

Impacts of the Russia-Ukraine war on global economy with reference to the case of Algeria: Energy gains and food concerns

Assia Brahimi

Lecturer A, High school of management Tlemcen, Algeria

ORCID ID: 0009-0009-2816-6428

Email: bra.assia@gmail.com

Azeddine Ouadi

Lecturer, B, University Akli Mohand Oulhadj, Bouira, Algérie

Email: a.ouadi@univ-bouira.dz

Imane Hamoudi

Ph.D, University Abou ber belaid, Faculty of Economy, Tlemcen, Algeria

ORCID ID: 0009-0001-1846-4992

Email: imane.hamoudi@univ-tlemcen.dz

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Abstract

The Russian-Ukrainian war caused disturbing global repercussions, at a time when the world was on its way out of the Corona pandemic, which had the most severe impact on developing countries. The most prominent repercussions of the Russian-Ukrainian war are the fluctuations in energy prices, especially COVID-19, crude oil and natural gas. One of the most severe of these effects is the food price crisis, especially wheat, which increases the possibility of an imminent global food crisis. This analytical paper deals with the repercussions of the Russian-Ukrainian war. On the global economy and the most important economic and social effects, with a special focus on future trends and expectations.

1. Introduction

Over the past two years, the emerging coronavirus has posed many challenges to global food security, as increased demand as a result of recovery, supply chain bottlenecks, and climate change policies have caused food and energy prices to rise at significant rates. During the period from May 2020 to February 2022, global food prices increased by about 50% and energy prices increased by about 100%, according to data from the Food and Agriculture Organization and the International Energy Agency. The Russian-Ukrainian crisis added another major challenge to global food and energy security. (Abdel Qader, 2022, p. 651)

In the early hours of 24 February 2022, Russia began a full-scale military invasion of Ukraine, resulting in civilian casualties and the destruction of vital infrastructure. In addition to significant human fatalities and devastation, the war has jeopardized global food security by disrupting agriculture production and trade in one of the world's most significant food-exporting regions. (Fazle Rabbi, Ben Hassen, El Bilali, Raheem, & Raposo, 2023)

According to the World Bank, a worldwide recession and possible stagflation are expected due to the conflict, a phenomenon not experienced since 1970. The impacts on the environment, society, and economy are still being understood, and the conflict's length is unknown (Pereira, et al., 2022, p. 277)

Russia's invasion of Ukraine, which appears for a moment to be purely geopolitical, but its economic effects are structural and long-term, and it will lead the world to the inevitability of coexistence with bipolarity again, led by Russia and America again. The sanctions imposed on Russia are within the framework of what is called: soft power. Which Western countries use against every country that contradicts its interests, it also came with reactions in favor of Russia by having a positive impact on the Russian ruble, which became the currency to be paid in as a result of exchanges with Russia, and everyone who does not have the ruble can barter for gold (Saifi, 2022, p. 616)

And with the entry of European-Russian relations into a phase of sharp disagreement, which directly affected the energy sector in general and the natural gas sector in particular, the need arose to find alternatives that guarantee the European tendency to abandon Russian gas by the end of 2023, which offered Algerian gas as a strong alternative to gas. Technically, by virtue of its geographical proximity to European regions. However, the technical advantages face important challenges, which may affect Algeria's competitiveness in this important market, and perhaps the most important of these challenges is: Enhancing new competitors, Qatar and the United States of America are the most important for their market share, in addition to the global market's delinquency towards the LNG industry instead of pipeline gas. (Roulami, 2023, p. 26). Through the above, we are trying through this research paper to answer the following question: What are the repercussions of the Russian-Ukrainian war on the global economy?

Several sub-questions emerge from this question, as follows:

- What are the effects of the Russian-Ukrainian war on energy and food prices?
- What are the repercussions of war on global supply chains?
- What is the impact of the Russian-Ukrainian war on the Algerian economy?

2. Research Methodology:

To answer the problem of this research, the descriptive approach was relied upon because it allows collecting data and facts about the phenomenon under study, i.e. analyzing the impact of the conflict between Russia and Ukraine on many global economic indicators (international trade, supply chains, economic growth, energy prices, food prices. ..), We also relied on the inductive approach in order to analyze and interpret this data and stand on its significance to determine its effects and repercussions and try to extrapolate the future.

In addition, we conduct a literature review to provide a thorough explanation of the descriptive analysis' findings. The literature review was carried out by reading articles published in Scopus, Web of Science, and Google Scholar

3. Results and Discussion :

The Russia-Ukraine War is already having and is expected to continue to have significant negative impacts on global markets for major commodities, particularly in terms of grains, in addition to metal and energy products. The War has forced the closure of all Ukrainian seaports until recently and has resulted in the United States, European Union, and other countries and regions imposing selective sanctions on Russia. There is a concern that the situation is leading to a world food crisis and could compromise the attainment of some important sustainable development goals. (Adam, Zhenhua, & Dan, 2023, p. 1.2)

In this section, we will analyze the economic situation of Russia and Ukraine before the war, and then the impact of the Russian-Ukrainian war on the most important global economic indicators.

