Assessing the Impact of the Russia-Ukraine War on Global Food Security

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ABSTRACT

This study examined the degree to which the Russian-Ukraine conflicts impacted on global food security given that these two countries are major exporters of food and other commodities globally. The Intractable Conflict Theory which offers insights into why certain conflicts persist, like the one between Russia and Ukraine was applied to explain this study. The historical and descriptive research methods were utilised for this study. The design allowed the researcher the opportunity of obtaining data from secondary sources for literature and thematic analysis of the study. The study found amongst others that the prices of all the commodities shot up due to two factors. The prices of agricultural commodities like wheat, sunflower oil, maize as at January 2022 before that war, when compared to March 2022 indicated a sharp increase, which was a direct impact of the Russia-Ukraine war. In view of the above, it was recommended amongst others that all political leaders should seek for ways to ensure that peace returns to this region, especially when seen from the implications of this war for food insecurity on a global scale due to low production and poor supply chain.

Keywords: Agricultural commodities; Food security; Global economy; Invasion; Russia-Ukraine war

INTRODUCTION

The origins of the Russian-Ukrainian conflict may be traced to millennia of interconnected history. Ukraine and Russia together represent almost 30% of worldwide wheat exports. The war has obstructed planting, harvesting, and export logistics, resulting in a significant increase in world wheat prices. Countries in the Middle East and North Africa, primarily dependent on wheat imports from these two nations, have seen severe food shortages and inflation (FAO, 2022). Like wheat, Ukraine's maize output and exports have been significantly affected. This disruption has intensified food insecurity in areas reliant on maize imports for human consumption and animal feed, leading to elevated food costs and economic instability (World Bank, 2022; OECD-FAO, 2022).

The Russian-Ukrainian conflict has significantly impacted global food security, particularly affecting West Africa. This disturbance has intensified food insecurity in an area already contending with other socio-economic difficulties. Ukraine and Russia are among the foremost global exporters of wheat, maize, and sunflower oil. The conflict has markedly diminished the export capabilities of these two nations, resulting in shortages on the worldwide market. West African nations, reliant on these imports to satisfy their food needs, have seen significant supply interruptions (FAO, 2022).

The Russian-Ukrainian war has delayed the delivery of essential agricultural inputs, like fertilisers and gasoline, vital for local food production in West Africa. Russia is a prominent worldwide provider of fertilisers, and the war has resulted in a substantial decrease in the availability of these commodities on the global market. The subsequent rise in fertiliser costs has made it more challenging for West African farmers to get the necessary inputs to sustain or enhance their crop yields (FAO, 2022).

This study therefore aims to investigate the degree to which the Russian-Ukraine conflicts have impacted on global food security. Specifically, the study aims to:

i. evaluate the immediate impacts of the Russian-Ukrainian conflict on global food prices and availability;

ii. analyze the impact of the Russian-Ukrainian conflict on the production and export of key agricultural commodities.

REVIEW OF RELATED LITERATURE

Conflict

Agah and Ikenga (2007) are of the view that conflict is by nature is a natural phenomenon, and this stems from the fact that in every society, there are bound to be disputes, claims, counterclaims, contestation over resources, values, and wealth which are part and parcel of human interaction. This pertains to the discordance of objectives, principles, and interests regarding limited resources like as power, economy, and natural resources, among others. Conflict often arises from a confrontation of interests among people, organisations, or nations due to their pursuit of conflicting or incompatible objectives. Coser (2018) perceives war as a complex and evolving phenomenon that reflects changes in technology, geopolitics, and human societies. The key characteristics of war include violence, organized conflict, and the pursuit of political and strategic objectives. Wars may vary in duration, involve diverse participants, and may be subject to rules and conventions aimed at minimizing harm to civilians and combatants.

