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RUSSIA AND THE GLOBAL FOOD SUPPLY

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ANALYSIS

Russia Weaponizes Grain Trade Against Ukraine

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Abstract

The Black Sea Grain Initiative, which had allowed Ukraine to export grain from its ports, was terminated by Russia on July 27. This article analyzes the consequences of termination and Ukraine's options, as well as Russia's conditions for restarting the agreement. It is unlikely that these demands will be met, so resumption of the grain deal is doubtful. Instead, Russia has weaponized grain trade against Ukraine.

Background

The February 2022 invasion of Ukraine was followed by Russia's blockade of Ukraine's Black Sea ports. In the early days after the invasion, Ukraine also mined its ports to prevent the advance of the invasion, with the net result that grain exports through the Black Sea effectively dropped to zero. During the 2020/21 marketing year, Ukraine was a significant exporter of wheat, accounting for about eight percent of world wheat trade and 13 percent of world corn exports (USDA 2022a).

Three consequences ensued from the tight global grain market. First, more than a dozen countries enacted grain export bans to protect their domestic supplies. Second, the cutoff of Ukrainian grain exports exacerbated tight global supplies as world consumption exceeded production, leading to higher prices. In March 2022, wheat futures spiked to $460 per metric ton in the European Union and $539 per metric ton in the United States. From that high point, wheat prices drifted downward for the remainder of the year (USDA 2022b). By December 2022, futures' prices in the EU were $332 per metric ton and $385 per metric ton in the United States (USDA 2022c). Third, the World Food Program (WFP) received only half of the usual volume from grain donors in the first half of 2022. In addition, due to higher global prices, the WFP was unable to purchase as much grain as previously. In June 2022, it had to suspend grain deliveries to 1.7 million people in South Sudan, a region on the brink of widespread famine (WFP 2022). Due to the ripple effects of the Ukraine war, in 2022 the number of acutely food-insecure people in the world rose by an estimated 181 million people across 41 countries (FAO 2022).

In late July 2022, a deal brokered by Turkey and the United Nations allowed Ukrainian grain to leave three key Ukrainian ports in the Black Sea: Odesa, Chornomorsk, and Pivdennyi. According to this agreement, called the Black Sea Grain Initiative, Ukrainian ships loaded with grain were permitted to navigate to Turkey for unloading. However, Russia did not allow vessels to register for departure from Pivdennyi, the largest of the ports. From Turkey, the ships would return to Ukrainian ports after being inspected by teams from Russia, Turkey, and the United Nations to ensure that weapons were not being transported to Ukraine. The initial July 2022 agreement was valid for 120 days but was extended in November 2022 (120 days), March 2023 (60 days), and May 2023 (60 days). As a result of the grain deal, between August 2022 and July 2023 Ukraine was able to export about 33 million metric tons of grain from its ports, of which about 27 million were corn, although wheat was also exported (Seddon, Foy, and Samson 2023).

On June 26, 2023, the Joint Coordination Centre in Istanbul stopped issuing permits for ships to participate in the grain deal because Russia stopped inspecting ships as required as part of the process. After June 26, not one of the 29 ships that had applied for passage had their applications approved, and only 13 ships that had prior permission were allowed to sail (*TASS* 2023a). On July 17, Russia announced that it was terminating the grain deal, a move that the Biden administration termed "irresponsible" and "unconscionable" (Birnbaum and Lamothe 2023). Russia did, however, hold out the prospect of returning to the deal if certain conditions were met (Masih 2023).

Russian Complaints

Russia had been dubious about the grain agreement from the beginning. Russia's skepticism about the deal was evidenced by its suspension of participation in October 2022 after suffering an attack on its Black Sea Fleet. It also suspended its participation for one day in November 2022, causing an immediate spike in global grain prices. Russia alleged that Ukrainian grain was being sent not to poor nations, but rather to rich countries in the EU, thereby earning it revenue that could be used to fight. Specifically, Russia alleged that only 10 percent of the corn and 40 percent of the wheat exported by Ukraine was destined for poor nations, with the rest being sent to rich countries.

In fact, even with the July 2022 grain deal in place, Ukraine did reorient its grain trade toward Europe due to the ease of shipment (rail, truck, barge) and because

of higher demand in Europe. Due to the destruction and mining of Ukrainian farms, Russian theft of Ukrainian grain and farm machinery, and Ukraine's conscription of men who would otherwise have been farming, Ukrainian grain production fell during 2022. As a result of the war, between 20 and 30 percent of the areas where winter wheat was sown went unharvested during the 2022/23 season. As a result, exports declined by more than one-third compared to the pre-war period. Total Ukrainian wheat exports were reported at 16.8 million metric tons and corn exports at 30.3 million metric tons for the 2022/23 season (Sobolev 2023).

Russia complained that while Ukraine was able to export its grain, Russia experienced difficulties exporting its own grain. For the past year, Russia has consistently criticized the agreement for only benefiting the Ukrainian side. Yet Russian claims are not supported by concrete data. Russia had a wheat harvest in excess of 100 million metric tons for the first time in 2022, which allowed it to lead the world in wheat exports during the 2022/23 agricultural year at more than 45 million metric tons, also a record high for Russia. Russia shipped grain to more than 100 countries. These data do not suggest that Russia suffered from restrictions on its grain exports.

Russian leaders further complained that their companies faced difficulty in completing transactions, shipping, and insurance. Russia had difficulty completing grain and fertilizer transactions because they were no longer part of the SWIFT system. To get around this, Russia initially insisted that transactions be completed in rubles. Later, it indicated that it would develop an alternative to SWIFT, an initiative that did not go far. Western cargo companies refused to carry or offload Russian grain, while Western insurance companies would not insure Russian cargo. Eventually, Western nations created loopholes that allowed Russian grain to be shipped and offloaded. In December 2022, Russia's United Grain company announced that it intended to establish its own fleet of bulk carriers for grain shipments, ordering the construction of 14 ships, with the first delivery in late 2025 or early 2026 (*Oreanda News* 2022). It also intended to buy five bulk carriers on the secondary international market. Russian exporters sought insurance from both domestic insurers and non-Western companies.

What Russia Wants

Russia has long complained that the Black Sea Grain Initiative favored Ukraine and that Russia received few tangible benefits from it. Moscow has indicated that it will consider renewing the grain deal if several conditions are met: (1) Rossel'khozbank) to the SWIFT global payment system; (2) the unblocking of Russian food and fertilizer exporters' overseas assets; (3) free access to Western markets for Russian grain and fertilizer sales (although the access to Western agricultural markets has not been directly blocked by Western governments for Russia, there are restrictions on individuals who may own a grain or fertilizer company); (4) the reopening of the ammonia pipeline that flows from Pivdennyi; (5) the lifting of restrictions on purchases of agricultural machinery and spare parts from the West; and (6) assurance that grain is being exported from Ukraine for humanitarian aid and not commercial gain.

Winners and Losers

One winner from the termination, at least in his own mind, is Russian President Vladimir Putin. Putin for months denounced the grain deal as one-sided and claimed that Russia got little from the deal other than favorable public relations for its "humanitarian" gesture. In July 2023, Putin convened a summit with African leaders in St. Petersburg during which he hoped to show African support for his war in Ukraine. However, only 17 African leaders attended, down from 43 in 2022, which Putin blamed on the West, accusing the latter of interference. At the summit, Putin said that Russia would deliver 25,000 to 50,000 tons of free grain each to Burkina Faso, the Central African Republic, Eritrea, Mali, Somalia, and Zimbabwe in the next three to four months (Troianovski and Walsh 2023). His offer to supply free grain to selected African nations is probably seen as a win by Putin, even though the promised volumes are rather small and Russia has a poor track record of humanitarian assistance (Dixon and Houreld 2023).

A second winner is Russia's grain producers and exporters. Once the termination of the grain deal was announced, the Russian Grain Union firmly supported the decision. A few days after termination, Putin claimed that Russia's grain producers had lost upwards of $1.2 billion USD from the deal due to lower domestic prices, lower international prices, and higher insurance and transaction costs (*TASS* 2023b). Russian grain futures jumped nine percent the day after termination of the grain deal was announced, which benefits grain producers, although in August prices began to decline.

Aside from Ukraine, perhaps the biggest losers from the termination of the grain deal are poor African nations that depend on food assistance and food imports. In 2023, the Horn of Africa is experiencing a severe drought, so it needs food assistance. At the summit, African leaders expressed support for the grain deal and hoped to see it restored (Dixon 2023).

Ukraine's Options

The ending of the grain deal creates difficulties for Ukraine. The day after termination, Russia warned

Ukraine that any of its ships passing through the Black Sea would be considered military targets. Ukraine followed suit. The implication is that without the deal in place, it is very difficult for ships to enter or leave Ukrainian ports. As of mid-September 2023, Ukraine had sent two ships with grain across the Black Sea to Istanbul, but the volume of grain was minuscule compared to what had previously been transported and what Ukraine needs to clear excess reserves.

One option for Ukraine is to ship grain from ports on the Danube. Since the invasion, the canals leading into and out of the Danube ports have been dredged to make them deeper, allowing larger and heavier cargo ships to traverse them. By May 2022, Ukraine was moving more than 2 million tons per month along the Danube. Yet that figure is low when you consider that Ukraine is expecting its 2023 grain harvest to total around 44 million tons (Hudson and Galouchka 2023). The day after the grain deal was terminated, Russian missiles attacked the Danube port of Reni, on the border with Romania, a signal that this passageway was not entirely secure. Prior to the war, ports on the Danube accounted for only 1.5 percent of Ukraine's grain trade (*The Economist* 2023). If Black Sea transit is no longer viable, ports on the Danube will undoubtedly grow in importance, but grain is still likely to pile up because river transit does not have the same capacity as sea transport.

A related issue is that the land transport that connects Danube ports to the rest of Ukraine often experiences bottlenecks. There is a single rail line and numerous bridges that Russia has repeatedly attacked with drones and missiles. When those are put out of action, there is a road that runs parallel to the rail line, but the traffic jams from increased volume can stretch for dozens of miles. There are plans to widen the road and increase capacity on the rail line, but such projects will take time. While the Danube ports help to relieve the pressure, the cost of exporting from them has risen from $12 to $150 per ton, and Ukrainian grain producers were already grappling with slender profit margins and reduced production (*The Economist* 2023).