3.1. Analysis of the situation of the Russian and Ukrainian economy before the war:

Russia is the largest country in the world in terms of area, with an area of about 17 million square kilometers, a population of 144 million, and a gross domestic product of \$483.5 billion in 2020, or 1.75% of global output, and the volume of this output amounted to \$2,292.5 billion. In 2013, it accounted for 2.96% of global output, and the volume of its foreign trade in goods and services amounted to \$684 billion, or 1.54% of world trade, in 2020. (Abdel Qader, 2022, p. 655)

In 2021, the real GDP growth of Russia reached 4.7 % in general, while the annual inflation rate reached 8.4% in 2021

Russia is the largest exporter of wheat in the world and the largest producer in the world after China and India, and according to the International Energy Agency, Russia is the third largest oil producer in the world after the United States of America and Saudi Arabia, the world's largest exporter of natural gas and the second largest exporter of oil. With about 5 million barrels of oil per day, Russia is also a major supplier of chemical products such as fertilizers and minerals and wood products. To clarify Russia's position more in world trade, we present the following table, which shows the percentage of Russia's exports in world markets as follows: (Hani, 2022, p. 25)

Table 1: Percentage of the most important Russian exports out of world exports based on the World Bank website (World Bank Group , Analysis March -2022) :

Export Type	The Percentage
Natural gas	25.3%
Platinum	23%
Nickel	22.5%
Coal	18%
Fertilisers	14%
Crude Oil	11.4%
Aluminium	10%
wheat	18%

Source: (Hani, 2022, pp. 25-26)

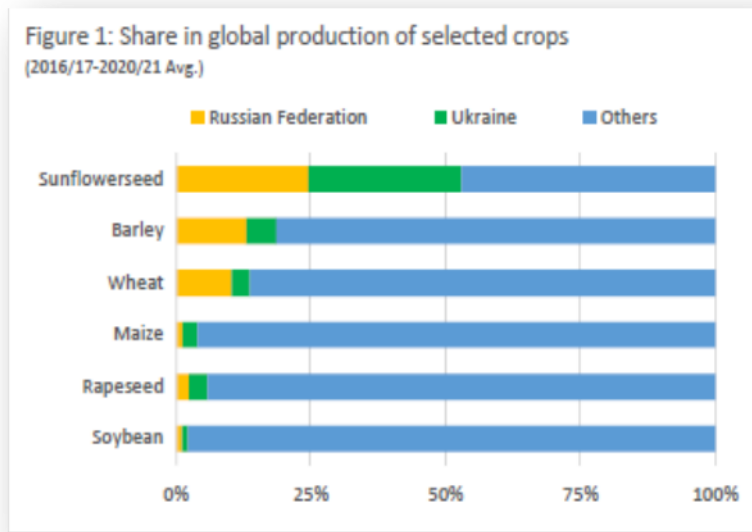
Ukraine has an area of about 0.6 million km², with a population of about 44 million, and its GDP amounted to \$155.5 billion in 2020, and it is located in the lower middle-income countries. (Abdel Qader, 2022, p. 657)

And the economic base of Ukraine is based on the availability of important underground resources, on top of which are raw materials Coal, iron, and energy sources such as oil, gas, and electricity, and this is what helps the development of many industries, especially the heavy and mining industries, and the machinery industry. There are more than 130 iron-producing factories that provide ferrous materials needed for other industries the most important of which is the manufacture of various machines, and the chemical and petrochemical industries occupy an important place. Reliance on it for the production of chemical fertilizers, including nitrogen, which is necessary for the development of agriculture in the country, as the availability of natural conditions and the presence of fertile soil are among the factors that help the growth and development of agriculture in Ukraine, as the area of Ukrainian land suitable for agricultural investment is about 50 million hectares. (Hani, 2022, p. 26)

The Russian Federation and Ukraine are among the most important producers of agricultural

commodities in the world (Figure 1). Both countries are net exporters of agricultural products, and they both play leading supply roles in global markets of foodstuffs and fertilizers, where exportable supplies are often

concentrated in a handful of countries. This concentration could expose these markets to increased vulnerability to shocks and volatility. (FAO, 2022, p. 4)



Source: (Ben Hassen & El Bilali, 2022, p. 8)

Russian and Ukrainian agro-food output and exports have expanded considerably during the last three decades due to intense modernization and automation, making the region the world’s breadbasket . In 2021, Russia and Ukraine exported nearly 12% of the food calories traded globally, making them essential actors in the global agri-food sector . They are significant producers of staple agro-commodities such as wheat, corn, and sunflower oil and Russia is the largest exporter of fertilizers in the world.

Further, Ukraine is one of the top three grain exporters, leading the world in soybean and sunflower oil exports. Ukraine controls 52.2% of the global sunflower oil market. Ukrainian agricultural exports have acquired a rising reputation in China, Egypt, India, Turkey, and the European Union .

