WFP

World Food Programme

SAVING LIVES CHANGING LIVES

Food security implications of the Ukraine conflict

March 2022

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Summary

Introduction

- On 24 February 2022, Russia invaded Ukraine.
- The international community has imposed sanctions in response to the invasion. A key measure is the freezing of the Russian Central Bank's access to its reserves in the EU, United Kingdom, United States, Canada, Switzerland and Japan; another is restrictions on financial institutions, including cutting off access to SWIFT for selected Russian banks. In a recent escalation of the sanctions, the United States, Canada and the United Kingdom have banned Russian energy imports while the EU has pledged to end its dependence on Russian gas. Sanctions so far exclude payments for food commodities and fertilizer.
- The sanctions are beginning to hit the Russian economy hard. The Russian Central Bank has raised interest rates to a staggering 20 percent, while the Russian rouble has lost nearly 40 percent of its value against the US dollar within two weeks.
- The main expected effect of the conflict on global food security comes through the impact on global grain and energy markets. International food and fuel prices have increased sharply since the onset of the conflict; this will ultimately affect local food prices and, because of this, access to food. At the same time, grain and oil price hikes increase the cost of WFP's operations, reducing the ability to serve those in need just when it is most required.
- Adding to the challenges, the Ukraine conflict does not happen in a vacuum. New COVID-19 variants and supply chain issues have disrupted the global economic recovery, while rising inflation and record debt constrain countries' ability to address renewed problems.
- Poorer countries are struggling the most to recover from the pandemic's economic fallout, left behind by a lack of access to vaccines and lower capacity to finance stimulus measures. About 60 percent of low-income countries are currently in, or at high risk of, debt distress, compared with 30 percent in 2015. Despite sluggish economic growth, inflation has been on the rise – and with it the risk of stagflation.

Global grain markets in turmoil

- Both Ukraine and Russia are critical players in global wheat and maize markets, ranging among the top five exporters globally for both commodities. Together, the two countries supply 30 percent of wheat and 20 percent of maize to global markets. In addition, Russia and Ukraine are key exporters for sunflower oil and barley, accounting for more than three-quarters and one-third of supplies to international markets, respectively.
- The Russian military invasion has brought shipments from Ukraine to a halt and paused Russian grain deals, amidst uncertainty around sanctions. An estimated 13.5 million tons of wheat and 16 million tons of maize are frozen in the two countries – 23 and 43 percent of their expected exports in 2021/22.
- Insurers demand high premia for vessels entering the Black Sea, if willing to provide coverage in the first place. Amidst ships being hit by missiles, war risk premia range in the hundreds of thousands of US dollars and have reached US$300,000 for some tankers.
- Movements in international grain prices reflect these disruptions, with major export quotations for wheat up by 28 percent on average within two weeks – US No 2 Soft Red Winter Wheat increased by 52 percent between 21 February and 7 March. FAO's Food Price Index reached a new all-time high in February 2022.

\- Export disruptions in the Black Sea have immediate implications for countries such as Egypt, which heavily rely on grain imports from Russia and Ukraine.

1 Figures accurate as of 9 March 2022

- Beyond countries sourcing Black Sea grain, those dependent on grain imports more broadly are the first in line to experience domestic food price increases, following rising prices on global grain markets. In more than 40 countries with WFP operations, imported cereals such as wheat and maize account for 30 percent or more of dietary energy.

Upheaval in global energy markets

- Russia is the world's third-largest producer of crude oil and its second-largest exporter. Europe and China import around 60 percent and 20 percent of Russia's oil, respectively.
- Russia is the largest natural gas exporter in the world. European countries heavily depend on Russia's natural gas imports, as 32 percent of their total consumption is supplied by Russia.
- Following the Russian invasion, crude oil prices soared to a 14-year high. The conflict also significantly elevated European gas prices, which have been highly volatile throughout the current heating season in Europe.
- Russia's oil supply to global markets is severely disrupted. Even before western countries imposed sanctions on Russian oil exports, high shipping costs and uncertainty about potential buyers reduced traders' willingness to order oil from Russian ports.
- With global oil supply at its limits, Russian supply disruptions could keep global oil prices elevated. The invasion has so far not severely disrupted Russian natural gas supply to Europe but the EU has published plans to cut Russian gas supplies by two-thirds in 2022.
- High global energy prices can lead to increasing food insecurity around the world. By pushing up local inflation, high costs of imported energy reduce purchasing power and poor households' access to food.
- Soaring international fuel prices increase already-pressured global grain prices, thereby aggravating the repercussions for food security. In addition, Russia is one of the world's most important exporters of the three major groups of fertilizers – nitrogen, phosphorus and potassium. Rising input costs in turn could impact the next season's harvest, leading to elevated food prices in the longer run.

Repercussions for WFP operations

- Short-term impacts of the Ukraine conflict on WFP procurement include expected cancellations or delays of WFP shipments from the port of Odessa. This will likely primarily affect West Africa, where the cargo is needed for distributions from May onwards.
- Medium-term effects will be rising costs due to surging global food prices; additional expenses from diversifying sourcing away from the Black Sea region; and longer lead times when sourcing from destinations further afield.
- Wheat price increases and lack of pulses availability from Ukraine are estimated to raise costs of WFP food procurement by around US$23 million per month, with Afghanistan, Ethiopia, Syria and Yemen most affected because of their dependency on wheat. Such cost increases for wheat and pulse procurement come on top of already surging food prices since the onset of the COVID-19 pandemic.
- A surge in energy prices further escalates the cost of WFP operations, both through food prices and supply chain-related fuel costs including for ocean freight, land transportation, aviation and WFP facilities. A conservative estimate for the impact on transport costs, with all the uncertainty of future oil-price developments, puts the increase at US$6 million per month.
- While the full impact on WFP's operational costs will become clearer once we have gone out in the market to source commodities, estimates point to increases of US$29 million per month in the short term, through the combined effect of food and fuel price hikes.