Grain exports are further complicated by Russia's repeated missile attacks against Ukraine's grain infrastructure, ports, and grain terminals where grain has been stored since the grain deal ended. One apparent motive is to undermine Ukraine's ability to export grain. Another is to improve Russia's position as a global wheat supplier by harming a major competitor.

Ukraine also faces pressure on political support from certain EU members. In spring 2023, Poland, Hungary, Slovakia, Bulgaria, and Romania restricted imports of Ukrainian grain following protests by farmers that Ukrainian imports had produced a grain glut and driven down domestic prices. The European Commission approved a moratorium on the sale of Ukrainian grain until June 5 (subsequently extended to September 15). Following the termination of the grain deal with Russia, President Zelensky called on the European Union not to restrict Ukrainian grain exports. Poland, however, indicated that it would extend its ban on the sale of Ukrainian grain in Poland beyond September 15 if the European Commission did not extend the original deadline. The Polish government said that it was not against transit of Ukrainian grain through Poland, but "we say no to the destabilization of Polish agriculture" (*TASS* 2023*c*). On September 12, the Polish prime minister issued an ultimatum to the European Commission: extend the prohibition on the sale of Ukrainian grain beyond September 15 or we will do it ourselves (*TASS* 2023*e*). Poland was joined by Romania, where farmers threatened a national strike if the import ban on Ukrainian grain was not extended (*TASS* 2023*f*). Hungary and Bulgaria decided to extend the ban to the end of the year, not waiting for the European Commission to issue guidance (*TASS* 2023*g*). Prior to September 15, Ukraine indicated it might have to file a complaint with the World Trade Organization (*TASS* 2023*h*). On September 15, the European Commission lifted the ban on Ukrainian grain imports, a decision supported by the majority of EU members (Bond et al. 2023). Poland, Slovakia, and Hungary stated that they would unilaterally continue the import ban (Ives and Gupta 2023). Poland expressed that it was not interested in a short-term extension of the ban, speaking instead of an "indefinite" term to protect Polish farmers (*TASS* 2023*i*). The ban does not cover the transport of Ukrainian grain through those countries.

Outlook

Since Russia's July 2023 termination of the grain deal, Turkey and the UN have tried to restart Russia's participation. Presidents Erdoğan and Putin met in early September to discuss restarting the grain deal, but without success. Putin and his spokespeople have indicated that Russia is ready to rejoin the deal after the West follows through on promises that Russia feels have gone unfulfilled. Essentially, in return for restarting the grain deal, Russia wants to undo the current sanctions regime. That outcome is unlikely.

Moreover, Moscow has made clear that it has no intention of restarting the grain deal unless its conditions regarding the payment system, transportation, and insurance are met. The Kremlin wants the concessions frontloaded. For instance, in early September, the UN indicated that a subsidiary to Russia's agricultural bank could apply for access to SWIFT and have access within 30 days as part of a deal to restart Ukraine's grain exports. The Kremlin rejected the offer, stating that it

does "not contain any new elements" and "cannot serve as a foundation" for restoring Russia's exports to normal (*Reuters* 2023a).

Meanwhile, Russia is acting unilaterally. It hopes to inflict as much damage on the Ukrainian economy as possible. Russia's attacks on Ukraine's grain infrastructure are intended to undermine Ukraine's ability to export and deprive it of revenue. The termination of the grain deal means that the bulk of Ukraine grain will be sent to Europe, where domestic political opposition to Ukrainian grain is high. If Ukraine cannot export its grain, Ukrainian farmers' motivation to plant the 2024 crop will be diminished because each hectare planted will represent a monetary loss—when before the war, agriculture accounted for about 10 percent of Ukraine's GDP. Ukraine is trying to establish an alternative route by sending ships from Chornomorsk to Istanbul, hugging the coastline and staying in Ukraine's territorial waters. The first cargo ships arrived in Chornomorsk in mid-September. There is no guarantee, of course, that Russia will respect territorial waters, as the entire Black Sea is increasingly militarized. As of early-November 2023, more than 700,000 tons of grain have left Ukrainian ports via the alternative route following the termination of the 2022 grain deal (Reuters 2023b).

Furthermore, markets in Africa are being poached by Russia. Putin reached an agreement with Turkey and Qatar whereby Russia would sell one million tons of grain to Turkey at advantageous prices and Turkey would then transport it to poor nations with financing for shipment and insurance from Qatar. Russian officials indicated that the grain did not represent a substitute for the grain deal with Ukraine, but rather was intended to help poor nations (*TASS* 2023*d*). In reality, however, Russia wanted to supplant Ukraine as a supplier, thereby depriving Kyiv of needed export markets. In essence, Putin is working for the collapse of Ukraine's agricultural economy.

Weaponizing food trade is no different from Russia's weaponization of energy supplies during winter or its curtailment of trade with "unfriendly" nations. It is no different from the abduction of Ukrainian children or the indiscriminate bombing of civilian residences, hospitals, and schools. We should recognize that the termination of the grain deal represents the opening of a new phase of aggression against Ukraine.

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ANALYSIS

Russia's War on Ukrainian Farms: The Black Sea Theater

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Abstract

Ukrainian agriculture is a central pillar of the country's economy and of its post-war recovery and reconstruction. Russia's deliberate targeting of agricultural infrastructure and its naval blockade of the Black and Azov Seas have prevented Ukrainian grain from reaching world markets, threatening the global food system. Since Russia failed to renew its participation in the grain deal in July 2023, the Black Sea has become an increasingly contested space. Although Ukraine has unilaterally declared a maritime corridor and some commercial ships have defied Russia's warning that they may be targeted, in the absence of a new agreement on a Grain Corridor, this remains a perilous and risky path for Ukrainian grain. If there is hope for a new Grain Deal, Recep Tayyip Erdoğan, President of Türkiye, will likely be its broker. Erdoğan is interested in a normalization of food trade not only to shore up Türkiye's own food security, but because the country's food-commodity trade relations with Europe and the Middle East make it a central node in the global food system.

Grain as a Pillar of Ukraine's Economy and Post-War Reconstruction

Ukraine's abundant arable land, fertile soils, and long growing seasons have historically placed agriculture at the center of the country's economy. Agriculture generated 41 percent of Ukraine's export earnings in 2021 and accounted for around 20 percent of GDP, making export-oriented agricultural production Ukraine's fastest-growing sector over the last decade. The sector also employs a much larger share of the country's working-age population than in Western Europe or the United States. Roughly one-third of Ukraine's population lives in rural areas, and agriculture accounts for 17 percent of domestic employment (Ministry of Economy of Ukraine 2022). With growing production and rapidly rising yields and export volumes, Ukraine has become one of the most important contributors to global food security: millions of urban poor in Asia, Africa, and the Middle East rely on affordable grain imports from Ukraine (United Nations Security Council 2022). Before the war, Ukrainian corn accounted for as much as 80 percent of China's corn imports.

Thus, Ukrainian rural production is crucial for the country's war economy, its post-war recovery and reconstruction, and indeed the future of the global food system.

Given that export-oriented agriculture is a pillar of the Ukrainian economy, the Russian naval blockade of the Black and Azov Seas that has prevented Ukrainian grain from reaching world markets has been one of the most harmful aspects of the war. While the world watched Russia's army encroach on Kyiv in early 2022, Russian naval forces began attacking ships, blocking all commercial trade to and from Ukrainian ports and mining Black Sea waters (Borger 2022). Between July 2022 and July 2023, the naval blockade was temporarily and partially eased by the Grain Corridor, an agreement between the warring parties, the UN, and Türkiye created through the Black Sea Grain Initiative (BSGI). The BGSI allowed Ukrainian grain to reach global markets from July 2022, but on July 17, 2023, Russia terminated its participation in the agreement (Bigg et al. 2023).

Before the war, virtually all of Ukraine's agricultural products were exported via the Black Sea—a commercially and strategically important maritime passage. While Ukrainian farms have tried over the past year to find alternative export routes, it is costly to shift the transport of significant amounts of grain from sea to rail or road, and it is nearly impossible for these alternative means to export Ukraine's harvest in its entirety. Moreover, the competition that low-cost Ukrainian grain poses to Eastern European farms has threatened to undermine the logistical support for the war given by critical allies, including Poland, Hungary, Slovakia, Bulgaria, and Romania (Associated Press 2023).

The Black Sea blockade is part of Russia's war on Ukrainians farms, in which Russian forces have deliberately targeted the country's ability to produce food for the world (Wengle and Dankevych 2022b). Since the beginning of the war in February 2022, Russian attacks on granaries and grain export terminals, the destruction wrought by the explosion of the Kakhovka dam, mines, and stolen tractors have all caused grievous harm to Ukrainian farms (Wengle and Dankevych 2022a and 2023; Flylyppov and Lister 2022). Since the termination of the BSGI, the targeting of grain-related export infrastructure has become even more blatant: Russian missiles have struck granaries and port infrastructure in Odesa, one of Ukraine's main ports, and on the Danube, the most feasible alternative export route

for Ukrainian grain (Garanich 2023; Greenall 2023). Although Russia claims that, if its conditions are met, it is willing to resume the Grain Deal, Russia has so far refused to reopen the Grain Corridor (Vedomosti 2023).

In recent months, the Black Sea has become an increasingly contested space. Russia's Black Sea Fleet was widely seen to have the preponderance of naval power. Despite this, the Russian navy has also been vulnerable to Ukrainian maritime drone attacks, and a number of successful strikes have made Russia reluctant to risk its own ships (Trofimov 2023). In August, Ukraine unilaterally declared a corridor for commercial vessels, and a small number of commercial ships have managed to leave Odesa (Armstrong 2023). On September 19, a commercial ship loaded with grain, the *Resilient Africa*, managed to leave the Ukrainian port of Chornomorsk and arrive safely in Romania. These remain extremely risky voyages, as the Russian navy has repeatedly threatened to attack civilian ships in the Black Sea (Reuters 2023). Nevertheless, the *Resilient Africa*'s safe passage is a victory for Ukraine and demonstrates a vulnerability of the Russian navy that may make Russia more amenable to a diplomatic settlement that protects commercial ships, including ships involved with grain trade, on the Black Sea.