Food Security

As per the Food and Agriculture Organisation of the United Nations (2012), food security is a fundamental concept that can be understood as a state in which all people, at all times, have guaranteed access to enough quantity and quality of food that is safe for consumption and that contains the right nutrients for a productive and healthy life. Safety and nutrition of the food along with the existence of food in the first place are all well captured in this definition. Anderson (2020) similarly defines food security as a state where every person has the physical capacity and the economic means to purchase a sufficient, secure, and healthy food supply.

In that vein, Adebayo (2010), again cited by Ajayi and Fashagba (2014), further splits the food security concept into four different yet closely interrelated aspects. First comes the availability of food. In the context of the household, this aspect refers to the stable and sufficient supply of food. For a continent or a country to be considered really food secure, that continent or country must ensure that food is always available to all its residents, and that the food provided to them is of good quality and in sufficient quantity. Food accessibility comes next. This dimension is greatly influenced by income levels. For people to be regarded as food secure, they need to have the financial means or other ways to acquire the specific foods they require. Food usage is the third dimension. This entails the eating of food that is not only sufficient in quantity but also without any health risks and rich in nutrients.

Empirical Literature

Ozili (2022) investigates the global economic consequence of the Russia-Ukraine war over a four-month period from December 2021 to March 2022. The study used the Pearson correlation and two-stage least square regression methods to assess the impact of Russia invasion of Ukraine on the global economy. Overall, the invasion led to a sustained rise in inflation both in the combatant countries and non-combatant countries. Although conflict resolution between Russia and Ukraine was brokered by Turkey and Israel, the economic effect of the crisis still lingered on in many parts of Europe and beyond Europe.

Zaid and Khan (2022) studied the Russian-Ukrainian war and its economic implications on the prices of strategic commodities. Russia-Ukraine war has increased systemic vulnerabilities of the global economy. The study relied on the comparative analysis approach to compare the prices of commodities before and after the

war in order to identify the impact of the Russian-Ukrainian war on prices. The results indicated that the Russian-Ukrainian war negatively affected the prices of food commodities such as wheat, maize and oil. The study found that some mining commodities such as aluminum, nickel and zinc were negatively affected by the war. In view of this war and the possibilities of such wars in future, the study recommended that there is a need to accelerate the transition towards clean energy by increasing investment in clean technologies such as solar, wind, green hydrogen, and environment-friendly fuel, as many nations now aim to achieve net-zero energy systems by or before the year 2050.

Nasir *et al.* (2022) examined the impact of the Russian-Ukrainian conflict on global food crops. Descriptive analysis and literature review were utilized to achieve the objective of the study. However, the war has disrupted food production in Ukraine. Estimated Ukrainian wheat, soybean, and maize production in 2022-2023 fell precipitously. On the other hand, Russian production of these three food products shows positive growth during the same period. Furthermore, the global supply chain and food trade are hampered, causing an increase in the world's food prices. From March to May 2022, the average global price of wheat, soybeans, and maize increased dramatically compared to during and before the COVID-19 pandemic. Finally, this poses a danger to global food security, particularly for low-income countries that depend heavily on food imports from both countries. Therefore, all countries must be prepared for the possibility that the Sustainable Development Goals cannot be achieved.

Hussein and Knol (2023) studied the Ukraine war, food trade and the network of global crises. Quantitative data on food prices and trade and production volumes were combined with a qualitative study of the wars socio-political ripples in at-risk regions to examine the effects of the war on the global food trade and put these in a theoretical framework, outlining the links between geopolitics, socio-economic strains, disruptions to global commodity markets and food insecurity. Amongst other findings, the first-order effects of the Russian invasion have been most evident in the decline in Ukrainian agricultural output. The war led to the destruction of production, storage and processing facilities and the loss of productive regions as a result of the occupation or active combat.