Introduction

Russia invades Ukraine, triggering harsh economic sanctions

On 24 February 2022, Russia invaded Ukraine after months of military build-up along the border. As Russian forces advance and military action intensifies, it is estimated that more than 2 million people have fled Ukraine into neighbouring countries.[2]

In reaction to the invasion, western countries and allies are imposing a growing host of sanctions on Russia. Sanctions target individuals, including through freezing of assets and travel bans; banks and financial services; and companies and commercial transactions. A key measure is the freezing of the Russian Central Bank's access to its reserves in the EU, United Kingdom, United States, Canada, Switzerland and Japan.[3] Foreign banks hold a substantial share of the Russian Central Bank's US$630 billion reserves, mainly US dollar, euro, sterling and the yuan, as well as gold. Other sanctions on the financial system have cut selected Russian

2 https://data2.unhcr.org/en/situations/ukraine

3 https://www.japantimes.co.jp/news/2022/02/28/national/japan-russia-central-bank-sanctions/
https://ec.europa.eu/commission/presscorner/detail/en/fs_22_1402
https://www.admin.ch/gov/en/start/documentation/media-releases.msg-id-87386.html

banks from the SWIFT payment system – thereby effectively blocking import and export transactions – and hit banks with asset freezes or exclusion from foreign financial systems.[4] In a recent escalation of the sanctions, the United States, Canada and the United Kingdom have banned Russian energy imports while the EU has pledged to end its dependence on Russian gas. Sanctions so far exclude payments for food commodities and fertilizer.[5]

The Russian economy is already feeling the impact of the sanctions. With the Central Bank severely limited in using its reserves to prop up the rouble,[6] Russia's currency has lost nearly 40 percent of its value against the US dollar within two weeks since the Monday before the invasion.[7] On 28 February, in an effort to stem the outward flow of capital, the Central Bank hiked its interest rates up from 9.5 to 20 percent and added capital controls for foreigners.[8] On 25 February, the day after the invasion and before sanctions had taken effect, Russian inflation was already at 9.05 percent year-on-year – a figure that is almost certain to climb significantly higher in the weeks ahead.[9]

Ripple effects for food security – and the world in a difficult place to brace them

The conflict unfolds in one of the world's breadbaskets. In addition, Russia is among the world's most important energy exporters. Global grain and energy markets are in turmoil, reflected by sharp price rises; while these increases are currently in international markets, they are likely to trickle down to domestic markets, especially in import-dependent countries, with implications for access to food for the most vulnerable. At the same time, grain and oil price hikes increase the cost of WFP's operations, reducing the ability to serve those in need just when it is most required.

Adding to the challenges, the Ukraine conflict does not happen in a vacuum. New COVID-19 variants and supply chain problems have disrupted the global economic recovery, while rising inflation and record debt constrain countries' abilities to address renewed challenges. After working-hour losses equivalent to 258 million full-time jobs in 2020 and 125 million in 2021, labour markets struggle to recover, with lost working hours still estimated to reach the equivalent of 52 million full-time jobs in 2022.[10]

Poorer countries are struggling the most to recover from the pandemic's economic fallout, left behind by a lack of access to vaccines and lower capacity to finance stimulus measures. About 60 percent of low-income countries are currently in, or at high risk of, debt distress, compared with 30 percent in 2015.[11] Despite sluggish economic growth, inflation has been on the rise, stoking fear of stagflation. A total of 27 countries currently face annual food inflation of 15 percent or more, including five countries – Lebanon, Venezuela, Sudan, Yemen (Internationally Recognized Government) and Cuba – with three-digit rates. An additional 20 countries have experienced food price rises between 10 and 15 percent over the past year; and 45 countries between 5 and 10 percent.[12]

4 What sanctions have been imposed on Russia over Ukraine invasion? | Russia | The Guardian
https://www.bbc.com/news/world-europe-60125659
5 Just short of nuclear': the latest financial sanctions will cripple Russia's economy (theconversation.com)
6 Russia's FX reserves slip from its grasp | Financial Times (ft.com), How Russian Sanctions Work - The Atlantic
7 https://tradingeconomics.com/russia/currency
8 Bank of Russia Hikes Rates from 9.5 percent to 20 percent to Defend Ruble - Bloomberg
9 https://www.reuters.com/business/finance/russian-inflation-accelerates-905-rouble-slips-2022-03-02/
10 https://www.ilo.org/global/research/global-reports/weso/trends2022/WCMS_834081/lang--en/index.htm
11 https://blogs.imf.org/2021/12/02/the-g20-common-framework-for-debt-treatments-must-be-stepped-up
12 WFP RAM, Prices & Currencies Monthly Update February 2022

Global grain markets in turmoil

Russia and Ukraine are key players in global markets for staple food commodities

Both Ukraine and Russia are major exporters of wheat and maize, featuring among the top five exporters globally for both commodities (Figures 1 and 2). For wheat, Ukrainian exports are forecast to reach 24 million tons in 2021/22, accounting for around 12 percent of the 193 million tons of wheat forecast to be traded globally in 2021/22. Ukraine and Russia together provide 30 percent of supplies to global wheat markets. For maize, Ukraine is expected to export 33 million tons over the 2021/22 marketing year, 18 percent of the 186 million tons of maize traded globally. Adding Russia's 4.5 million tons of maize exports brings Ukraine and Russia's joint share in the global maize market to 20 percent.[13]