The Grain Corridor and Russia's Black Sea Blackmail

The original Grain Corridor—formally known as the Black Sea Grain Initiative (BSGI)—was signed in Istanbul on July 22, 2022 (United Nations 2023). Russia agreed to a limited and temporary easing of the naval blockade it had imposed in February 2022, allowing for the restoration of grain-trade operations at three seaports: Odesa, Chornomorsk, and Pivdenny. The BSGI, brokered by Türkiye, was a rare diplomatic victory in 2022. By the time the original agreement collapsed in July 2023, after nearly a year in operation, the Grain Corridor had enabled Ukraine to export over 32.8 million tons of grain and helped control global food price inflation (United Nations Office at Geneva 2023). The Grain Corridor was nonetheless politically tenuous and, at best, a better-than-nothing solution to an urgent problem. The core problem with the BSGI was that it was initially limited to 120 days and then extended for just 60 days at a time in November 2022 and March 2023. These periods are far too short for Ukrainian farmers, who need to plan ahead by at least one growing season (Wengle and Dankevych 2022b).

What is more, the limited durations of each of these agreements gave Russia opportunities to blackmail Ukraine and its Western allies and to extract concessions on sanctions. Moscow did not fail to take this opportunity every time the agreement expired, negotiating a number of extremely important concessions in return for allowing the passage of Ukrainian grain in 2022. The United States excluded trade in agricultural commodities and fertilizer from its embargo on Russia, while the EU modified financial sanctions to allow payment for these commodities. Nevertheless, for much of 2022, the Kremlin expressed dissatisfaction with how food and fertilizer exports remained affected by the sanctions. Some shipping companies, insurers, and banks had shied away from facilitating Russian trade due to sanctions, which led to Russian claims that the terms of the original BSGI had been violated.

This year, Russia has added further demands, including two that are particularly noteworthy. First, Russia is demanding that the State Agricultural Bank (Rosselkhozbank) be exempted from sanctions, insisting that the bank is only engaged in facilitating food production and export. Reports by the *Economist* and *Source Material*, an investigative journalism non-profit organization, however, have established that Rosselkhozbank is also financing an oil trading company and therefore helps insulate Russia's energy sector from the impact of sanctions (*The Economist* 2023; *SourceMaterial* 2023). Rosselkhozbank's chairman is Dmitry Patrushev (who also holds the post of Minister of Agriculture), the son of Nikolai Patrushev, a prominent *silovik* known to have close ties to President Putin. The UN has nevertheless recently signaled a willingness to reconnect Rosselkhozbank to the SWIFT system, from which it has been excluded since Western sanctions were imposed in 2022 (Nichols 2023). This would indeed be a major concession in the West's sanctions regime.

Russia's second significant demand is that Ukraine free up an ammonia pipeline that Russia uses to export fertilizer from Togliatti to global markets via the port of Odesa. Ukraine has blocked the pipeline since February 2022, the beginning of Russia's invasion. The pipeline was also damaged in an attack in June 2023, which Russia claims was perpetrated by Ukrainian forces (*Reuters* 2023). Russia is a leading exporter of ammonium fertilizer, and the Russian Foreign Ministry has called the reopening of the pipeline a "linchpin" of its conditions on renewal of the grain deal. In essence, Russia is trying to remove sanctions-related restrictions on its own abundant harvest and resources, allowing it to take advantage of tight global markets for grain and fertilizer. The reopening of the Togliatti–Odesa pipeline would be a boon for the Russian economy.

Türkiye's Pivotal Role in the Black Sea and Global Food Supply Chains

It is by now well known that the Black Sea region is critical for the global food system. Ukrainian and Russian farms produce a large share of the world's corn,

wheat, and sunflower seeds—basic building blocks for today's industrial food production. Although the war devastated farms and disrupted last year's growing season, Ukrainian farmers still harvested many millions of tons of foodstuffs. For its part, Russia has been able to increase grain exports in the 2022/23 growing season compared to 2021/22.

What is less well known is that Türkiye plays a tremendously important role in the food supply chains that connect Ukraine, Russia, and Türkiye with the Middle East and Europe. Since Russia defected in July 2023, Recep Tayyip Erdoğan has spearheaded a flurry of diplomatic efforts to resuscitate the grain deal. In early July, Erdoğan met with Ukrainian President Volodymyr Zelensky in Istanbul; in early September, he traveled to Moscow to meet with Putin (Sezer 2023). Erdoğan recently pledged that he will be "present at every table" where solutions to the global food crisis are discussed and that he will make the crisis "one of the main agenda items" of the UN General Assembly meeting in September 2023 (Directorate of Communications 2023).

Why is Türkiye so intent on reviving the Grain Deal? Erdoğan is deeply invested in creating a safe passage for Eurasian grain because not only is Türkiye one of the largest importers of Eurasian grain, it is also a key node for agricultural and food trade between Eurasia, Europe, and the Middle East. That means that both its own food security and the stability of its food-export sector depend on imported Eurasian grain (*Daily Sabah* 2023). In other words, freeing up Ukrainian grain is desirable for Erdoğan for domestic political reasons and for the normalization of one of its most important foreign economic relations.

High grain prices are enormously costly for Türkiye because the Turkish Grain Board purchases large quantities of imported wheat and sells it to domestic flour mills and pasta producers at a significant discount (Karabina 2023). These grain subsidies are meant to stabilize the cost of bread, a basic dietary staple. This was particularly important in the months before Türkiye's presidential election, in which Erdoğan faced a popular contender. It is likely no coincidence that Russia renewed its participation in the BSGI in March and May 2023, despite repeated and serious misgivings: both dates fell before Turkish elections.

But Türkiye's concerns about Eurasian grain run deeper than just feeding its own population. Türkiye plays a pivotal role in the global food system. Since the founding of modern Türkiye, the Turkish government has supported farms with generous subsidies, stable demand from the state's marketing board, and below-market credits through a state agricultural bank. Turkish farms grow a variety of products, including wheat, cotton, and hazelnuts..

Türkiye is the world's leading exporter of flour and hazelnuts and a major exporter of pasta. Flour is particularly important in the current context: Türkiye exported over $1.1 billion of wheat flour in 2021, nearly three times as much as the second largest exporter, Germany (OEC 2023). Most of Türkiye's wheat flour goes to the Middle East, with Iraq, Yemen, and Syria the top three destinations. Although Turkish citizens are among the world's largest consumers of wheat products, nearly 70 percent of the wheat Türkiye imports is processed and re-exported as flour and pasta. Turkish government regulations require exported flour, pasta, and bulgur to be made with imported wheat. In 2021, Türkiye imported $2.49 billion of wheat; the vast majority of this was sourced from Russia and Ukraine, with the Russian government-controlled United Grain Company a major supplier (OEC 2023). The country's flour, pasta, and hazelnuts exports make Türkiye a critical food supplier for Europe and the Middle East.

A further important aspect of Türkiye's role in the global food system is that climate change has increasingly threatened its rural producers in recent years. Turkish agriculture is considered highly vulnerable to droughts, desertification, and rapidly depleting groundwater aquifers (Tanchum 2023). Hazelnuts and cotton, the country's most valuable food exports, are both thirsty crops: cotton is notorious for its water requirements, needing roughly five times as much water as wheat. In 2020, 97 percent of farmers across Türkiye reported diminished harvests and yields due to climate change-related impacts on their farms. According to UN estimates, 60 percent of the country's territory is prone to desertification. These acute climate-related threats have compounded global threats to food supply and led to extremely high food-price inflation: in spring of this year, Türkiye's food inflation rate was 52.5 percent, which was four times higher than the OECD average (Tanchum 2023). Declining domestic harvests are making Türkiye ever more dependent on imported grains.

Commerce and Geopolitics

The Black Sea is a vital passage for commercial shipping for all littoral states, including Ukraine, Russia, and Türkiye. In addition to grain, a vast array of industrial commodities, including a share of Russia's oil exports, are shipped through its waters. It is also, of course, of major geopolitical importance and a theater of war. Although Russia has the preponderance of naval power in the Black Sea, Ukraine has managed to elevate the risks for Russian vessels through increasing reliance on long-range naval drones. In recent weeks, Ukraine has targeted several Russian targets in the Black Sea Fleet's Sevastopol's headquarters.

Türkiye is the ultimate arbiter of commercial shipping on the Black Sea during a time of war. With its control of the Bosporus and Dardanelles, known as the Turkish straits, Türkiye has the final word on commercial and military vessels entering and exiting the Black Sea under a 1936 international treaty, known as the Montreux Convention, that obliges Türkiye to allow free passage to all merchant vessels. Importantly, though, this convention distinguishes between war and peace. Days after Russia's invasion, on February 28, 2022, Türkiye closed the straits to warships. The treaty also stipulates that if Türkiye considers itself under attack, the country can restrict trade. Ukraine, for its part, claims the right to attack Russian commercial vessels under the Treaty of San Remo (Trofimov 2023).

For now, in the absence of a grain deal, the fate of every ship carrying Ukrainian and Russian grain will be uncertain—it is likely that non-hostile commercial ships will end up being targeted by one of the warring parties. The interdependent nature of the three countries' agricultural production, though, contributes to a better understanding of the conditions for a renewal of a deal that would protect commercial traffic during the ongoing war. Ukrainian farms rely on safe passage of their ships through the Black Sea. Russia has overwhelming naval power but also wishes to restore the ammonia pipeline that runs through Ukraine and needs Türkiye's goodwill to allow its own exports, including the fruits of this year's record grain harvest, to reach the world market via the Bosporus. Türkiye, meanwhile, has a strong and vested interest in preventing Russia from weaponizing food, causing disruptions to global food trade and driving up food commodity prices even further. If there is hope for a new Grain Deal, it is Erdoğan who will be its most likely broker.

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ANALYSIS

Russia's Grain Exports and Supply Risks during Russia's War in Ukraine

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Abstract

Despite Russia's invasion of Ukraine, Russia's grain exports have increased. However, the risks determining Russia's actual wheat export supply in the short term have risen substantially. Thus, Russia's wheat exports might be lower than expected temporarily, driving up world market prices in that period and negatively affecting global food security. Political risks emanate from Russia's system of permanent wheat export restrictions, the country's unofficial minimum wheat export price, and increased governmental control of the grain export sector. Grain trade infrastructure in the Black Sea is exposed to military risks, which might lead to temporary disruptions of exports. Increased ruble exchange-rate volatility adds further risk to Russia's grain export supply. Countries that are heavily dependent on grain imports from Russia need to take measures to strengthen their grain-trade resilience in order to increase their food security.