Theoretical Framework

The Intractable Conflict Theory was used to explain this study. The theory provides a framework to understand its persistence, deep-rooted causes, and the difficulty in resolving it through conventional diplomacy. The theory was first proposed by Azar (1985) and later expanded upon by Louis Kriesberg (1998), who offered insights into why certain conflicts, like the one between Russia and Ukraine, become prolonged and difficult to resolve. The key assumptions of the Intractable Conflict Theory are that they are conflicts that are deeply rooted in historical grievances, narratives, and collective memories. These conflicts are not merely about territory, power, or resources but are entwined with issues of identity and legitimacy. The conflicts involve parties who believe they face existential threats to their identity, security, or survival.

Furthermore, these conflicts are often perceived as zero-sum games, where one party's gain is automatically seen as the other's loss. This view complicates conflict resolution because compromise is interpreted as weakness. Another feature of this conflict is that they are marked by emotional and psychological barriers. Emotions such as fear, hatred, and humiliation play a significant role in prolonging intractable conflicts. These emotions are compounded by the personal and collective traumas experienced by both sides. Finally, intractable conflicts often involve asymmetries of power, with one side having more resources, influence, or military capacity. For instance, Russia, as a major global power, has superior military and economic capabilities compared to Ukraine. However, Ukraine's alliances with Western powers, including NATO and the European Union, help to balance this asymmetry to some extent, while also drawing external actors into the conflict.

According to Intractable Conflict Theory, protracted conflicts like the Russia-Ukraine war tend to escalate because the stakes are viewed in existential terms, not just for the directly involved parties but also for broader geopolitical players. In this case, Europe's heavy reliance on Russian energy has meant that the conflict directly threatens its economic security and stability. The inability to find a swift resolution; due in part to the

entrenched zero-sum mentality and emotional-nationalistic factors; has caused persistent instability in global energy markets.

Additionally, Russia's use of energy as a geopolitical weapon; limiting or cutting off supplies to Europe in retaliation for sanctions; highlights how intractable conflicts can affect global economic dynamics. European nations have been forced to diversify their energy sources, creating a shift in global energy trade patterns, while countries like China and India have increased their purchase of discounted Russian oil, further entrenching geopolitical divides.

The theory emphasizes how intractable conflicts, particularly those involving major global players, can create systemic disruptions that extend far beyond the immediate battlefield. The Russia-Ukraine war has intensified global food insecurity, particularly in vulnerable regions, exacerbating humanitarian crises and political instability. For many countries reliant on affordable grain from Ukraine, the conflict has become a critical issue of survival, transforming what began as a regional war into a global food security crisis.

METHODOLOGY

The historical technique was adopted for this study. This research technique does not only focus on analysing and dissecting the manner in which messages or information were sent in the past, but it was also especially geared towards investigating a particular category of social artifacts, which are often composed of written documents (Babbie, 2007). A wide variety of documents, such as government records, letters, diaries, ancient newspapers, published reports, and books, are included in this category. Those who are knowledgeable in research methodologies are of the opinion that employing the historical approach provides a number of unique benefits. For instance, Pandey and Pandey (2021) have acknowledged that historical research has the potential to provide significant insights into the impacts of a variety of methods that have been used in the past. Gaining an understanding of these historical repercussions may therefore assist in the development of more efficient plans for future activities, so enabling us to gain knowledge from the past. In addition, this approach is particularly effective in explaining the "how" and "why" behind a wide variety of ideas and practices that has evolved over the course of time and are now widely recognised or widespread in educational institutions such as schools and universities.

Due to the fact that this study is descriptive in nature, it was possible to investigate the issue by diving into the opinions and viewpoints of a variety of distinct groups of people (different sets of respondents). In addition to this, it made it possible to conduct an exhaustive review of a wide range of academic literatures that were closely connected to the subject matter of the research. The use of this comprehensive method for collecting data, which included both firsthand perspectives and pre-existing academic discourses, contributed to the development of a comprehensive and multi-faceted knowledge of the topic at hand. For the purpose of summarising, the researcher made sure to take the necessary precautions to guarantee impartiality throughout each and every stage of the research project, beginning with the initial gathering of data and continuing through its methodical analysis and, eventually, its meticulous interpretation. This dedication to objectivity is of the utmost importance in descriptive research because it guarantees that the findings exactly represent the reality that was seen without any personal biases that may potentially lead to the results being distorted.