FIGURE 1: Wheat exports in million tonnes in 2021/22 and change from previous year

FIGURE 2: Maize exports in million tonnes in 2021/22 and change from previous year

Source: http://www.amis-outlook.org/indicators/amis-crops-at-a-glance/en/

13 http://www.amis-outlook.org/indicators/amis-crops-at-a-glance/en/

While question marks remain, the impact of the Ukraine conflict on global markets is likely to be more subdued for maize than for wheat; this is because of better supplies in other exporting countries for maize than for wheat, which can buffer potential shortfalls in exports from the Black Sea.[14]

Wheat and maize are not the only agricultural commodities for which Russia and Ukraine are key players on global markets. Together, the two countries also export about three-quarters of sunflower oil and one-third of barley supplies.[15]

Conflict disrupts Ukrainian and Russian exports

Military operations can make it difficult to move crops, both within and out of the country. Ukraine's military suspended commercial shipping at its ports after the invasion.[16] At the same time, uncertainty around sanctions – which do not yet restrict seaborne trade – has led to many shipping companies putting dealings with Russian entities on hold, and to some banks refusing the issuance of letters of trade to cover Russian shipments from Black Sea ports.[17] With Ukrainian ports closed and Russian grain deals on pause, 13.5 million tons of wheat and 16 million tons of maize are currently frozen in Russia and Ukraine.[18]

Furthermore, rising insurance premia are pushing up the costs for grain shipments from the Black Sea. Shipping companies pay both war-risk insurance and an additional premium for entering high-risk areas, with rates depending on destination, value of ship and cargo. The war-risk premium rate for seven days, estimated at 0.025 percent of insurance costs on the Monday before Russia's invasion, has increased substantially, with ship insurers now quoting between 1 and 2 percent and up to 5 percent of insurance costs. This translates into hundreds of thousands of US dollars, if insurers are willing to provide coverage in the first place amidst vessels being hit by missiles.[19] War risk premia have hit US$300,000 for some voyages.[20] As parts of the Sea of Azov and the northern Black Sea, including all Ukrainian ports, have been designated as "Warlike Operations Areas", seafarer unions and their employers agreed on extra pay, benefits and granting the right to refuse to sail – further pushing up shipping costs.[21]

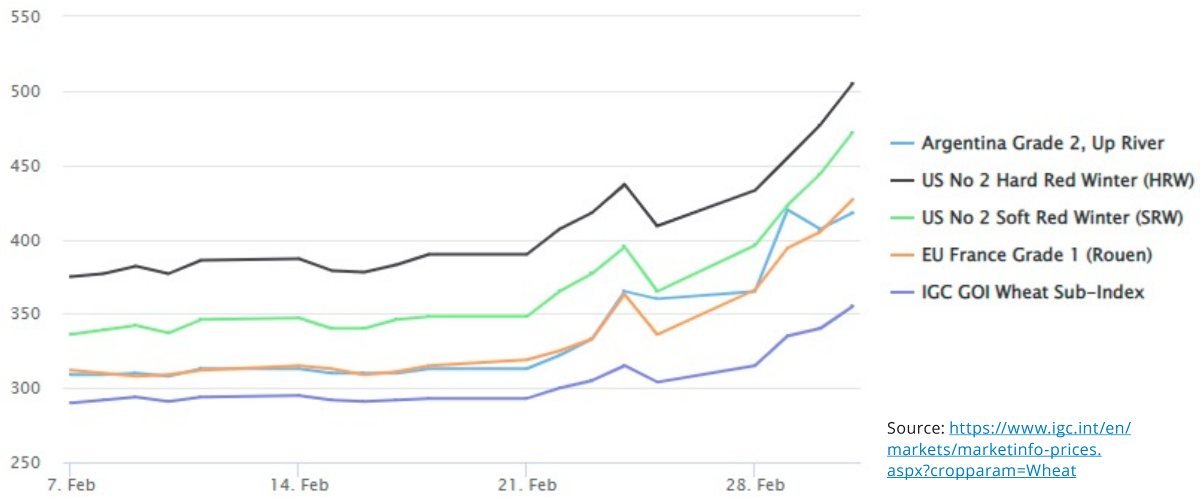
Food prices at record highs

The wheat sub-index of the International Grains Council's Grains and Oilseeds Index, a measure of changes in major export quotations for wheat around the world, has risen by 28 percent within two weeks (21 February to 7 March). Individual quotations hiked up even further; US No. 2 Soft Red Winter wheat gained a startling 52 percent over the same period (Figure 3). The Index's maize sub-index followed closely, gaining 17 percent from the Monday before the invasion (21 February) until 7 March (Figure 4).