Before Russia's invasion of Ukraine, grain exports by Kazakhstan, Russia, and Ukraine were growing quickly. It was not until 2000 that these three countries became net exporters of grain. Over the ensuing two decades, however, Russia rose to become the world's largest wheat exporter, while Ukraine became one of the largest corn exporters. Although Kazakhstan exports significantly less wheat, it is one of the world's leading exporters of wheat flour.

In recent years, total grain exports by Kazakhstan, Russia, and Ukraine have exceeded 100 million tons annually. Roughly speaking, this corresponds to over a quarter of world exports of wheat, corn, and barley (see Figure 1 overleaf and Table 1 on p. 17).

Russian wheat has mainly been imported by countries in the Middle East and North Africa (MENA), with Egypt and Turkey the main target markets. In recent years, Russia's exports to low-income countries that are net wheat importers and heavily dependent on food imports (eg., those of sub-Saharan Africa) have increased (Heigermoser et al. 2022). Russia is now the main supplier of wheat to African countries, accounting for 26% of total wheat imports by African countries in 2021 (Götz and Svanidze 2023). As such, the destinations of Russia's and Ukraine's wheat exports largely overlap. Kazakhstan, by contrast, exports wheat primarily to its neighbors in the region, including Uzbekistan, Tajikistan, and Afghanistan.

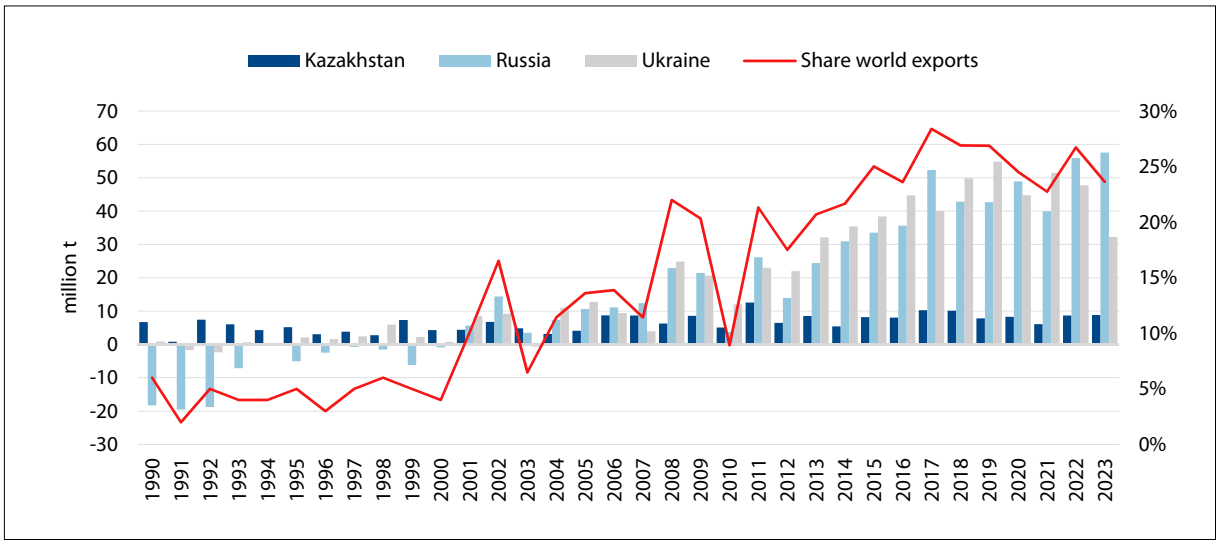
Since Russia's invasion of Ukraine, the volume of Russia's grain exports has only increased. Forecasts suggest that Russia will remain a dominant supplier of wheat to the world market. In the current marketing year (2023/24), the U.S. Department of Agriculture (USDA) predicts that Russia's wheat exports will increase from 47.5 (2022/23) to 50 million tons, even as Russia's wheat production declines from 92 to 85 million tons. This increase will be due to Russia selling more ending stocks from the previous marketing season, among other things. Russia's exports of corn and barley, meanwhile, will remain constant.

USDA forecasts that Ukrainian production of wheat and corn will increase slightly compared to 2022/23 even if the war drags on. Grain exports, however, may decline. While Ukraine's importance to the global grain supply will likely rise again once the war is over, grain exports might decline in importance while exports of oilseeds and oilseed products might become more prominent, depending on future export logistics.

Russia's wheat trade pattern will likely become more influenced by geopolitics. In recent years, Iran has become one of the primary destinations for Russian wheat exports. Grain exports to China might also increase, thanks to the New Land Grain Corridor that runs from the Urals through Siberia and the Russian Far East to China. Once the North–South transport corridor, a planned railway route connecting Russia to the Indian Ocean, is completed, grain export to countries in the Middle East and South Asia (including Iran, India, and Pakistan) might likewise rise.

Despite the continued growth in Russia's importance to the global wheat supply, risks to Russia's wheat export supply have increased since the start of Russia's full-scale war against Ukraine. Russia's previous temporary export restrictions have hardened into a permanent system and Moscow has reportedly made efforts to establish a minimum wheat export price. In addition, Russia's grain export sector has been subject to restructuring and macroeconomic

Figure 1: Net Grain Exports (in Million t) by Kazakhstan, Russia, and Ukraine (Left Axis), and Their Share of World Grain Exports (in %, Right Axis)



Note: The red line depicts the sum of the shares of Kazakhstan, Russia, and Ukraine as a percentage of world grain exports.

Source: Compiled by the authors using data from USDA Production, Supply and Distribution (PSD) online; 2023/24 values drawn from an August 2023 World Agricultural Supply and Demand Estimates (WASDE) forecast (see also Table 1 on p. 17).

instability has increased. This adds to the increased risk of export supply disruptions as grain transport by ship in the Black Sea is exposed to military risks in general.

The remainder of this article provides an overview of major risks that have increased with Russia's war in Ukraine. We conclude with recommendations for grain import-dependent countries to counter those risks.

Russia's Current Policies Restricting Wheat Exports

Russia has repeatedly restricted its wheat exports to insulate domestic markets from rising world market prices. During the 2007/08 food crisis, this took the form of an export tax (Götz et al., 2013); Russia subsequently banned wheat exports in 2010/11 (Svanidze et al., 2022) and limited them with an export tax in 2015. An export quota implemented in March 2020 was extended for the third time in 2023. In February 2021, the Russian government imposed a flat export tax; in June of that year, it was transformed into a rather complex floating export tax system that remains in force (Svanidze et al., 2023).

The export tax formula has been adjusted six times since its imposition in response to rapidly changing market conditions. The export duty reached its highest value of $146 per ton in early July 2022, amounting to nearly half of the Russian wheat producers' price. In view of high world wheat prices, a bumper harvest, and a strong ruble at the beginning of the new harvesting season, the tax rate was lowered twice (in July 2022 and June 2023) by changing the calculation rule to improve the competitiveness of Russian wheat exports on international markets. As a result, the wheat export tax became more strongly linked to changes in the wheat export price and the ruble exchange rate. This raises the question of to what extent the generation of tax revenue is decisive for the setup of the wheat export tax.

Experts also report attempts by the government to unofficially enforce a minimum export price. To date, however, such limitations on the export price have not been successful, given Russia's good harvest and large carryover stocks, as well as sufficient world wheat supply. In the event of adverse market conditions, however, a minimum Russian export price might influence the price level on the world wheat market.

In contrast to previous export restrictions, Russia's current flexible wheat-export controls seem to have remained in effect for quite an extended period. The current wheat export tax, embedded in the Russian wheat trade system, decouples domestic producer prices from the world market price by increasing domestic supply, which lowers producer prices. In the short run, Russia's wheat export supply may be limited by the government increasing the export tax, which may raise world market prices, with knock-on effects for global food security, particularly in low-income countries dependent on wheat imports. In the medium and long term, a large export tax would also negatively impact production in the Russian grain sector, as it would reduce the revenues and profits of producers and export companies.

Restructuring of Russia's Grain Export Business

Russia's wheat export business has grown over the past decade, with Russian companies trading an increasing share of wheat compared to their international counterparts. The state-controlled Russian bank VTB has also been consolidating its role in local grain markets by acquiring trading companies, railway and port infrastructure since 2019 (Logistics OS, 2020).

Following Russia's full-scale invasion of Ukraine in 2022, large multinational agricultural export companies such as Viterra (US), Cargill (US), and Louis Dreyfus (France) first limited their operations in Russia and then exited the Russian market at the end of the 2022/23 marketing year, induced—according to experts—by pressure from the Russian government (Almeida et al.,2023). As of the 2023/24 marketing year, Aston (US, Switzerland) is the only international company conducting grain-trading operations in Russia. The company is one of the top three exporters of wheat from Russia and has nearly doubled its wheat exports in 2022/23 compared to the previous marketing year.

This shift has given local Russian firms more control over grain shipments. In particular, the two largest Russian privately owned companies, "Rif" and "Grain Gates," noticeably increased their wheat shipments in 2022/23 compared to 2021/22. The former, which increased its wheat exports from 6.1 million tons in 2021/22 to 8.2 million tons in 2022/23, has been the largest exporter of wheat from Russia for the last seven years. The latter, a private company registered only in 2022, exported nearly the same quantity of wheat (7.7 million tons) in 2022/23. Those changes have led to increasing concentration in Russia's grain export business, in contrast to the decline in the export shares of the leading companies over the past decade. In 2022/23, the top three export companies ("Rif", "Grain Gates" and "Aston") account for 44% of Russian wheat exports .

Disintegration from global value chains, increased market concentration, and the presence of state-owned enterprises in grain trade and port infrastructure all facilitate Russian state control and increase the opportunities for politicization of the grain trade. This may raise concerns about the market efficiency of the grain sector, which is increasingly directed toward geopolitical aims.