Figure 2 shows that in 2021, Ukraine and Russia combined trade accounts for over 34% of world wheat, 17% of corn, 27% of barley, and over 80% and 55% of sunflower cake and oil, respectively. The global trade in vegetable oils and food calories amounts to 10% and 11.80%, respectively. Furthermore, Russia exports 16% of fish (Alaska pollock), 13% of mineral fertilizers such as ammonia, phosphate rock, sulfur, and 16% of finished fertilizers (Fazle Rabbi , Ben Hassen, El Bilali, Raheem, & Raposo, 2023, p. 6)

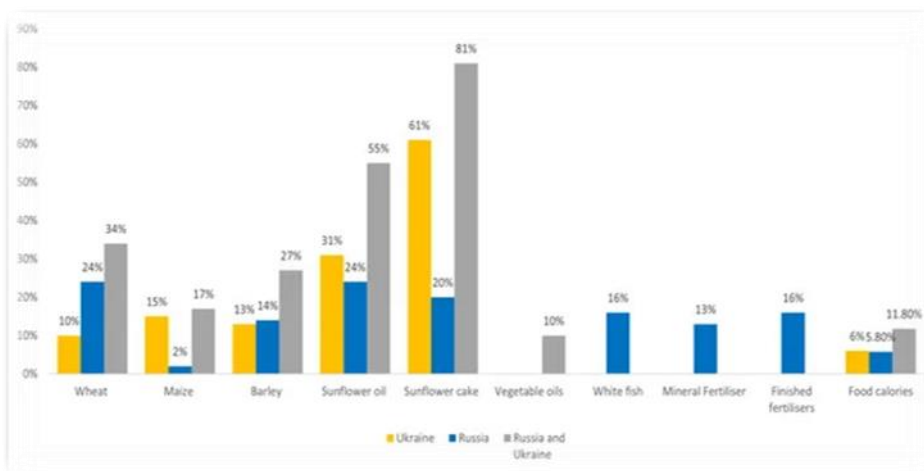


Figure2. The proportion of Ukraine and Russia’s combined global exports in 2021

Source: (Fazle Rabbi , Ben Hassen, El Bilali, Raheem, & Raposo, 2023, p. 7)

The impacts on the maize market depend mainly on Ukraine since Russia is a small producer. Ukraine is the world's fourth-largest maize exporter, accounting for around 15% of the global market. (Ben Hassen & El Bilali, 2022, p. 8)

3.2. War and Energy:

The most obvious result caused by the Russia/Ukraine war has been the increase in energy prices in the world and the serious damage to general trade due to the effect of the embargo on Russia. Ukraine is not indispensable for any major economy in the world. However, the situation for Russia is very different. 1.37 of Russia's GDP consists of imports from countries such as China, USA, Germany, France and Italy. According to IMF reports, Russia's share of global GDP is estimated to be 1.6% in 2022, while Ukraine's overall production is estimated to correspond to 0.2% of world production. (TUNA, 2022, p. 74)

Russia and Ukraine constitute a large proportion of global exports of a large number of strategic commodities. Russia is a major exporter of natural gas and the second largest exporter of crude oil. Russia represents about 25% of global natural gas exports, 18% of coal exports, and 14% of platinum exports.

Crude oil prices continued to rise from their lowest levels since the outbreak of the Corona pandemic, as the monthly change in the global average price of crude oil increased by 20.3% at the end of March 2022 compared to February 2022, to reach \$113/barrel. It increased by 76.1% compared to the price in March 2021. And according to the latest issue in May 2022 of the "Commodity Markets Outlook" issued by the World Bank. The monthly change in the global average price of crude oil declined by 8% in April 2022 compared to last March.(Figure3) .

Brent Crude Oil is a key reference price for oil purchases worldwide as it is priced against this oil. According to daily data released on May 7, 2022 by (Trading Economics) the weekly changes showed fluctuations in the prices of Brent crude futures contracts; It rose to \$112.6/bbl on May 7, 2022

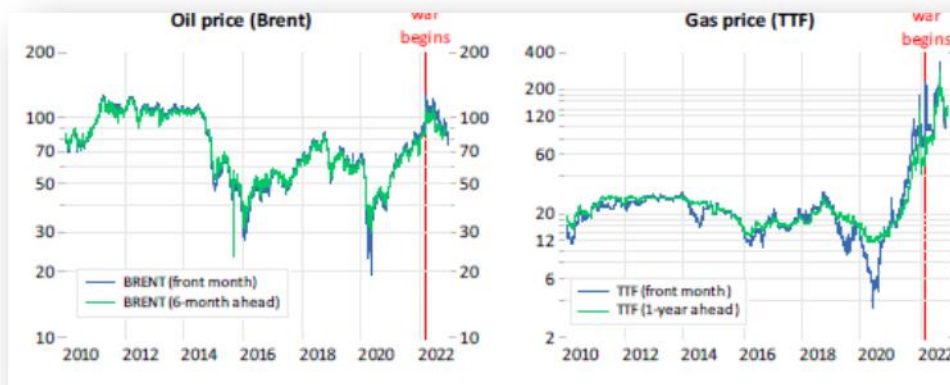


Figure 3 : Oil and gas wholesale prices, 2010-2022

Source: (DARVAS & MARTINS, 2022, p. 3)

Note: A front month is the nearest expiration date for a futures or options contract. Brent is measured in dollars, TTF is measured in euro. The last observation date is 12 December 2022. The vertical axes use logarithmic scaling to better capture percent changes (eg a change in Brent from \$50 to \$100 and from \$100 to \$200 represent the same percent change).