These price hikes happen at a time when food prices are already at record levels; they had pushed FAO's Food Price Index, a measure of the monthly change in international prices of a basket of food commodities, to a new all-time high in February 2022.[22]

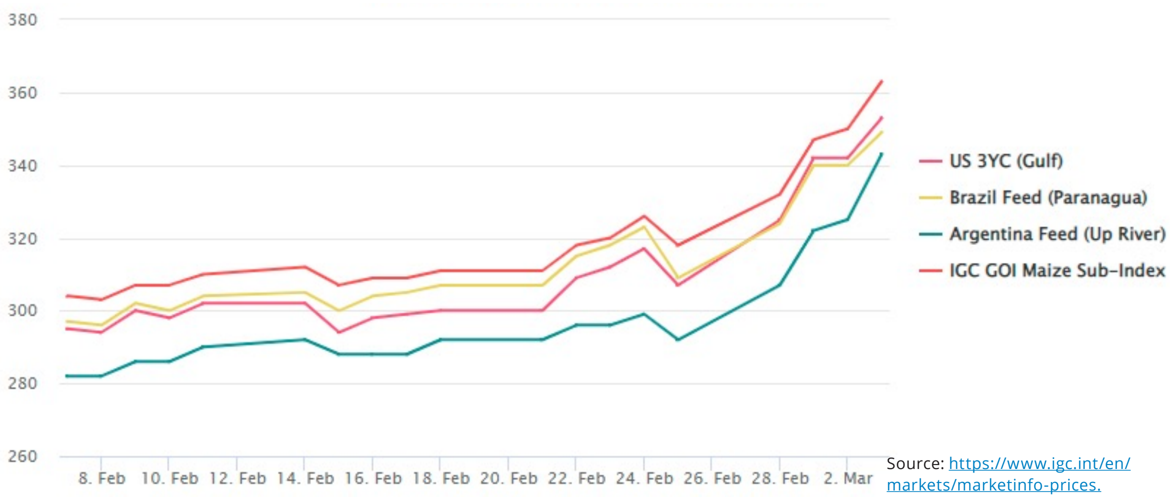
14 http://www.amis-outlook.org/news/detail/en/c/1155451/; AMIS webinar on 22 February 2022
15 https://gro-intelligence.com/insights/impact-of-the-russia-ukraine-conflict-on-global-agriculture-by-the-numbers
16 https://www.reuters.com/world/europe/russia-halts-vessel-movement-azov-sea-black-sea-open-2022-02-24/
17 https://lloydslist.maritimeintelligence.informa.com/LL1139986/Shipping-shuns-Russia-risk-as-sanctions-fuel-rocketing-rates
18 https://raboresearchagricommodities.libsyn.com/high-go-prices-will-shrink-chinas-imports-and-demand
19 https://www.reuters.com/business/insurance-costs-shipping-through-black-sea-soar-2022-02-25/
https://lloydslist.maritimeintelligence.informa.com/LL1139986/Shipping-shuns-Russia-risk-as-sanctions-fuel-rocketing-rates
https://www.insurancebusinessmag.com/uk/business-news/insurers-react-as-ships-shelled-in-black-sea-326856.aspx
https://lloydslist.maritimeintelligence.informa.com/LL1139981/Ships-hit-by-missiles-as-Ukraine-forces-defend-Odessa-and-Mariupol
20 https://lloydslist.maritimeintelligence.informa.com/LL1139986/Shipping-shuns-Russia-risk-as-sanctions-fuel-rocketing-rates
21 https://lloydslist.maritimeintelligence.informa.com/LL1140035/Northern-Black-Sea-designated-as-warlike-area-to-aid-seafarers
22 https://www.fao.org/newsroom/detail/fao-food-price-index-rises-to-record-high-in-february/en

FIGURE 3: Wheat prices (US$ per ton)



Source: https://www.igc.int/en/markets/marketinfo-prices.aspx?cropparam=Wheat

FIGURE 4: Maize prices (US$ per ton)



Source: https://www.igc.int/en/markets/marketinfo-prices.aspx?cropparam=Maize

Looking back in history – namely the period between October 1914 and February 1915, when the Ottoman Empire blockaded the Dardanelles Strait, thereby cutting Black Sea wheat exports worth 22 percent of total supplies off international markets – it seems likely that today's prices could keep rising. Loss of access to the Black Sea in 1914 triggered a 45 percent increase in Chicago Board of Trade wheat prices.[23]

However, given the evolving situation, any estimate of grain-market ramifications at this point comes with a very high degree of uncertainty. Implications for global food supplies will depend on the duration of the invasion, how this will impact the production of Black Sea wheat – to be harvested in July to September – and for how long export channels will be blocked.[24]

Import-dependent countries first in line to feel food-security fallout of the conflict

Several Middle Eastern, northern and sub-Saharan African, as well as South Asian, countries are contingent on wheat imports from Russia and Ukraine

23 https://research.rabobank.com/far/en/sectors/grains-oilseeds/when-black-sea-wheat-is-caught-in-conflict.html

24 http://www.amis-outlook.org/news/detail/en/c/1155457/

(Table 1). In Egypt, the biggest importer of both Russian and Ukrainian wheat, higher wheat-price forecasts are expected to add US$763 million to the country's already hefty US$3.2 billion bread-subsidies bill this year. This has led Prime Minister Madbouly to announce plans for the first price increase of a loaf of bread since 1988.[25] Ukraine has only completed half of this season's wheat exports to Libya so far. A loss of the remaining wheat exports from Ukraine would leave Libya with 30 percent less wheat than needed to cover domestic consumption.[26]

TABLE 1: Top 15 importers of Ukrainian wheat (left) and Russian wheat (right) in 2020

COUNTRY	IMPORTS (million tons)	COUNTRY	IMPORTS (million tons)
Egypt	3.08	Egypt	8.25
Indonesia	2.72	Turkey	7.90
Bangladesh	1.51	Bangladesh	1.94
Pakistan	1.24	Azerbaijan	1.39
Turkey	1.00	Sudan	1.33
Tunisia	0.98	Pakistan	1.17
Morocco	0.95	Nigeria	1.00
Yemen	0.71	Yemen	0.80
Lebanon	0.67	Tanzania	0.70
Philippines	0.63	United Arab Emirates	0.67
Thailand	0.56	Kenya	0.60
Libya	0.55	Georgia	0.59
Malaysia	0.40	Philippines	0.55
Spain	0.37	South Africa	0.55
Republic of Korea	0.32	Israel	0.54

