin.
- The FAO Food Price. (2022). Index makes a giant leap to another all-time high in March. *Release*. Available at: <https://www.faberg/wordfcotsituation/>
- UAE Central Bank. (2021). *Annual report*.
- UN Global Crises Response Group on Food. (2022). Energy and finance.
- UNCTAD. (2022). Global impact of war in Ukraine on food, energy and finance systems. Available at: <https://news.un.org>
- UNHCR. (2022). Ukraine refugee situation. Available at: <https://data2.unhcr.org/en>
- USDA. (2022). FAO. Available at: <https://www.fao.org/3/cb9427en/cb9427en.pdf>
- World Food Programme. (2022). FAO and WFP warn of looming widespread food crisis as hunger threatens stability in dozens of countries. Available at: [/www.fao.org/asiapacific](http://www.fao.org/asiapacific)