With the repercussions of the Russian-Ukrainian war, the rise in oil prices is also reinforced in light of the rise in natural gas prices with the restrictions imposed on Russian gas. In addition, the rise in gas prices has affected the increasing attractiveness of oil as an alternative for heating and electricity generation, as data issued by the World Bank showed a rise in The natural gas index increased to 273.1 points in March 2022, with a monthly increase of 38.24%, and an annual increase of 316.1% compared to March 2021.

According to the daily data issued by Trandig on May 7, 2022, the natural gas futures contracts in the United States 9 amounted to about \$8.6/MMBtu, with a weekly increase of about 21.1% compared to the price of \$7.1/mBtu on April 29, 2022 (Unicef, 2022, pp. 9-10)

The gas price remained highly volatile, depending on the need for gas in electricity generation and Russia's continued cut in gas supply to Europe, despite the absence of any European gas sanction. The peak of €300

(weekly average in 22-26 August 2022) was followed by a sudden decline and volatility, with the early-December 2022 price (€140) similar to the price towards the end of 2021 (DARVAS & MARTINS, 2022, p. 2)

Future expectations to identify the trends in oil and natural gas prices are among the means that reflect the repercussions of the Russian-Ukrainian war on price trends, as future expectations have shown in the short term in international prices for oil and natural gas according to many international bodies such as: the International Energy Agency, the World Bank, and the Organization for Cooperation Economic and development, and the location of trade economies, an increasing trend in the prices of oil derivatives and natural gas, as shown in Figure 4 and Figure 5 :

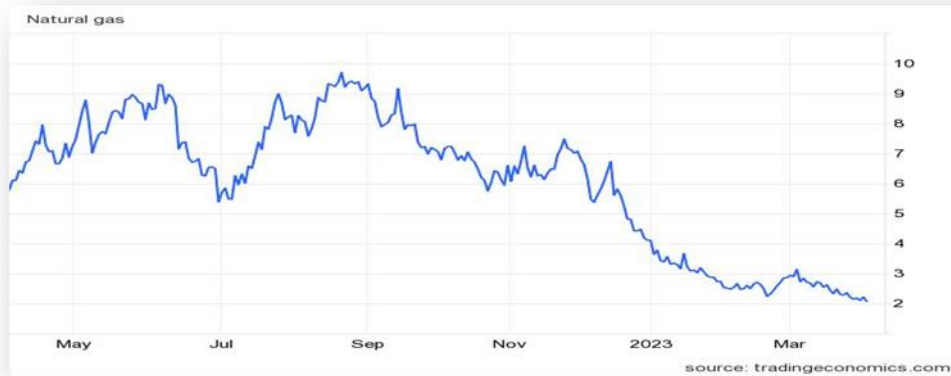


Figure 4: Future forecasts for natural gas prices

Source: <https://tradingeconomics.com/commodity/natural-gas>

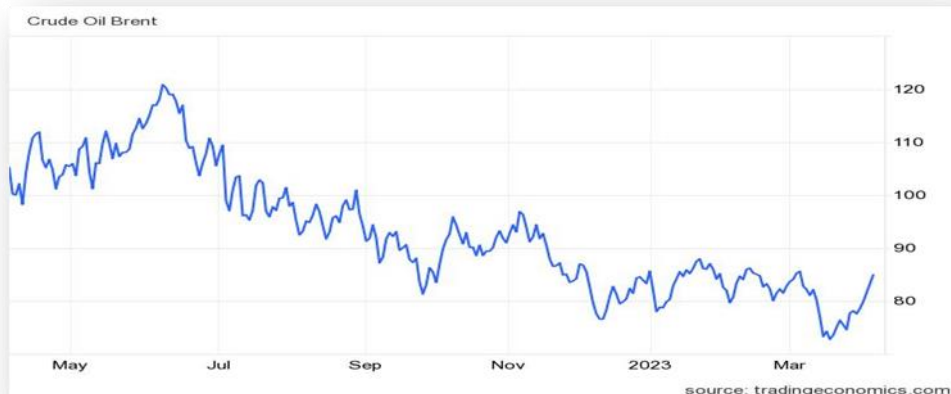


Figure 5: Future expectations in the price of Brent Crude Oil

Source: <https://tradingeconomics.com/commodity/brent-crude-oil>

There is no doubt that these expected hikes in oil and gas prices will bring great revenues to the producing and exporting countries. However, it will have certain repercussions on the slowdown in global economic growth

We can say that the loser of this war we lived in before the end of the first quarter of the century is not only Ukraine and Russia, but more or less the whole world. The increase in energy prices has affected all countries except exporting countries, more importantly, it is expected that millions of people will become refugees from Ukraine due to the war, and this number is expected to reach 10 million. (TUNA, 2022, p. 75)

3.3. The expected impacts of the war on global trade and supply chains:

The Military operations during the Russian invasion of Ukraine will affect operations in many sectors by disrupting global supply chain. The embargo on Russian exports and the retaliation against foreign imports by Russia, including Russian refusal to allow foreign shipments through its airspace and waterways during the conflict, can disrupt the global supply chain. (BALBAA, ESHOV, & ISMAILOVA, 2022, p. 12)