Source: FAOSTAT

Beyond countries sourcing grain from the Black Sea region, those dependent on grain imports more generally are likely to experience increases in domestic food prices, following rising prices on global grain markets. Increasing international prices for basic staple foods especially hurt import-dependent countries. Higher import bills can transmit into higher prices for local food. This in turn limits access to food, especially for already poor populations. In more than 40 countries with WFP operations, imported cereals such as wheat and maize account for 30 percent or more of dietary energy.[27]

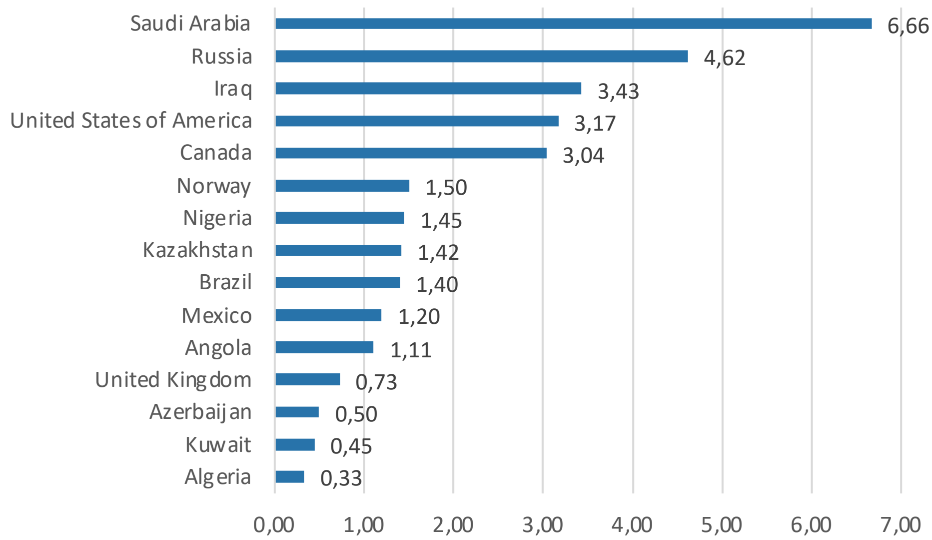
25 https://www.telegraph.co.uk/global-health/climate-and-people/russian-invasion-risks-pushing-families-across-middle-east-north/
26 https://www.apk-inform.com/en/news/1525404
27 Based on FAOSTAT data for cereal import dependency ratios and dietary energy from cereals for 2016 to 2018.

Upheaval in global energy markets

Russia is a key player in the global oil market

After the United States and Saudi Arabia, Russia is the third-largest producer of crude oil in the world. Exporting 4.62 million barrels of crude oil per day, it was the second-largest exporter in 2020 (Figure 5).[28] In 2019, Russia exported crude oil and refined petroleum worth US$189 billion, which was around 47 percent of its total exports.[29] Sixty percent of Russia's oil is exported to Europe, most of it via its Druzhba pipeline system.[30] Another 20 percent is shipped to China by pipeline and seaborne routes.[31] In 2019, other major importers were South Korea, Turkey, Japan, Belarus and the United States (in order of quantity imported).[32]

FIGURE 5: Largest crude oil exporters in 2020 (million barrels per day)



Source: JODI 2022

28 https://www.iea.org/reports/russian-supplies-to-global-energy-markets
29 https://oec.world/en/profile/country/rus
30 https://www.iea.org/reports/russian-supplies-to-global-energy-markets
31 https://www.iea.org/reports/russian-supplies-to-global-energy-markets
32 https://wits.worldbank.org/

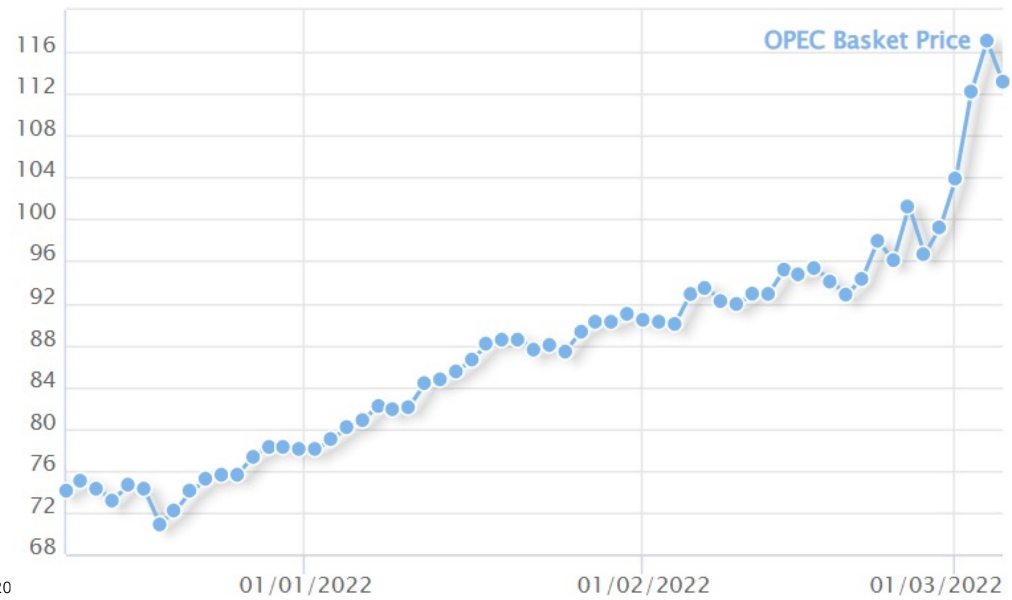
Further pressure on already elevated oil prices