This study relied on secondary sources of information. A secondary source of data is defined as "the set of data that has been compiled or authored by another person, archives, in the form of documents collected for a purpose other than the present one for which it is being used, as articulated by Asika (2006:29).

The study employed secondary qualitative data set, with a month-to-month comparative analysis. Also used were percentage and absolute change computation. For a proper understanding of the impact of the war on global food security, the before and after war impact assessment were also carried out, in addition to the trend and cross-commodity analysis. Finally, the contextual interpretation was informed by the global supply dependencies.

Data Presentation

The focus of this section of the study was dedicated to the presentation of data on the global food prices and availability; agricultural commodities such as wheat, maize, *etc*. These data and all relevant information were obtained from the World Bank commodity price data bank and compiled by the researcher for the purpose of this evaluation.

For the Food Commodities, the Ukraine-Russia area is a significant food producer and exporter of basic foodstuffs like wheat. Approximately 30% of world wheat exports come from Ukraine and Russia, whereas 65% of global sunflower exports come from this area. Considering how integrated and constrained these markets have become, even a slight change in supply may significantly affect pricing.

i. Wheat and Oil

Table 1 shows the Monthly Change in the Price of Wheat and Oil from May 2021 to May 2022 (in terms of both dollar amounts and percentages). Based on data in Table 4.1, wheat (US) attained a price of $522.29 ($/mt) in May 2022, an increase of 5.45% from April to May 2022 and a monthly change of $27.01. The price of wheat (US) rose by 40% in May 2022, compared to January 2022 before the war.

Table 1: Discretion of the Monthly Change (Amount and Percentage) of the Price of Wheat and Oil

Period Monthly	Wheat US HRW ($/mt)	Change amount	Change (%)	Palm Oil ($/mt)	Change amount	Change (%)	Sunflower ($/mt)	Change amount	Change (%)
2021M05	297.25	-	-	1136.46	-	-	1584.59	-	-
2021M06	285.55	-11.70	-3.93	1004.42	-132.0	-11.61	1296.75	-287.8	-18.16
2021M07	294.27	8.72	3.05	1062.99	58.57	5.83	1282.01	-14.74	-1.13
2021M08	324.52	30.25	10.27	1141.82	78.83	7.41	1355.69	73.68	5.74
2021M09	337.55	13.03	4.01	1181.38	39.56	3.46	1309.52	-46.17	-3.40
2021M010	354.67	17.12	5.07	1310.25	128.87	10.90	1420.53	111.01	8.47
2021M011	379.45	24.78	6.98	1340.65	30.40	2.32	1415.62	-4.91	-0.34
2021M012	376.81	-2.64	-0.69	1270.29	-70.50	-5.24	1361.83	-53.79	-3.79
2022M01	374.24	-2.57	-0.68	1344.79	74.50	5.86	1411.73	29.90	3.66
2022M02	390.50	16.26	4.34	1522.36	177.57	13.20	1499.12	87.39	6.19
2022M03	486.30	95.80	24.53	1776.96	254.60	16.72	2361.13	862.01	57.50
2022M04	495.28	8.98	1.84	1682.74	-94.22	-5.302	2275.76	-85.37	-3.61
2022M05	522.29	27.01	5.45	1716.92	34.18	2.03	2079.30	-196.4	-8.63

Source: World Bank Commodity Data (June, 2022)

According to Table 1, Palm oil and sunflower oil prices increased to 1776.96 ($/mt) and 2361.13 ($/mt) in March 2022, respectively, up 16.72% and 57.50% from their February 2022 prices. Prices of palm oil and

sunflower oil increased by 32% and 67%, respectively, in March 2022 after the Russian-Ukrainian conflict, compared to January 2022 before the war. Wheat and oil global monthly average prices before and after the Russian-Ukrainian war are shown in Figure 1 from M05/2021 to M05/2022.