Grain Prices React to the Military Risks in the Black Sea Region

Russia's invasion of Ukraine and its military blockade of Ukrainian ports heavily disrupted Ukraine's global supply chains for agricultural goods and foodstuffs via its Black Sea ports. Following the blockade, Ukraine's agricultural exports collapsed, with only a limited volume of grain exported via the newly established EU-Ukraine Solidarity Lanes, which opened up logistics routes by truck, train, and ship via the Danube River (Götz and Svanidze, 2023). In August 2022, the Black Sea Grain Corridor opened within the framework of Black Sea Grain Initiative, allowing Ukrainian grain exports via Black Sea ports to resume. Since the opening of the Black Sea Grain Corridor aided significantly in bringing down grain prices, grain prices were expected to increase substantially when Russia left the Black Sea Grain Initiative and the corridor was closed. However, only relatively modest price increases were observed. Following the closure of the Black Sea Grain Corridor on July 17, 2023; the concurrent closure of the Kerch Strait on July 17–20; and the damaging of the Crimean Bridge in a military attack, wheat futures prices at the Euronext in Paris increased a rather modest 14% (see Figure 2). Significant price increases were observed when a tanker near the Crimean Bridge was hit (August 5) and a warship was attacked near Novorossiysk (August 4).

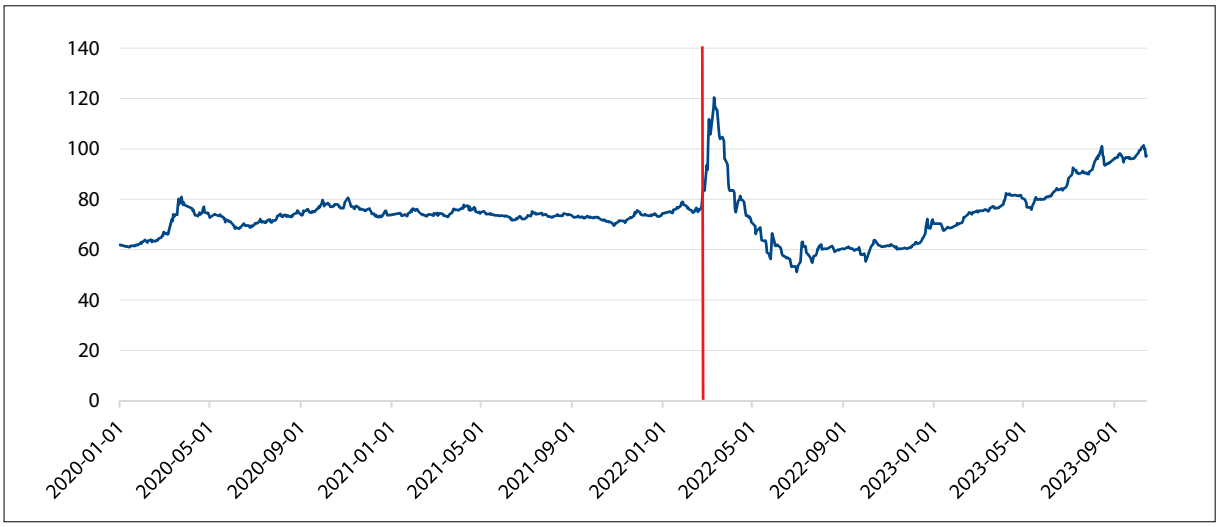
The fact that the termination of the Black Sea Grain Initiative caused wheat prices to increase only modestly can be explained by Ukraine's comparatively low monthly grain exports. These amount to 2.65 million tons per month, compared to the 4.7 million tons forecasted for Russia by USDA in the 2023/24 season. The closure of the Kerch Strait mattered, since a significant share of Russia's Black Sea grain exports transit the Azov Sea and ships pass through the Kerch Strait to enter the Black Sea. However, the majority of grain ships leave from the Port of Novorossiysk. Thus, any export supply chain disruptions related to the latter port may induce stronger price effects. In general, attacks on port export infrastructure increase ship insurance costs and thus transport costs. That being said, the attacks on Danube River port infrastructure that took place on August 16 and 23 only produced moderate price effects. Ukrainian grain is transported via the Danube River mainly from the Port of Constanța in Romania, where it is reloaded onto larger ships. The small price effects might be explained in part by the existence of alternative logistics routes among the EU-Ukraine Solidarity Lanes.

These war-related incidents and their price effects have increased price volatility since the Black Sea Grain Initiative was halted. It is highly likely that military activities on the Black Sea will resume, increasing the risk of export supply disruptions.

Macroeconomic Instability Influences Grain Export Business in Russia

Following Russia's invasion of Ukraine, the Russian ruble fell sharply, increasing the ruble-U.S. dollar exchange rate from less than 80 to over 110 within two weeks, with a peak of 132 in March 2022 (see Figure 2). As a result, the competitiveness of Russia's wheat exports increased dramatically, inducing an increase in wheat exports compared to the same period of the previous year.

Figure 2: Russian Ruble/U.S. Dollar Exchange Rate



Note: The vertical line corresponds to the Russian invasion of Ukraine (February 24, 2022).

Source: Compiled by the authors on the basis of Bank of Russia data.

Due to the capital controls imposed by the Russian Central Bank on the exchange rate market and Western sanctions limiting Russian imports, even as exports of oil and gas were maintained, the ruble appreciated. The strong ruble-U.S. dollar exchange rate decreased the international competitiveness of Russian wheat on world markets (Yugay et al., 2020). Thus, wheat exports in June 2022 fell strongly, and despite a record wheat harvest, Russia's wheat exports were considerably lower in July–September 2022 than in the same period of 2021. However, wheat exports resumed in October 2022, when the ruble weakened, exceeding exports in the previous year. The ruble's weakening continues, increasing Russian exports' competitiveness and fueling wheat exports.

Thus, Russia's export supply is substantially determined by the evolution of the ruble exchange rate. Due to the war in Ukraine and the concomitant imposition of Western sanctions on Russia, ruble exchange-rate volatility can be expected to remain high, adding further risk to Russia's grain export supply. In the medium term, high exchange-rate volatility, together with the wheat export tax, will drive the disintegration of Russia's domestic wheat markets from the world market, which may reduce domestic grain production in Russia in the longer term.

Conclusions

Following the dissolution of the Soviet Union, Kazakhstan, Russia, and Ukraine became net exporters of grains in 2000 and now rank among the world's leading grain exporters. Russia is the world's largest exporter of wheat. By diversifying and widening export supply, Kazakhstan, Russia, and Ukraine have strengthened global food security.

Despite Russia's invasion of Ukraine, Russia's grain exports increased. It is expected that Russia will remain a dominant global wheat supplier going forward. However, risks associated with Russia's wheat export supply have risen substantially in various respects. Thus, Russia's wheat export supply might be lower than expected temporarily, driving up world market prices and negatively impacting global food security.

First, now that Russia's wheat export tax has hardened into a permanent system, the risk of politically driven short-run export reductions inducing upward pressure on world market prices has increased, negatively impacting Russia's domestic production in the long term. Also, the potential for an informal minimum export price that exceeds the actual world market price opens up the prospect that the world wheat market price may be increased and stabilize at a higher level temporarily, especially in the event of adverse market conditions. Second, the disintegration of the Russian grain export business from global value chains has led to increased market concentration and a more dominant presence for state-owned enterprises in the grain export sector. This may expand opportunities for governmental con-

trol and politicization of the grain trade; geopolitical aims may be pursued at the cost of decreased market efficiency, driving up grain prices worldwide. Third, military activities in the Black Sea have increased the risk of export supply-chain disruptions for Russia (and Ukraine), which may decrease export supply in the short term and induce additional shocks on the world market price temporarily. Fourth, Russia's macroeconomic instability has increased substantially due to rising ruble-U.S. dollar exchange rate volatility, adding further risk to Russia's wheat export supply.

Due to Russia's dominant position in the global wheat market, which is expected to continue, this increased export supply risk has implications for grain supply chains globally. Countries with high dependency on wheat imports from Russia should reduce their risk by diversifying grain imports and expanding their grain storage facilities in order to buffer short-term price increases, as well as by enhancing local production of grains or substitute products where possible. Additional steps to protect global supply chains include diversifying transit routes (e.g., using the Trans-Caspian International Transport Route as an alternative to the Black Sea for Kazakh grain exports).

Measures to increase supply-chain resilience are not free of costs, however. Import diversification and import substitution in general, as well as the expansion of local food production, may involve raising domestic food prices, thereby limiting access to food (especially for low-income urban consumers) and negatively affecting food security. In response, governments that currently employ price controls and subsidize consumption of grains and cereal products might consider alternative, better-targeted policy instruments. Redirecting financial support to target food-insecure consumers should help to limit governments' financial burden in times of higher food prices and help domestic producers to benefit from production stimuli. Political costs, i.e., the potential loss of support by middle-income urban consumers, could be addressed by strong communication regarding policy reform and the gradual implementation of said reform. Expanding domestic food production may also require land to be converted to cropland, potentially inducing carbon emissions and contributing to climate change. These interactions, feedback loops, and conflicting goals need to be carefully balanced.

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Table 1: Net Grain Exports by Kazakhstan, Russia, and Ukraine, and Their Share of World Grain Exports (mill. t)

Year	Kazakh-stan	Russia	Ukraine	Share of world exports
1990	7	–18	1	6%
1991	1	–20	-2	2%
1992	7	–19	-2	5%
1993	6	–7	1	4%
1994	4	0	0	4%
1995	5	–5	2	5%
1996	3	–2	2	3%
1997	4	–1	2	5%
1998	3	–2	6	6%
1999	7	–6	2	5%
2000	4	–1	1	4%
2001	4	6	8	10%
2002	7	14	9	17%
2003	5	3	–1	6%
2004	3	7	11	11%
2005	4	11	13	14%
2006	9	11	9	14%
2007	9	12	4	11%
2008	6	23	25	22%
2009	9	21	21	20%
2010	5	4	12	9%
2011	13	26	23	21%
2012	6	14	22	18%
2013	8	24	32	21%
2014	5	31	35	22%
2015	8	34	38	25%
2016	8	36	45	24%
2017	10	52	40	28%
2018	10	43	50	27%
2019	8	43	55	27%
2020	8	49	45	25%
2021	6	40	51	23%
2022	9	56	48	27%
2023	9	58	32	24%

Source: Compiled by the authors using data from USDA Production, Supply and Distribution (PSD) online; 2023/24 values drawn from an August 2023 World Agricultural Supply and Demand Estimates (WASDE) forecast.

ANALYSIS

The Long-Run Challenges to Economic Growth and Social Stability in Russia

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Abstract

With the war and sanctions, Russia must tread an increasingly narrow path to avoid prolonged stagnation. The decision to invade Ukraine in February 2022 followed a decade or more of declining living standards. While war-time spending on weapons and social benefits has lifted the economy for now, such spending is unsustainable in the long run. Stagnation and resulting hardship will make maintaining social—and, ultimately, political—stability more problematic.