Global crude oil prices were at a very high level before the Russian invasion, after increasing by 50 percent in 2021 amidst demand during recovery from the COVID-19 pandemic combined with limited supply. Despite OPEC+ gradually relaxing output cuts from 2020, total supply remained below the targets. The main reasons for countries not reaching their targets were ongoing uncertainties in the market (e.g. new COVID-19 variants) as well as lack of capacity and accidental outages in African oil-producing countries such as Libya, Nigeria, Angola, Congo and Equatorial Guinea.[33]

With expectations of Russian supply disruptions after the invasion, prices soared to a 14-year high. The OPEC Basket price, an index for member countries' oil prices, was up by 20 percent (4 March) compared to the Monday before the conflict (Figure 8). In a first response to surging oil prices, Member States of the International Energy Agency agreed to release 60 million barrels of their strategic oil reserves.[34]

Even though there are no direct sanctions on Russian oil exports, supply is severely disrupted.[35] Companies involved in trading Russian oil from the Black Sea have suspended most of their businesses due to uncertainties about potential future sanctions. Additionally, many insurers ceased offering coverage for vessels entering the Black Sea or, if available, insurances are being sold with extremely high premia.[36] Two of the top five Russian oil terminals, Novorossiysk and Tuapse, are located in the Black Sea.[37] Freight costs for Russian oil trading have also spiked for vessels shipping from Baltic Sea ports. Due to the reduced willingness of traders to purchase Russia's Urals crude, it sold at a record discount to Brent crude, Europe's most important crude oil, at US$11.60 per barrel (3 March).[38]

FIGURE 6: OPEC Basket price (US dollar per barrel)



Source: OPEC 20

33 https://www.reuters.com/business/energy/oil-prices-could-hit-100-demand-outstrips-supply-analysts-say-2022-01-12/
https://www.reuters.com/business/energy/opec-oil-output-boost-december-again-undershoots-target-2022-01-06/

34 https://www.iea.org/news/iea-member-countries-to-make-60-million-barrels-of-oil-available-following-russia-s-invasion-of-ukraine

35 https://www.reuters.com/business/energy/oil-jumps-3-choked-russian-supply-trade-finance-dries-up-2022-03-02/

36 https://www.insurancebusinessmag.com/uk/business-news/insurers-react-as-ships-shelled-in-black-sea-326856.aspx

37 https://seanews.ru/en/2020/07/29/en-top-5-russian-terminals-oil-products-throughput-in-h1-2020/

38 https://www.reuters.com/business/energy/russian-oil-buyers-struggle-with-payments-vessels-bp-annuls-loadings-traders-2022-02-28/

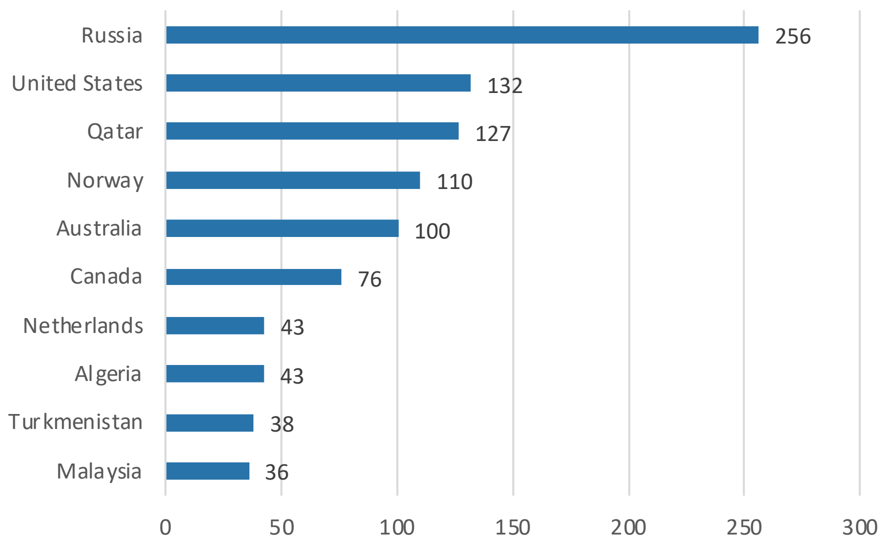
With the global oil supply at its limit, further disruption of Russian oil supply could have a strong effect on prices. Large Middle Eastern producers would have capacities to supply more oil in the short run.[39] However, in a meeting on 2 March, OPEC+ countries agreed to keep to their gradually increasing targets and to not significantly expand supply in response to the conflict.[40]

The sanctions by western countries are expected to reduce Russia's oil production in the long run. Major western oil companies have reduced their investments in joint ventures or announced the selling of their Russian operations.[41] Due to the size of the sanctions and the large impact on the rouble, Russia could respond to the sanctions by putting an export ban on its commodities – with large economic impacts on the world and Europe in particular. However, this would inflict huge damage on Russia too, as it would cut off one of the country's last financial lifelines.[42]

Russia is the world's largest natural gas exporter

Having the largest proven gas reserves, Russia is the biggest supplier to world markets.[43] In 2019, Russia exported natural gas worth US$26 billion, around 6.5 percent of its total exports.[44] A total of 78 percent of its exports are shipped to Europe via pipelines.[45] In 2021, European countries imported 32 percent of their gas from Russia.[46]