In an interview with CNBC, the head of services for the Keelvar supply software platform (Ireland) Dylan Alperin said the maritime route in and out of the Sea of Azov, one of the few points of access to road commerce. The sea in Ukraine is now inaccessible because Ukrainian and Russian military forces have blocked the entrance. This has resulted in a significant number of ships waiting to pass through the Kerch Strait. “70% of Ukraine's exports are transported by ships. Congestion is getting worse by the hour,” Alperin said. The director of container rental technology platform Containerx Change (Germany) Christian Roeloffs also shared that the areas around the Black Sea and Sea of Azov are currently very dangerous or impassable. There have been reports of missile attacks on passing commercial ships and crew arrests. The ships that crashed were oil tankers, container ships and cargo ships from Japan, Turkey, Moldova and Estonia. Commodities transported include diesel, rare earths and grains. Many companies in the supply industry have suspended delivery services to and from Russia and Ukraine. Some other companies added that the transport of goods is at a standstill because the seaports in the Ukrainian city of Odessa and the city of Mariupol are closed due to damage from shelling. Container shipping operations have now stalled with a lot of cargo stuck at these ports. The situation of transportation by air is also facing many similar difficulties. Ukraine's airspace is closed to civil flights as well as airlines avoiding flying over Russian airspace, causing air freight rates to skyrocket, significantly reducing the amount of goods moving through this type of transport. download this. (Minh Ngoc, et al., 2022, p. 636)

For 2024-2026, a period which will hopefully fall beyond the war, IMF expects about half a percent per year slower GDP growth in China in its October 2022 forecast than its October 2021 forecast.

Thus, even though the revisions to trade and commodity price forecasts do not reflect only the impact of the war, the war has likely played an important role in the revisions.

Figure 6 shows that the pandemic resulted in a major drop in global trade in 2020, followed by a strong rebound in 2021, resulting in a total trade volume that was 1.5 percent higher in 2021 than in 2019.

Naturally, the rebound-driven pace of global trade growth in 2021 was set to decelerate from 2022. The October 2021 forecast for 2022 growth of global trade volume was 6.7 percent, which was reduced to 5.0 percent in the April 2022 forecast and 4.3 percent in the October 2022 forecast. Overall, the level of global trade volume in 2023 was forecasted to be 3.4 percent lower in October 2022 than the October 2021 forecast, with this gap forecasted to stabilise in 2024-2026. Whether 3.4 percent is small or large is subject to judgement. On the one hand, this is a large value in dollar terms, about \$1 trillion annually, given that global trade is around \$30 trillion a year⁷. On the other hand, Figure 6 shows that the annual

fluctuations in the growth rate of global trade are rather large. There were 12 years between 1980 and 2018 (excluding 2009-2011, three years after the global financial crisis) when the change in the growth rate in one year was larger than 3.4 percentage points in absolute terms. Thus, annual changes exceeding this magnitude are rather common (DARVAS & MARTINS, 2022, pp. 5-6)

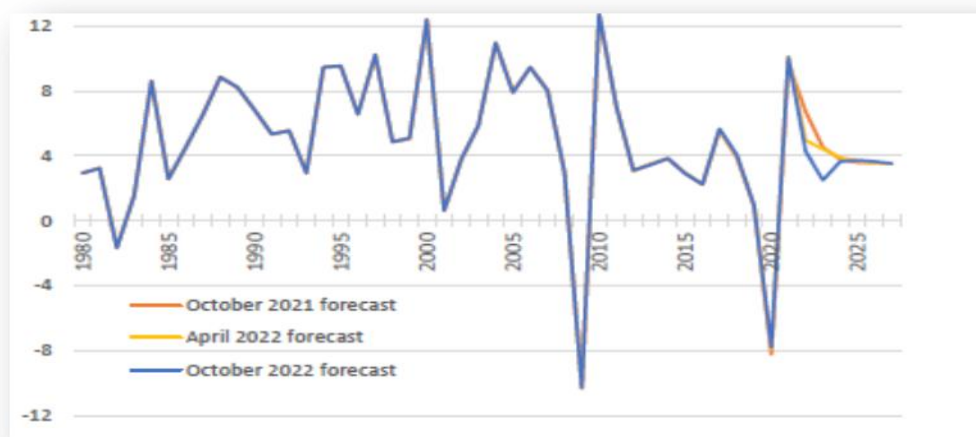


Figure 6 : The global trade volume of goods and services, 1980-2027 (% annual change)

Source: (DARVAS & MARTINS, 2022, p. 6)

3.4. Impact of the Russian-Ukrainian War on World Food :

Food security happens when “all people at all times have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life” . Food security has four standard dimensions: availability (having a sufficient quantity of food available regularly); access (having enough resources to acquire suitable and healthy food); utilization (having a reasonable food use based on knowledge of essential nutrition and care); and stability of availability, access, and utilization of food . Although these four dimensions remain fundamental, they lack other features, such as agency and sustainability, that have come to be recognized as critical for altering food systems in the direction required to accomplish the SDGs . Evidence shows that wars and conflicts are the most important drivers of food insecurity globally . (Ben Hassen & El Bilali, 2022, p. 2)