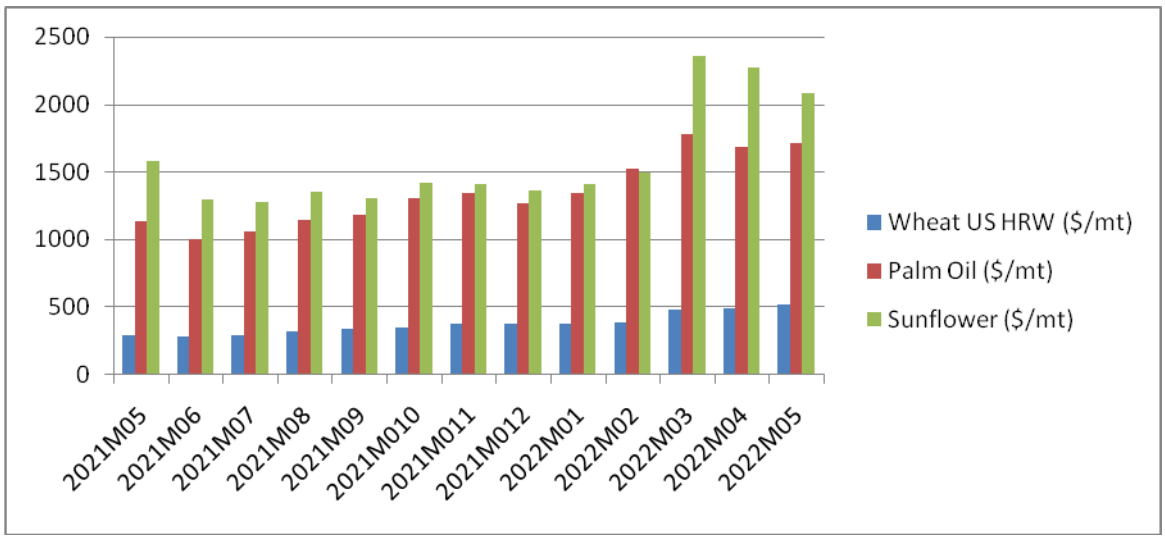

Figure 1: Discretion of the Global Monthly Price changes of Wheat and Oil (M05/2021 to M05/2022).

Source: World Bank Commodity Data (June, 2022)

ii. Sugar and Maize

The data in Table 2 has revealed that the global price of sugar was not much affected by the Russian-Ukrainian war. As observed in Table 2, the average price of sugar (world) and sugar (US) reached 0.42 ($/kg) and .80 ($/kg) by the end of March 2022, with an increase of .03 and .02 dollars and by a percentage of 7.6% and 2.5% respectively from the February 2022 price, which is not a large percentage compared to the prices of other commodities. Sugar prices before and after the war were not affected much, as shown in the table. The prices of sugar before and after the war had started were not affected that much. The price of sugar (world) and sugar (US) in March rose by 5% and 2.5%, respectively, compared to January 2022 before the war. This is because Russia and Ukraine are outside the top 15 world sugar exporting countries, of which Brazil and India represents 52% of the world's exports.

On the other side, the global price for Maize reached 335.53 dollars ($/mt) in March 2022, with a monthly price change of 42.91 dollars and a 14.66% increase over February 2022, as shown in Table 2. The price of Maize in April 2022 after the war jumped by 26% compared to January 2022 before the Russian-Ukrainian war.

Table 2: Discretion of the Monthly Change (Amount and Percentage) of the Price of Sugar and Maize (M05/2021 to M05/2022).