FIGURE 7: Largest natural gas exports in 2019 (billion cubic metres)



Source: EIA 2022

39 https://abcnews.go.com/US/wireStory/opec-allies-weigh-oil-output-amid-high-prices-83199968

40 https://www.nytimes.com/2022/03/02/business/oil-prices-opec.html

41 https://www.reuters.com/business/bp-exit-opens-new-front-wests-campaign-against-russia-2022-02-27/

42 https://theconversation.com/just-short-of-nuclear-the-latest-financial-sanctions-will-cripple-russias-economy-178000

43 https://www.reuters.com/markets/asia/gazproms-gas-exports-up-2021-likely-misses-target-europe-2022-01-02/

44 https://oec.world/en/profile/country/rus

45 https://oec.world/en/profile/country/rus
https://www.iea.org/reports/russian-supplies-to-global-energy-markets

46 https://www.iea.org/reports/russian-supplies-to-global-energy-markets

Price spikes in already volatile European gas markets

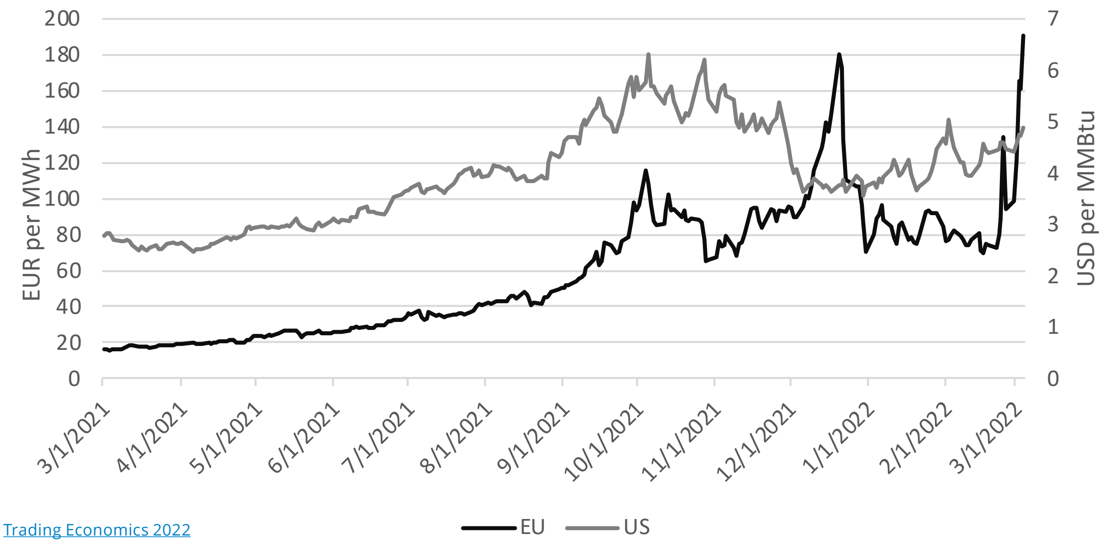
Unlike the global oil market, gas markets are less integrated, and prices do not necessarily have the same dynamics at each of the global hubs.[47] As most of Russia's gas is exported to Europe, the largest impact on prices is expected in the European market. However, to become less dependent on Russian gas, Europe is already sourcing from other suppliers, which will affect other market hubs and ultimately drive up their prices as well.

to the European market in the fourth quarter of 2021 and first quarter of 2022. European storage sites were therefore not filled to adequate levels.[49] To compensate for reduced delivery during the heating season, Algeria, Azerbaijan and Norway increased their pipeline supplies and the United States supplied additional LNG to Europe.[50]

Ukraine's invasion caused large European gas price spikes. The EU hub's gas price (Dutch TTF) soared to a new all-time high of €199 per megawatt-hour on the morning of 3 March.[51] In comparison, the US natural gas futures price responded less strongly (Figure 8).

According to the Russian News Agency Interfax, gas supply for Europe via the pipelines passing through Ukraine has continued as usual since the invasion.[52] According to network data,[53] Russian natural gas has

FIGURE 8: EU and US natural gas prices (Euro per megawatt-hour and US dollar per million British thermal units)



Source: Trading Economics 2022

European gas-price volatility has been high since September 2021, when prices soared due to a strong recovery of demand as well as tighter-than-expected supply.[48] Additionally, Russia has reduced gas supplies

been shipped to Europe since the start of the invasion. Gazprombank, which handles the payments for gas exports from Russia, is not included in the sanctions currently.[54]

47 https://www.oxfordenergy.org/wpcms/wp-content/uploads/2020/04/Insight-68-A-Comparative-History-of-Oil-and-Gas-Markets-and-Prices.pdf

48 https://www.iea.org/news/statement-on-recent-developments-in-natural-gas-and-electricity-markets

49 https://www.spglobal.com/commodity-insights/en/market-insights/latest-news/natural-gas/021622-europe-now-on-safe-side-for-gas-supplies-this-winter-von-der-leyen

50 https://www.iea.org/reports/russian-supplies-to-global-energy-markets

51 https://tradingeconomics.com/commodity/eu-natural-gas

52 https://interfax.com/newsroom/top-stories/74311/

53 https://www.reuters.com/business/energy/yamal-europe-gas-pipeline-reverts-reverse-mode-after-some-westbound-flows-2022-02-27/
https://www.reuters.com/business/energy/russian-gas-flows-via-yamal-pipeline-germany-decline-sharply-data-2022-03-03/

54 https://www.ft.com/content/1bce0494-6242-461b-bfe2-9501e7d88ab1

Turbulent energy markets come with repercussions for food security

Energy-price dynamics affect food prices through various channels. Fuel is an important input for agricultural production; increasing fuel costs therefore have an impact on farmgate prices. Similarly, as energy is necessary for food processing, high prices further add to the cost of households' diets. Higher fuel prices also imply increasing transport costs, which can further add to the upward pressure on the cost of importing food; the cost of transporting local food to consumer markets can also increase.