As early as the nineteenth century, the French political economist Frédéric Bastiat claimed, «when goods cannot cross borders, armies will» (Mariotti, 2022, p. 770)

Food is one of the most traded goods, and the conflict in Ukraine, one of the European breadbaskets, has triggered a significant additional disruption in the global food supply chains after the COVID-19 impact. The disruption to food output, supply chains, availability, and affordability could have a long-standing impact. As a result, the availability and supply of a wide range of food raw materials and finished food products are under threat, and global markets have seen recent increases in food prices. Furthermore, the Russian-Ukrainian conflict has adversely affected food supply chains, with significant effects on production, sourcing, manufacturing, processing, logistics, and significant shifts in demand between nations reliant on imports from Ukraine. (Jagtap, et al., 2022, p. 1)

Global food prices showed an increasing trend between May 2017 and May 2022 (Figure7). From 2017 to 2019, global food prices had a history of stability. However, food prices began to rise in 2020 and 2021. Wheat and maize prices increased each month dramatically by 2.17% and 2.59%, respectively. During the same period, the price of soybeans increased by 1.73% per month

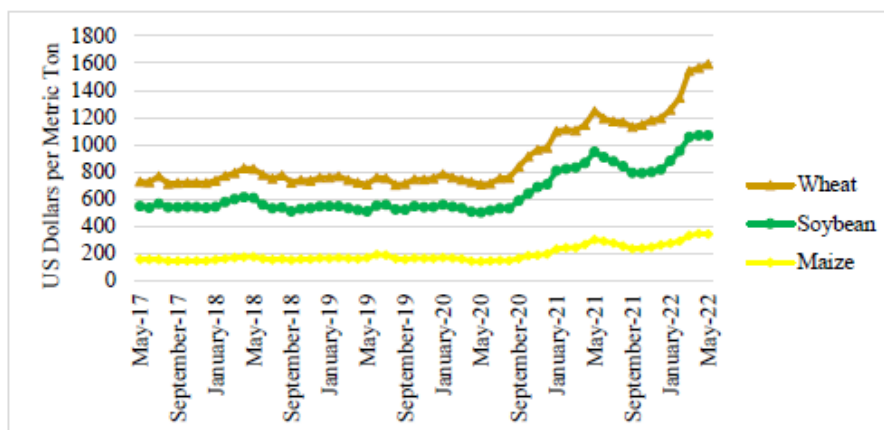


Figure 7: Global food prices from May 2017 to May 2022

Source: 2 (Nasir, Nugroho, & Lakner, 2022, p. 5)

Global food prices increased drastically in 2022, especially in March, one month after the Russian attack on Ukraine. World soybean prices rose by 8.91% in March and rose again by around 0.03% and 0.46% in April and May, respectively. The price of maize increased higher than that of soybean, rising by 14.66% in March 2022, 3.77% in April 2022, and 0.95% in May 2022. Wheat saw the greatest price increase among all food products. This commodity’s price rose to 24.53% in March and then increased again in April (1.85%) and May (5.45%). According to the FAO , the global food and feed prices will increase by 8% to 22% beyond their current high baseline levels if this conflict is not resolved early. (Nasir, Nugroho, & Lakner, 2022, p. 5)

As of January 2023, the slowdown in the global economy and fears of a worldwide recession have contributed to a general lowering of commodity prices. Nevertheless, commodity prices remain high relative to historical averages, extending the challenges connected with food security. Lower input costs, especially for fertilizers, are expected to contribute to a 5% drop in agricultural prices in 2023. Despite these forecasts, prices are projected to stay higher than pre pandemic levels. As a result, global inflation will remain high in 2023 at 5.2% before decreasing to 3.2% in 2024. Although inflation is expected to decline gradually during 2023, underlying inflationary pressures may become more persistent . According to the International Monetary Fund , global food

prices are anticipated to stay high due to conflict, energy costs, and weather events, despite interest rate rises marginally easing pricing pressures. (Fazole Rabbi , Ben Hassen, El Bilali, Raheem, & Raposo, 2023, p. 12)

3.5. The impact of war on the rate of growth and inflation :

Western countries intervention in Russia's struggle for territorial control may push Russia to impose an oil export embargo as retaliation for Western sanctions on Russia. This could increase the prices of oil and affect the economic growth, whereas the evidence shows that energy use and GDP are positively correlated .

As this will rise the firms spending on raw materials which will increase their costs of production and subsequently increase the output prices. Therefore the aggregate demand will fall due to the decrease in consumers' purchasing power which means less incentives to suppliers to produce more, therefore the aggregate supply also will fall, this reduction in supply thereby leads to a decrease in economic output and the growth rates (BALBAA, ESHOV, & ISMAILOVA, 2022, p. 12)

In April 2022, the International Monetary Fund predicted that global growth would fall from an expected 6.1% to 3.6% in 2022 and 2023. Additionally, food and fuel prices would increase by 3% in 2022 and 2.3% in 2023. (Ben Hassen & El Bilali, 2022, p. 5)

Amid a rapid rebound in global activity from the depth of the pandemic-induced global recession in Q2 2020, global inflation had risen to over 6 percent in February 2022, its highest level since 2008. Inflation is now running well above inflation targets in almost all advanced economies and most inflation-targeting EMDEs. The energy and food price surge triggered by Russia's invasion of Ukraine has further fueled inflation.