Tough Times Before the War

Sanctions alone have not, and almost certainly will not, bring about the end of the war. But even before the war, Russia's economy was already suffering from sizable challenges. The causes of these were well known: an over-reliance on commodity exports and a dependence on imported technologies; a labor market hampered by low wages, low productivity, a declining population, and low levels of human capital; and high state control of the economy, with a view more to oligarchic enrichment and social stability than to greater efficiency (Volkov and Kolesnikov 2021). All this and more produced prolonged economic stagnation.

True, none of these challenges prevented the Kremlin from launching the war. In fact, somewhat perversely, declining living standards might have provided a key impetus for the invasion. And indeed, Russia's economy has remained relatively buoyant so far. The war exposed Russia's dependence not only on imported computer chips, but also on precision machine tools and even ball bearings from abroad (Bergmann et al. 2023). Yet parallel imports have helped fill the void, even if they have come with a mark-up in price. The country's auto industry—once dominated by Western brands—was largely gutted, but Chinese vehicles have now crowded the market. Most importantly, high levels of state spending on the war economy and social benefits have kept the economy afloat.

Labor Shortage: A Seemingly Small Problem with Huge Implications

A year and a half into the war, however, the bills are now coming due. Three inter-related problems—a labor shortage, inflation, and unsustainable spending—point to a longer-term challenge. The labor shortage itself is worth exploring, since it is a seemingly small problem with outsized implications. While the Kremlin boasts of record low levels of unemployment, Russia's Central Bank reported that roughly half of all businesses complained of staff shortages in 2022, with skilled workers especially in short supply (Fontanka.ru 2023; Bank Rossii 2023).

According to conservative estimates, war mobilization and related emigration have cost the workforce around 600,000 working-age males. Workers under 30 years old now make up the lowest share of the labor market since the early 1990s (*TASS* 2023). The skilled workers that have left the workforce will not easily be replaced: as labor economist Vladimir Gimpelson (2022) notes, you can't simply turn a sales clerk into an IT worker or a car mechanic. Meanwhile, labor migrants are deterred by a devalued ruble as well as the fear of being mobilized themselves (Khashimov 2023). As a result, the Kremlin has sought to remove restrictions on child labor from the age of 14, and some are proposing to allow 16 year-olds (down from age 18) to work in dangerous occupations (*The Insider* 2023; Antonov, 2023).

Why does this matter? The Central Bank concedes that the growing labor shortage will further slow the economy. Chris Weafer, CEO of strategic consulting firm Macro Advisory, put it more strongly: the lack of sufficient labor and skills will be "as damaging for Russia's future economic growth prospects as the sanctions ban on technology" (Cole 2023). The labor shortage fuels inflation, which in turn devalues the ruble, making imports even more expensive, further fueling inflation. And indeed, Levada Center (2023*a*) polling finds that inflation is now the leading area of concern for the Russian public.

The labor shortage is compounded by another chronic problem of the Russian economy: productivity. Raising productivity—output per worker—is crucial to a country's ability to improve its standard of living (Krugman 1990). Yet Russia has suffered from low levels of productivity since long before the war. In 2020, Russian productivity levels (GDP per hour worked) ranked 37th out of 39 OECD comparator countries, below Chile and above only Costa Rica and South Africa (OECD 2023). Moreover, Russia has been on a downward trajec-

tory: whereas productivity in OECD countries increased by five percent per year between 2011 and 2021, in Russia it decreased on average by one percent annually (Vashalomidze and Dudin 2022). Rosstat reports a further productivity decrease of 3.6% in 2022 (Kostenko 2023). The only way to raise levels of production is by adding more workers or more labor-saving technology, and Russia now suffers from a deficit of both.

From Social Stability to Social Volatility

Well before the war, reform efforts to boost economic growth in Russia created their own challenges. For example, the current labor shortage is not due solely to mobilization, emigration, and the country's serious demographic challenges. Back in the 1990s, given fears that mass layoffs would lead to a "social explosion," Russian firms responded to the crisis with deep cuts in wages (including wage arrears) rather than by sacking workers. While wages rebounded during the oil-fueled years of growth in the 2000s, firms continued to respond to changing economic conditions with extremely flexible wages rather than redundancies and rehiring. This "Russian labor market model" has resulted in a high-employment, low-wage (and low-productivity) economy (Gimpelson, Kapeliushnikov, and Roshchin 2017). Given the emphasis on "stability" for much of the Putin era, potentially painful restructuring of the old Soviet industrial infrastructure was avoided, both in good times and bad. In the wake of the 2011–12 protests "For Fair Elections," the Kremlin redoubled its efforts to maintain the support of Russia's industrial heartland. Partly as a result, nearly ten percent of Russians continue to live in single-industry monotowns, where factory closures would be especially fraught (*Esli byt' tochnym* 2023).

To date, the social impact of the war has been moderated by high levels of government spending. But such expenditures on both guns and butter are unsustainable; otherwise, higher inflation and greater economic instability will ensue. While available public opinion polling sends mixed signals, with signs that many Russians are adapting to the present conditions, since 2022 Levada Center (2023*b*) surveys have found a significant increase (to roughly 30 percent) in the share of respondents agreeing that "it's not possible to endure our plight [*bedstvennoe polozhenie*]."

Though difficult to measure in terms of both extent and frequency, local protests have sprung up in response to cuts to the supply of water and electricity, reductions in trams and bus routes, and increases in gas prices. All else being equal, labor shortages—combined with inflation—have the potential to embolden workers, who have less to fear from layoffs. Yet with the possible exception of gas prices, grievances over such local issues, including the plight of a struggling monotown factory, are likely to remain local protests, particularly with trade unions and other elements of civil society sidelined or suppressed (Meyer-Olimpieva 2023).

Broader social and economic protests in Russia have almost always been in reaction to government attempts to enact seemingly minor reforms, typically either to raise taxes or to reduce benefits. Examples include the 2005 attempt to monetize benefits, the 2009 tax on used-car imports (intended to preserve domestic autoworker jobs), the 2015 tax on long-haul trucks, and the 2018 raising of the pension age. These protests were sudden and spontaneous, with little to no reliance on civil society or opposition movements. In most cases, they pushed the Kremlin to back away from its reform goals. The exception—the pension age increase—was telling: on the one hand, the reform was aimed not only at reducing pension costs, but also at alleviating the looming labor shortage; on the other, it was widely unpopular and led to a significant drop in Putin's popularity ratings (Sharafutdinova 2020; Petersson 2021).

War expenditures now deepen the reform challenge. The government has presented a budget for 2024 that is viewed by many observers as unrealistic: it must find an additional 7 trillion rubles compared to 2023 spending levels. Some observers estimate the Kremlin can marshal sufficient funds through 2025 (Prokopenko 2023). Much depends on the amount of income Russia receives from oil and gas sales, and prices could well increase due to the conflict in the Middle East. Yet at some point the wide gap between revenue and expenditures will be difficult to close without raising taxes, cutting benefits, or both. Doing so could raise political challenges as well as social tensions.

Social Tensions and Political Legitimacy

The decision to invade Ukraine in February 2022 was puzzling to many. Yet the 2014 seizure of Crimea had been, in Petersson's (2021, 62) words, a "miracle cure" for Putin's previously sagging legitimacy. If he dreamed of a repeat performance, that dream has evaporated; Putin now finds himself fully in charge of a country that has endured a decade or more of declining social and economic conditions that will almost certainly worsen.

True, other authoritarian regimes have proven their ability to endure severe hardship, sometimes for decades. Yet Cuba, Iran, and North Korea—the countries typically invoked for their ability to withstand harsh sanctions—are all revolutionary regimes, with a clear ruling ideology and a large body of cadres to support the political system (Levitsky and Way 2022). Russia, on the other hand, is a truly personalistic regime with a single individual at the helm. The evidence suggests personalistic rulers are more vulnerable to popular uprisings, in large part because when conditions become intolerable, it's clear who is to blame (Goemans 2010).

Thus, economic hardship complicates another serious challenge facing personalistic regimes: succession. Putin is now an aging personalistic ruler with no clear plan for succession. Recent mass uprisings in neighboring states—likewise facing worsening economic conditions—highlight the succession predicament. In Belarus in 2020, Lukashenko claimed a reelection victory one too many times. In Kazakhstan in January 2022, an increase in gas prices sparked substantial unrest that pointed to the problem of a long-term authoritarian handing power to a less charismatic successor. The leaders of Belarus and Kazakhstan remained in power, but arguably due only to Russian backing (and, in the case of Kazakhstan, direct Russian military intervention). Recall that Russia's 2014 seizure of Crimea was sparked by Ukraine's "Euromaidan revolution." President Yanukovych fled the country and sought safe haven in Russia; his ill-gotten gains were turned into Ukraine's Museum of Corruption. Should a similar uprising occur in Russia, who will prop up Putin? Where would he flee?

There is every indication that the Kremlin is keenly aware of such dangers and will use every tool at its disposal—both stick and carrot—to prevent such an outcome. Yet doing so will make any return to economic growth, and the reforms that would likely entail, still more difficult.

In the summer of 2022 (before the mobilization), researchers from the Institute for Social Policy at the Higher School of Economics (2023) surveyed 25 academic, business, and other experts about their long-term prognoses for the Russian economy. The experts were asked about four possible scenarios, from the most optimistic ("new engagement") to the most pessimistic ("a turbulent lost decade"). In every scenario, the respondents envisioned that Russia's middle class would dwindle as their incomes declined, while inequality would increase as more wealth was captured at the top—all of which would lead to an increase in social tensions. The resulting report noted that while the cumulative impact of deteriorating conditions might be felt only over time, even in the most optimistic scenario notable improvement would not occur for many years.

More recent assessments suggest that the negative impact of the war might be felt sooner. There is a flip side to the high spending on war production, military manpower, and social benefits that has buoyed the economy so far. When the war eventually comes to an end, the reduction of these unsustainable spending levels could well lead to a recession. Rebalancing the economy, including redistributing the investment and workforce from military industries to productive use elsewhere, will present a massive challenge.

All of this might suggest that there are significant incentives for the Kremlin to prolong the war. Yet doing so will not only delay the reckoning, but also allow the problems—the labor shortage, inflation, and the deficit—to grow. Thus, Russia's leaders must contend with the possibility that the ever-narrower path to economic growth might end in a cul-de-sac.