Period Monthly	Sugar World ($/Kg)	Change amount	Change (%)	Sugar US ($/Kg)	Change amount	Change (%)	Maize ($/mt)	Change amount	Change (%)
2021M05	0.38	-	-	0.71	-	-	305.31	-	-
2021M06	0.38	0.00	0.00	0.73	0.02	2.8	292.56	-12.75	-4.17
2021M07	0.39	0.01	2.6	0.80	0.07	9.5	278.43	-14.13	-4.82
2021M08	0.43	0.04	10.2	0.76	-0.04	-5	256.61	-21.82	-7.83

2021M09	0.43	0.00	0.00	0.79	0.03	3.9	235.62	-20.99	-8.18
2021M010	0.42	-0.01	-2.3	0.82	0.03	3.7	239.65	4.03	1.71
2021M011	0.43	0.01	2.3	0.82	0.00	0.00	248.72	9.07	3.78
2021M012	0.42	-0.01	-2.3	0.81	-0.01	-1.2	264.54	15.82	6.35
2022M01	0.40	-0.02	-4.7	0.78	-0.03	-3.7	276.62	12.09	4.56
2022M02	0.39	-0.01	-2.5	0.78	0.00	0.00	292.62	16.00	5.78
2022M03	0.42	0.03	7.6	0.80	0.02	2.5	335.53	42.91	14.66
2022M04	0.43	0.01	2.3	0.81	0.01	1.2	348.17	12.64	3.76
2022M05	0.43	0.00	0.00	0.80	-0.01	-1.2	344.84	-3.33	-0.95

Source: World Bank Commodity Data (June, 2022)

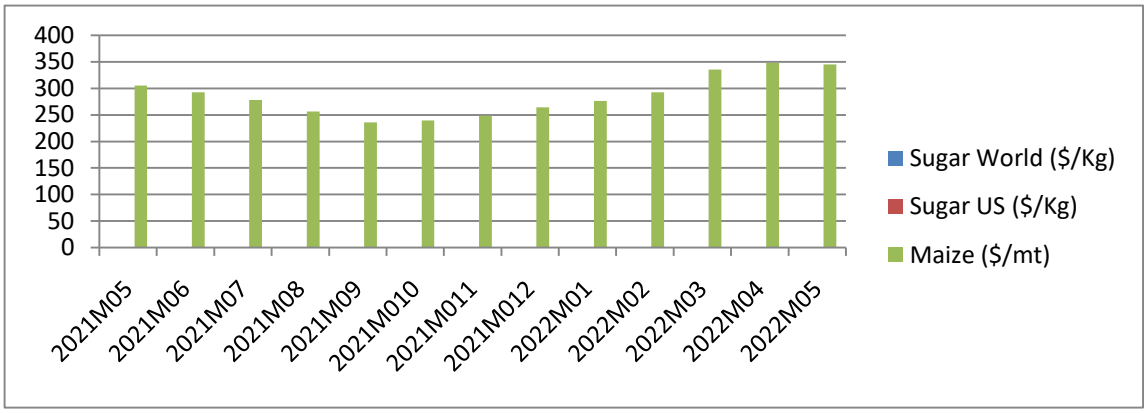

Figure 2: Discretion of the Global Monthly Price changes of Sugar and Maize (M05/2021 to M05/2022).

Source: World Bank Commodity Data (June, 2022)

In affirming that the price of sugar was not really affected by the war in Ukraine due to the fact that Russia and Ukraine are not major exporters of sugar on a global scale, the Figure 2 above has reflected the prices of maize before the war and after the war had begun.

One of the consequences of the crisis is the increase in the world prices, especially for primary commodities (e.g., fuels, food, fertilizers as well as wheat and maize), as indicated in Fig. 1 and Fig. 2 (World Bank Commodity, 2023). The higher commodity prices have added to global inflationary pressures and are posing threats to food security, trade flows and external balances across many countries.

DISCUSSION OF FINDINGS

Based on the evaluation of the research questions, it was observed that the price of wheat as well as other agricultural commodities had a sharp increase around May 2022 after the War had begun as compared to January 2022 when the War had not begun. This indicates that the Russian-Ukrainian War negatively impacted the prices of wheat and worldwide. This scenario also played out with other agricultural commodities which Russia and Ukraine are major exporters. This finding gains support from previous studies by Helleger (2022) that the War had a negative impact on the prices of agricultural produce especially the ones that Russia and Ukraine are major producers. The finding is also consistent with Ozili (2022) whose study also led to similar findings that Russia invasion of Ukraine and the COVID-19 pandemic jointly led to a significant increase in

the world price of food and crude oil. The rise in the world food price index after the invasion was driven by a significant increase in the price of dairy and oils.