Prospects for inflation. In the near-term, inflation is likely to remain elevated as demand and supply shocks pass through wage and price setting processes. Over the medium-term, current inflation expectations point to a return of inflation to low and within-target inflation . As central banks tighten monetary policy and pandemic-related fiscal stimulus is unwound, growth will slow; as the supply disruptions caused by the war in Ukraine are priced in, commodity prices will stabilize; and as global production lines and logistics adjust, supply bottlenecks will ease . After decades of building credibility, inflation expectations are likely to remain well anchored over the medium-term . There is a material risk, however, that recent inflationary shocks combine with a fading of structural forces of disinflation to usher in an era of higher inflation that weakens the anchoring of inflation expectations. This would mark a turning point after two decades of low and stable inflation. (Guénette, Kenworthy, & Wheeler, 2022, p. 22)

The IMF predicts that global inflation will climb from 4.7% in 2021 to 8.8% in 2022 before falling to 6.5% in 2023 and 4.1% in 2024. (Fazole Rabbi , Ben Hassen, El Bilali, Raheem, & Raposo, 2023, p. 3)

The current conflict may also have global spillovers. While its full impact on the global economy remains uncertain at this stage and will depend on several factors, the most vulnerable countries and populations are expected to be hit hard by slower economic growth and increased inflation, at a time when the world is still attempting to recover from the recession triggered by the COVID-19 pandemic. (FAO, 2022, p. 9)

3.6. The impact of the war on the banking sector and global financial markets .

Financial consequences from the Russian invasion of Ukraine, including sanctions against Russia, are severely impacting Russian and Ukrainian banks, and having spillovers to other banking systems with direct exposures. Ukrainian banks are experiencing severe disruptions in their operations that have led to a material deterioration of their credit profiles and rating downgrades to "near default" status. Russian banks are also facing acute challenges including the inability to operate international transactions, withdrawals by retail depositors and growing risk of higher NPLs, which could cause credit conditions to tighten and make the economic pain from sanctions even worse. International banks in major OECD banking sectors are exposed to direct risks from the potential deterioration of global economic conditions and their exposure to Russia and Ukraine, which may result in higher NPLs and possible equity write-offs. International banks may be also exposed to indirect risks from the deteriorating credit quality of their corporate borrowers with trade relationships tied to Russia and Ukraine and their capital market activities. (OECD, 2022, p. 9)

This conflict also caused many central banks to raise interest rates as a result Inflationary pressures, as happened in the United States of America, which leads to an increase in the cost of debt Many developing countries weaken their ability to obtain any other loans and the increasing difficulties in paying debt installments, in addition to the investors' sense of uncertainty and the decline in confidence in the business community, which of course affects investment opportunities at the global level. (Riyad, 2022, p. 75)

A less accommodative interest rate environment and negative economic impacts of the intensifying geopolitical conflict may trigger bouts of investor risk aversion. As key stable coins are redeemable at par value, they are vulnerable to unexpected redemptions with negative implications for the value of underlying

assets and market resilience. Stable coins (mainly Tether) are reportedly increasingly investing in US commercial paper as their reserve assets. In a scenario where risk aversion would increase for Tether and similar stablecoins holding short-term instruments, substantial redemptions and liquidation of underlying assets could disrupt conditions on commercial paper and other short-term debt markets. (OECD, 2022, p. 10)

3.7. The impact of the Russian-Ukrainian war on Algeria "energy gains and food concerns"

With the increasing intensity of the Russian political dispute with the European Union, and then its transition to an indirect armed conflict between the two parties after the Russian invasion of Ukraine starting from February 24, 2022, European concern escalated about the security of its supplies of natural gas from Russia, and in the face of these concerns and the state of anxiety escalates, one day after another, European voices calling for abandoning Russian gas as a stable strategy for supply security.

Although the European Union did not reach, until the end of June 2022, a binding agreement for its countries regarding the abandonment of natural gas supplies from Russia, it has already begun a short and long-term energy strategy that includes, in a first step, giving up 90% of Russian gas supplies by 2024. Then, in a second phase that will last for years, the total abandonment of Russian natural gas. (Roulami, 2023, p. 32)

Algeria has emerged as a safe haven that may contribute to strengthening the energy security of the European Union countries and ending its dependence on Russian gas. This may be achieved by increasing the quantities of gas exported, and this is what leads us to search for Algeria's ability to export additional quantities, the limits of its energy resources and the adequacy of these resources. And how to preserve it, and in this regard it appears clearly that the Algerian petroleum capacities are limited, and what reinforces this proposition is the presence of several factors, the most important of which are: (Benaichouba, 2022, p. 459)

- By analyzing the data on oil reserves in Algeria and trends in energy exploitation (production), the period of depletion of the reserves may not exceed 13 years, meaning that the depletion of oil may be around the year 2035.
- The annual discoveries achieved by the Algerian company Sonatrach and its international partners only compensate for what has been consumed.
- Algeria's reliance on a limited number of giant oil fields that occupy the largest share of production, which do not exceed four fields, most notably Hassi Messaoud and Hassi R'Mel, which represent the largest share of production by nearly 60 percent.