About the Author

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ANALYSIS

The Strategic Significance of the Russian Volga River System

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Abstract

The Volga River constitutes the primary component of the Unified Deep-Water System (UDWS) of European Russia, which connects the Caspian Sea and the Sea of Azov. Following the Russian invasion of Ukraine, the significance of the Volga River in this waterway shifted. Concurrently, the efforts of states bordering the Caspian Sea to expand their trade routes increased. In this article, we analyze the role of the Volga River in transporting grain and other goods for export via Black Sea and Caspian Sea ports; military uses of the waterways; and the implications of the ongoing war in Ukraine for Russia's short- and medium-term river transport. We further evaluate the climatic risks posed to the Volga River and Caspian Sea as a result of anthropogenic global climate change, which has the potential to limit transportation via the Volga River. The overall goal of the article is to understand the strategic significance of the Volga River system for Russian commerce, logistics, and security.

The Caspian Sea is the world's largest endorheic inland water body and is shared among Russia, Kazakhstan, Turkmenistan, Iran, and Azerbaijan. The Caspian Sea is a major Eurasian logistic hub with a broad network of navigable waterways (Pritchin, 2019). Indirectly, the Caspian Sea is connected to international waters through the Unified Deep-Water System of European Russia (UDWS). UDWS is a system of inland waterways of Russia, connecting the White Sea, the Baltic Sea, the Caspian Sea, and—via the Sea of Azov—the Black Sea through the Neva River, Lake Ladoga, the Svir River, Lake Onega, the White Sea-Baltic Canal, the Volga–Baltic Waterway, the Moscow Canal, the Volga River, the Kama River, the Volga–Don Canal, and the Don River. Russia owns 16% of global navigable inland waterways, second only to China's 18%. On average, UDWS is responsible for 70% to 75% of all domestic cargo and transports via Russian inland waterways. The Volga River, stretching over 3,500 km, is the longest river in Europe and a major element of UDWS. With an average discharge of 8,100 m^3 per second at Volgograd, the river is also the primary source of water for the Caspian Sea (Leummens, 2016). The Caspian Sea has, however, experienced a significant decline in its water level in recent years, threatening the transport capabilities of Russia and Kazakhstan.

In August 2023, Ali Salajegheh, the chief of Iran's Department of Environment (DOE), attributed the decline in Caspian Sea water levels to Russia intentionally reducing the water flow from the Volga River into the Caspian Sea (Sharghdaily, 2023). He subsequently reversed his position, attributing the phenomenon instead to global climate change. This shift in perspective sparked discussions among Iranian policymakers, researchers, journalists, activists, and Iranians in the diaspora, leading to broad debate about the causes of the Caspian Sea's shrinking water levels. Part of this debate followed Salajegheh's original line in accusing the Russian Federation of intentionally reducing water flow from the Volga into the Caspian Sea. This prompted an evaluation of the importance of the Volga for domestic waterways in Russia and the countries bordering the Caspian Sea. The Caspian Sea's retreating coastlines and shrinking water coverage may have considerable environmental, economic, and geopolitical consequences for the region (Barale & Gade, 2018; Prange et al., 2020).

In this brief analysis, we examine the structure of Russia's inland waterways, particularly their connection to the Caspian Sea and the Black Sea. We then evaluate the significance of inland waterway transport, focusing on grain transportation to export points in the Black Sea and Caspian Sea regions. Additionally, we explore the military applications of these waterways, as well as the impact of climatic changes on water levels in this river—and, consequently, the Caspian Sea. Finally, we analyze the role of water transport in Russia during the short and medium term, considering the ongoing conflict in Ukraine and potential future variations in water levels due to changes in precipitation and evaporation patterns.

Russia's Internal Waterways, the Importance of UDWS, and the Role of the Volga River

As of 2019, Russia had 101,500km of registered inland waterways, of which 50,000 km were navigable. Due to underinvestment and insufficient funding in waterway infrastructure, the standardized shipway dimensions shrank by 30% between 1990 and 2019. In 2019, the inland fleet consisted of 11,700 self-propelled and 5,300 non-self-propelled vessels. The avail-

Figure 1: Unified Deep Water System (UDWS) of European Russia

Source: map created by Wikipedia author "Hellerick" (https://de.m.wikipedia.org/wiki/File:United_Deep_Waterway_System_of_European_Russia.svg), available under a Creative Commons Attribution-Share Alike 3.0 Unported license (https://creativecommons.org/licenses/by-sa/3.0/deed.en); the map was modified by the Research Centre for Eastern European Studies at the University of Bremen.

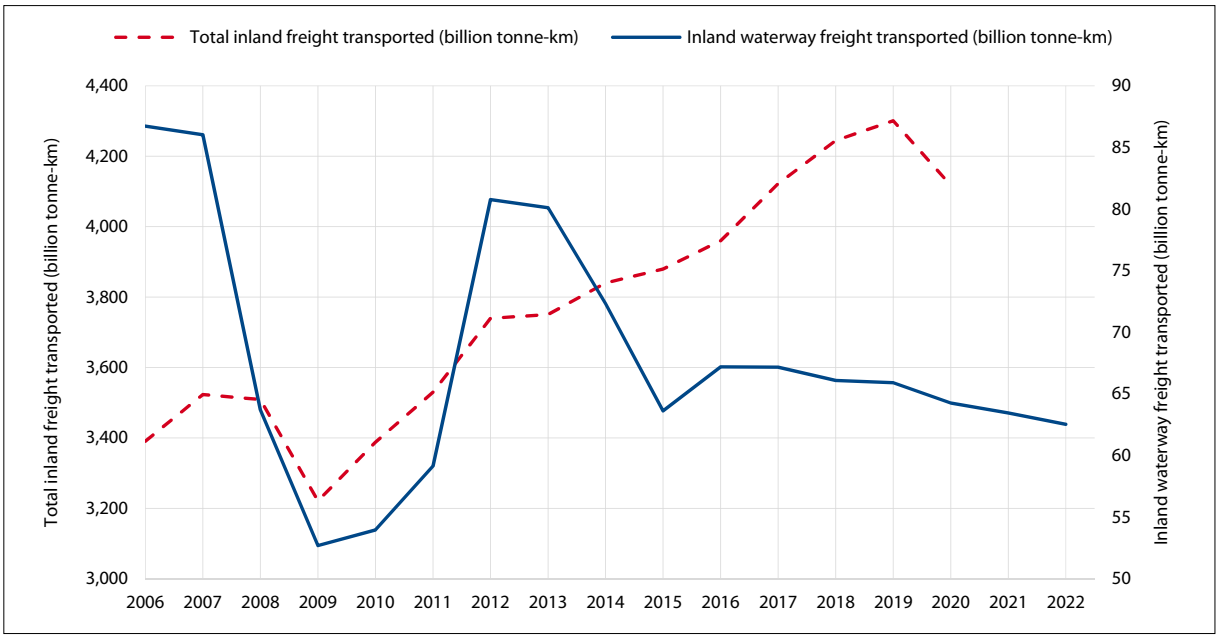
able information shows that these significant declines compared to 2019—by 17.4% among self-propelled vessels and 34% among non-self-propelled vessels—are likewise due to underinvestment in this sector (Rostislav & Ponomarev, 2020).

The UDWS, which is the most important part of Russia's inland waterways, connects major Russian cities, including St. Petersburg, Moscow, Kazan, Nizhny Novgorod, Volgograd, Rostov-on-Don, and Astrakhan (see Figure 1 on p. 23). UDWS is estimated to be as long as 6,500 km. The theoretical guaranteed depth throughout the UDWS ranges between 4.0 meters and 4.5 meters, allowing not only river vessels and river-sea class vessels, but also sea-going vessels, warships, and even (surfaced) nuclear submarines to pass through it.

One of the major components of the UDWS is the Volga–Don Canal. Constructed by the Soviet Union between 1949 and 1952, it connects the Volga River and the Don River, thus facilitating the connection between the Caspian Sea, the Sea of Azov, and the Black Sea. It spans 101 km and comprises thirteen canal locks, three pumping stations, 22 navigation channels, and two bulkhead gates. Since the Don River is at an elevation 44 meters higher than the Volga River, vessels must make this change when traveling up or down. Theoretically, the canal can support vessels up to 5,000 tons. However, some shallow parts of both rivers are currently limited to 3,000 tons, although this could be improved to 6,000 tons with additional investment (Tirone & Motevalli, 2022). The Volga–Don Canal is navigable for around 200 days a year, as it is usually frozen from November to April.

The internal waterways of Russia, of which the UDWS represents a significant component, have historically played a relatively minor role in Russia's overall inland transport, especially since the collapse of the Soviet Union. According to Russian government data, the volume of cargo transported along the country's inland waterways in 1988 was 582 million tons, a figure that fell to 100 million tons in 1996. The transport volume improved steadily from 1999, reaching 136 million tons and 30 million passengers in 2004. Since then, inland water transport volumes have fluctuated between 110 and 150 million tons. The fluctuations in total transport inside Russia and inland water transport (primarily conducted via the UDWS in 2006–2022) are shown in Figure 2 below and in Table 1 on p. 27.

Figure 2: Total Inland Freight Transport and the Share of Waterways, 2006–2022



Note: Data for 2021 and 2022 are estimates.
Source: OECD, ITF, Statista, reportlinker.com *(see also Table 1 on p. 27).*

The volume of waterway transport has fluctuated through the years. The jump in 2011–2013 can be attributed to higher government investments in waterways during this period. In 2006–2022, inland waterway transport accounted for between 1.5% and 2.5% of total transport inside Russia. Returning to official statistics, 118.53 million tons of cargo were transported by inland waterways in 2017, of which 10.3 million tons were grain and mixed feed. As mentioned, 70–75% of Russia's inland waterway cargo transport takes place within the UDWS, which also carries more than 12 million passengers annually.