This study has also led to the finding that the Russian-Ukraine War had a negative impact on the production and export of key agricultural commodities. This finding is consistent with Nasir *et al.* (2022) whose work led to the conclusion that Russia and Ukraine play essential roles in world food production and trade. However, the war has disrupted food production in Ukraine. This poses a danger to global food security, particularly for low-income countries that depend heavily on food imports from both countries. Agreeing with the above, the study of Hussein and Knol (2023) found that the first-order effects of the Russian invasion have been most evident in the decline in Ukrainian agricultural output. The war led to the destruction of production, storage and processing facilities and the loss of productive regions as a result of the occupation or active combat.

The fluctuations so observed in the prices of palm oil, wheat, sugar, maize and sunflower reveal key reactions beyond the simple market because they open-up the structural vulnerabilities across the different types of economies. This implies the consequences brought about by the Russia-Ukraine conflict were unevenly distributed, thereby reflecting the varying levels of production capacity, resilience on global supply chains, income levels and food import dependence of different countries. For instance, the low-income countries of the sub-Saharan Africa, the Middle East as well as parts of the South Asia were worst hit by these commodity shocks. These countries have limited capacity for domestic production, hence, their reliance on the imports of commodities like maize, vegetable oils and wheat. The price surge of these commodities translated into food inflation, increased risk of hunger and malnutrition, higher import bills, worsening external balances and weakening local currencies.

For the middle-income countries, even with their larger foreign reserves, diversified import partners, better-developed domestic agricultural sectors and more robust policy instruments like the strategic grain reserves, they were still faced with challenges like reallocation of import sources to avoid dependence on disrupted Black Sea routes, inflation management due to overall consumer price inflation, pressure on government budgets as a result of increased subsidy cost and emergency support to farmers. On the flipside, some emerging economies also took advantage of the higher global prices by increasing their exports.

The higher-income countries like the North America, EU, and parts of East Asia experience price increase but their diversified markets and strong policy support aided the mitigation of direct economic shock. However, their immediate challenges were managing inflationary spillovers for food and energy; responding to global humanitarian needs since the rising food prices led to hunger in regions that depend more on aid; as well as stabilizing global grain markets. More so, food exporting countries gained initially but later struggled with domestic inflation and rising input costs. On the whole, these disparities underscore the need for multilateral coordination including food assistance, market stabilization and investment in climate-resilient agriculture, to reduce exposure to future shocks.

CONCLUSION AND RECOMMENDATIONS

This study was conducted specifically to evaluate the immediate impacts of the Russian-Ukrainian conflict on global food prices and availability. The findings of this study demonstrated that the prices of all the commodities shot up due to two factors. First was the Covid 19 that the global community was recovering from, then the Russia and Ukraine war that escalated the prices of most commodities globally. Given the impact of the war on both countries as well as the global community, all political leaders should seek for ways to ensure that peace returns to this region, especially when seen from the implications of this war for food insecurity on a global scale due to low production and poor supply chain. This is especially so because the output of agricultural production in peace time cannot be compared to the output during war time. Accordingly, as an intervening variable to this study, the humanitarian crises brought about by this war also pose a threat to neigbhouring countries in the region. Hence, a call for peace by world leaders is inevitable.

The analysis of the prices of wheat, palm oil and sunflower oil from May 2021 to May 2022 has revealed weak low-income countries are to instabilities in global commodity market. This calls for investment in domestic agricultural productivity, improving macroeconomic management, increasing regional cooperation and

strengthening social protection. By so doing, low-income countries can significantly, reduce their exposure to future shocks and enhance food and economic security.

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