Energy is also an input for most other consumer goods and services. In 2021, when the world economy recovered from the slowdown caused by the COVID-19 pandemic, companies and households increased their demand for petroleum, causing a spike in gas and energy prices. Around half of the record inflation rates recorded in late 2021/early 2022 were attributed to soaring energy prices.[55] When incomes stay constant, rising overall price-levels hollow out the purchasing power of households. Especially in developing countries, where food expenditure shares are large, inflation can significantly reduce access to food, thereby driving up food insecurity.

Moreover, natural gas is an important input in producing nitrogen-based fertilizers.[56] Higher gas prices can therefore push already elevated fertilizer prices up.[57] Additionally, Russia is one of the world's most important exporters for the three major groups of fertilizers – nitrogen, phosphorus and potassium.[58] A disruption in Russian supplies to global markets could cause even further fertilizer price increases. Rising input costs, in turn, affect the next season's harvest, leading to elevated food prices in the longer run.

55 https://www.ecb.europa.eu/ecb/educational/explainers/tell-me-more/html/high_inflation.en.html
56 https://www.ifpri.org/blog/how-will-russias-invasion-ukraine-affect-global-food-security
57 https://gro-intelligence.com/insights/impact-of-the-russia-ukraine-conflict-on-global-agriculture-by-the-numbers
58 https://gro-intelligence.com/insights/impact-of-the-russia-ukraine-conflict-on-global-agriculture-by-the-numbers

Repercussions for WFP operations[59]

The Ukraine conflict has both short- and medium-term impacts

Through its impact on grain exports, the Ukraine conflict impacts WFP procurement both in the short- and the medium-term. Short-term repercussions on pipelines include the expected cancellation or delay of WFP split pea and barley shipments from the port of Odessa. This is likely to primarily affect West African operations, where the cargo is needed for distributions in May and onwards. Medium-term effects on WFP operations come through rising costs of operations due to surging prices for basic staple commodities on international markets; additional expenses from diversifying sourcing away from the Black Sea region; and longer lead times when sourcing from destinations farther afield.[13]

An estimated US$23 million increase in monthly costs for food procurement

Ukraine and the wider Black Sea area were the source of over half of the wheat grain for WFP operations in 2021. While Ukraine is not a significant source of wheat flour for WFP, major suppliers – Turkey, Egypt and Jordan – depend on Black Sea wheat imports to produce flour. Consequently, WFP's most-affected operations will likely be those most dependent on wheat and wheat flour – Afghanistan, Ethiopia, Syria and Yemen. Given the steep market price increases since the Ukraine conflict, the total additional cost for these operations combined could be over US$20 million per month, assuming wheat prices stay at their current elevated levels.

Sourcing of pulses for WFP operations also heavily depends on Ukrainian exports. A third of WFP's supply of yellow split peas originated from the Black Sea in 2021, reaching a wide range of operations in all regions, especially sub-Saharan Africa. Diversifying pulse procurement in case of unavailability from Ukraine will likely increase overall logistics costs by approximately US$3 million per month, as well as resulting in longer delivery times. Such cost increases for wheat and pulse procurement come on top of the impact already caused by the pandemic, which has seen global food prices rise by 36 percent since 2019.

Surging energy prices further add to the cost of WFP operations

The rise in energy prices further escalates the cost of WFP operations, both through food prices and supply chain-related fuel costs, including for ocean freight, land transportation, aviation and WFP facilities. A first conservative estimate for the impact on WFP's transport costs, with all the uncertainty of future oil-price developments, puts the increase at US$6 million per month.

Together with additional costs through diversification of sourcing for pulses and higher global wheat prices, WFP operations are estimated to become US$29 million more expensive per month in the short term, through the combined effect of food and fuel price hikes. While estimated cost changes can provide some guidance, the full cost implications of developments will become clearer once WFP has identified the best alternative options to source commodities, which includes potential changes in the overall mix of commodities.

59 Based on presentation by WFP's Supply Chain Division, Ukraine conflict – analysis of potential ripple effect on other operations

Conclusions

The Russian invasion on 24 February 2022 not only has major implications for food security in Ukraine; with both countries being key players in global food markets and Russia's role in global energy markets, the conflict risks increasing food insecurity in many places around the world. Besides the conflict itself, which mostly affects Ukraine's imports and exports, international sanctions on Russia and uncertainties around them will strongly disrupt trade activities. This has thrown global food and energy markets into turmoil, pushing already high prices up even further. These increases, once passed on to domestic markets, will limit access to food. They will simultaneously increase operational costs for WFP, constraining its response at a time when it is most needed.

Photo credits

Cover: *A woman at a reception centre in Hala Kijowska, Poland, after fleeing from her home in Nikopol, Ukraine, with her daughter.* WFP/Marco Frattini

Page 6: *Empty shelves in a grocery store in Kyiv, Ukraine.* WFP/Shutterstock/Drop of Light

Page 12: *WFP food parcels are unloaded from a truck, ready for distribution in Orlovske, Ukraine.* WFP/Deborah Nguyen

Page 16: *A child has a drink at the Korczowa-Krakovets border crossing between Poland and Ukraine.* WFP/Marco Frattini

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