And if the Algerian oil energies seem limited, the gas reserves are considered enormous, and they are likely to increase thanks to the successive discoveries, as the statistics indicate that the undiscovered gas reserves amount to 6000 billion cubic meters, which represents 14 out of the total of 43400 billion cubic meters, which is the size of those reserves that do not exist. It is still undiscovered in the Arab world, and these energies exist through more than eighty gas fields, representing reserves estimated at about 4.500 billion cubic meters distributed in seven different regions, the most important of which is the Hassi R'mel field (reserves exceeding 2000 billion cubic meters), which is considered one of the most important fields of natural gas accumulation. In the world, it contains equipment capable of receiving production estimated at: 250 million cubic meters per day, in addition to the Adrar region, which contains equipment capable of receiving production estimated at 18.5 million cubic meters per day, as well as in the recent period, the regions of Ain Saleh and Ain Amnas.

Algeria has always had an important role in the gas equation in Europe, after Russia and Norway, with 11.9% of the continent's gas imports in 2020, and among the factors that supported Algeria's occupation of this position, we find the geographical proximity to the European Union countries, which strengthened the Euro-Algerian economic rapprochement as a whole. And not only energy, in addition to the above, Algeria relied in many of its contracts on a policy of preferential prices with strategic partners on the European side, and it has reached the point of approving the cost of Algerian gas in some contracts equivalent to half the cost of Russian-Norwegian gas.

Food is considered the most important element for the continuation of economic and political security for different countries, and therefore it is necessary to anticipate the future of food security in Algeria. (Benaichouba, 2022, p. 460)

Algeria imports wheat from partners in the European Union, which makes its commercial relationship with the European Union the direct channel for transmission of the food crisis related to the consequences of the Russian-Ukrainian war.

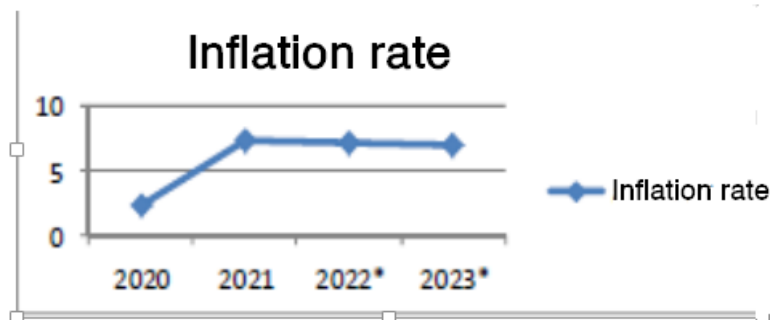


Figure 8: Recorded and expected inflation rates in Algeria during the period 2020-2023.

Source : (Khochmane & Mechache, 2022, p. 524)

Through the curve, inflation rates and their expectations have evolved until the year 2023, which flared up since 2020 as a result of the deficit recorded at the budget level and the increase in public debt due to the collapse in oil prices, in addition to the growing social role of the state to contain the consequences of the Covid-19 nation. In light of the deterioration of the food security situation at the global level, Figure 9 shows the implications of inflation on the per capita purchasing power in Algeria. (Khochmane & Mechache, 2022, pp. 523-524)

Figure 9: The evolution of per capita real output in Algeria during the period 2020-2023.



Figure 9: The evolution of per capita real output in Algeria during the period 2020-2023.

Source: (Khochmane & Mechache, 2022, p. 524)

Since 2020, food security in Algeria has been negatively affected as a result of the consequences of the Covid-19 crisis, where the real GDP per capita decreased by 8.6 percent during the year 2020, and it is expected to decline in 2023 by more than 6.0 percent in light of the prevailing conditions that threatened food security and contributed to the deterioration of the situation. (Khochmane & Mechache, 2022, p. 525)

4. Conclusion

The potential global repercussions of the Russian-Ukrainian war indicate that the countries that will feel the most stress are those that depend on imports of oil and natural gas, and countries that depend heavily on importing food commodities from Russia and Ukraine, especially that suffer from severe levels of hunger and food insecurity.

fluctuations in energy prices and exchange rates are two serious consequences of the war that could significantly impact market expectations for bank stocks, a proxy for the perceived soundness of the financial system. (Boubaker, Nguyen, Quang Trinh, & Vu, 2023, p. 26)

Thus, the already very serious consequences come from the risk of a boom in energy and commodity prices - including wheat and other grains - which increases inflationary pressures as a result of supply chain disruptions. The price shock will have an impact on the entire world, especially on poor families whose expenditures are greater than food and fuel.

The long-term consequences of the war in Ukraine will depend on current policy responses and priorities. Most recently, policy makers have been promoting energy efficiency and low-carbon sources of energy production, which is in line with the "green" goals of a transition affordability higher in their agenda. (Izzeldin, Muradoglu, Pappas, Petropoulou, & Sivaprasad, 2023, p. 12)

It is also vital to promote domestic food systems, targeting the development of multiple shorter supply chains based on seasonal and traditional products. Consumers should redefine how they consume energy, goods, and food and become the driving force of the noted transformations (Galanakis, 2023, p. 10).

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