Access of foreign fleets to Russia's inland waterways: Since 1994, Russia has gradually loosened the tight Soviet regulations (established in 1936) that banned any vessels with foreign flags from entering Russian inland waterways. How-

ever, these changes are very specific and apply to a limited number of countries. At the moment, there are more than 130 ports on the inland waterways and only 40 of them are listed as open ports for foreign vessels (Nikiforov & Burkov, 2020). Since 2013, Russia has allowed sports sailing vessels and leisure craft flying foreign flags to enter some sections of its inland waterways. Further changes in the regulations now permit commercial vessels under the flags of foreign countries to navigate inland waterways on the basis of international contracts and special decisions of the government. Specifically, the Russian government allows ships sailing under the flags of Eurasian Economic Union (EAEU) member-states to pass through the country's inland waterways. However, these countries do not have significant merchant fleets and therefore hardly compete with the Russian fleet (Smirnov, 2022). There are also some indications of discrimination on the basis of origin when it comes to permission to pass through Russian inland waterways and the charges for doing so. The available information suggests that whereas Russian vessels typically pay around US$5,000–6,000 to pass through the Volga–Don Canal, Azerbaijani and Iranian vessels are usually charged approximately US$20,000–25,000 and US$30,000, respectively. It is also uncertain whether the Russian authorities will grant passage to any given vessel, as they evaluate each vessel individually.

Military usage: Following Russia's invasion of Ukraine and Turkey's closure of the Bosporus Strait to the Russian navy under the 1936 Montreux Convention (Pedrozo, 2023), the Russian military flotilla in the Caspian Sea became more important. It is the only combat-ready flotilla in the Caspian Sea region and its military capabilities extend beyond the Caspian region (Pritchin, 2019). The Caspian Flotilla comprises 27 warships, including gunboats, landing craft, minesweepers, and cruise-missile-capable corvettes. Months prior to the Russian invasion of Ukraine, several ships were transferred from the Caspian Flotilla to the Azov Sea to join the Black Sea Fleet in conducting naval maneuvers in the Black Sea (Pedrozo, 2023). The Russian authorities' exclusive control of the Volga–Don Canal, which facilitates the movement of warships between the Caspian Sea and the Black Sea during the ice-free seasons of spring and summer, has empowered Moscow to deploy military forces in a strategically vital region.

Future plans for inland waterways: The Russian government has long known that the country's inland waterways lack infrastructure investment and function poorly. The expansion of inland water navigation has been on the government's agenda in recent years, and the country has made investments to strengthen and expand this system, especially in the UDWS. Following Russia's invasion of Ukraine, which has necessitated trade via less risky trade routes, the Russian government's interest in improving transport via the Caspian Sea region increased. Shortly prior to the beginning of the war, in February 2022, a plan to reconstruct the Volga–Caspian Seaway Canal by 2028 was announced. The preliminary dredging operation was estimated at 15 million cubic meters (cbm). The available information shows that over five million cbm of spoils and materials were dredged in 2022, ensuring a navigation depth of 4.2 meters in the Volga–Caspian Shipping Canal; 12 million cbm in dredging operations are planned for 2023 to increase this to 4.5 meters.

Grain transport through Russia's inland waterways: Although the Volga–Don waterway ends at Taganrog Bay in the Sea of Azov, this route plays a minor role in Russia's grain transport. The export data show that approximately 30% of Russian grain is exported through the shallow seaports of the Sea of Azov, while 60% is exported through the deep seaports of the Black Sea, such as Novorossiysk. In 2017, a year in which Russia exported approximately 33 million tons of wheat, around 7.5 million tons of grain and feedstuffs were exported via Russia's inland waterways (Egorov, 2021).

Corridors and Alternative Transport Options

The Caspian Sea serves as the only waterway for countries like Kazakhstan, Turkmenistan, and Azerbaijan, giving them limited connections to global waters via the Volga–Don River. This situation has enhanced the interest in expanding trade routes in the region through the Caspian Sea. Furthermore, such factors as (1) the economic growth of Central Asia; (2) the abundance of natural resources in several Central Asian countries and Azerbaijan, which could potentially be exported; (3) China's Belt and Road Initiative (BRI), which planned to pass through the Caspian Sea region; and (4) Russia's interests in creating a North–South corridor that would connect the Caspian Sea to the Indian Ocean via rail and Iranian roads have increased geopolitical interest in the Caspian Sea region and efforts to expand trade routes. Several ongoing initiatives aim to establish connections between the Caspian Sea and global seas and oceans; they include the North–South Corridor (connecting Russia to the Indian Ocean), the Eurasia Canal (waterways to connect the Caspian Sea and the Sea of Azov), the Middle Corridor (East–West corridor through the South Caucasus), and the Zangezur Corridor (East–West corridor through the South Caucasus).

As such, it can be said that the significance of the Caspian Sea and Russia's inland waterways has grown. The Caspian Sea serves as a central hub for all the current and planned water routes for the nations bordering this sea. Consequently, any fluctuations in its level may influence the future of transportation in the region. The following section evaluates recent and anticipated changes.

Climate Change and Water-Level Variations in the Caspian Sea

The Caspian Sea, as an endorheic water body, is susceptible to shifts in precipitation and evaporation patterns. Over the past three decades, the Caspian Sea has experienced a significant drop in its water level. Based on observational data, as of 2022 the sea level had fallen by more than two meters compared to the mid-1990s (Umarov, 2023). This dramatic shrinking of the world's largest lake could have serious implications both for the regional environment and for the economies of the states of the Caspian basin.

Research has shown that the declining level of the Caspian Sea may be driven by natural variation, intensified significantly by anthropogenic global climate change. Rising air temperatures caused by global warming have led to increased evaporation from the sea surface (Wesselingh & Lattuada, 2020). Studies have found that cumulative evaporation rates over the Caspian have been increasing faster than precipitation and runoff rates, closely tied to steadily climbing regional and global surface temperatures (Chen et al., 2017). This evaporative water loss exacerbates the decreasing inflow of freshwater from rivers flowing into the Caspian, particularly the Volga River. As a result, the total water budget of the Caspian Sea has been severely impacted.

Looking forward, projections indicate that the Caspian Sea's water level will likely continue to fall substantially through the twenty-first century, especially under high greenhouse gas emissions scenarios. Models suggest that the level could decline by a further 9–18 meters by 2100 (Koriche et al., 2021). Without concerted global action to reduce emissions and limit further warming, an ecological catastrophe in the Caspian basin appears imminent. Adaptation policies for the region, from wetland restoration to improved water-management infrastructure, will be critical to increasing resilience. However, reducing global greenhouse gas emissions remains essential to mitigating long-term Caspian Sea level loss by limiting evaporation and mitigating the effects of climate warming. The looming environmental catastrophe in the Caspian Sea is emblematic of the risks climate change poses to inland water bodies.

Conclusion

An August 2023 allegation by Iran's DOE chief that Russia had reduced the water allocation from the Volga River to the Caspian Sea prompted us to evaluate various environmental, economic, and geopolitical aspects related to these two water bodies. As we have demonstrated, the flow of water in the Volga River is the heart of the Russian UDWS, which connects the Baltic Sea, the Caspian Sea, and the Black Sea. This has significant transport importance, particularly for Russia's major cities. It also has military importance, especially since Russia's invasion of Ukraine in 2022, as the Volga–Don Canal allows parts of the Russian flotilla to move from the Caspian Sea to the Sea of Azov. This supports Russian troops in those occupied regions of Ukraine that surround the Sea of Azov, including Crimea, Donetsk, Kherson, and Zaporizhzhia. We have not discovered definitive evidence indicating that Russia is undertaking the construction of substantial and noteworthy new dams on the Volga River; on the contrary, there are plans to expand inland water transport in Russia, which relies on high water flow in rivers and canals, including the Volga. However, anthropogenic global climate change could limit the capacity to expand inland water transport, primarily by exacerbating a decline in water levels in the Caspian Sea. Overall, the ongoing military invasion in Ukraine, coupled with Russian's dependency on the Russian flotilla in the Caspian Sea, as well as the expanding trade relationship and potential agreements with countries like Iran, has considerably elevated the military and geopolitical significance of the UDWS; it seems crucial for Russia to maintain this system to facilitate a wide range of transportation purposes.

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Table 1: Total Inland Freight Transport and the Share of Waterways, 2006–2022

Year	Total inland freight transported (billion tonne-km)	Inland waterway freight transported (billion tonne-km)
2006	3390.146	86.727
2007	3523.107	86.027
2008	3509.073	63.705
2009	3220.929	52.686
2010	3387.568	53.955
2011	3529.942	59.144
2012	3739.64	80.762
2013	3750.303	80.101
2014	3840.075	72.317
2015	3879.612	63.62
2016	3960.122	67.194
2017	4121.679	67.165
2018	4244.479	66.089
2019	4300.741	65.906
2020	4117.41	64.2594
2021		63.45
2022		62.53

Note: Data for 2021 and 2022 are estimates.
Source: OECD, ITF, Statista, reportlinker.com.

ANALYSIS

Russia's Food Power in the 20th Century

Friedrich Asschenfeldt (Princeton University)

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Abstract

At the beginning of the twentieth century, grain was one of the strategically most important commodities, and the Russian Empire was one of its largest producers. However, due to the low productivity of collectivized agriculture and demographic pressures, the Soviet Union's share in world grain exports declined, and, by the 1980s, the Soviet Union had become the world's largest importer of grain. This article assesses the causes and implications of Russia's dwindling food power under Soviet Rule.

The Russian Empire as One of the World's Foremost Grain Exporters

Following centuries of imperial expansion, the Russian Empire came into the possession of the fertile plains surrounding the Volga, Don, Dnipro, and Vistula rivers. Grain grown by the inhabitants of these river valleys had been traded along the rivers and across the Black Sea for centuries. But it was only during the second half of the 19th century, when the steamship and the railway made long-distance trade commercially viable, that the Russian Empire became one of the world's premier food suppliers. By 1913, some 25% of internationally traded wheat came from the Russian Empire (Figure 1 on p. 31). The market share in fodder grains like barley and oats was even higher. In comparison to the other major wheat exporters of the time, the U.S., Canada, Argentina, and, later, Australia, the Russian Empire stood out by its relatively poor agricultural productivity and, consequently, the low living standards of its population. The fact that it exported so much despite its poverty was as much a result of its size as of the pressure on the rural population to market their grain to meet their tax obligations and pay for land rents. Such pressures on the peasantry, in turn, reflected the enormous importance of grain exports for the Imperial Russian state.

Food and fodder exports made up some 50–60% of all exports, and the hard currency thus generated was indispensable for the Tsarist Empire's strategy of authoritarian modernization. Moreover, the credibility of the gold standard, which the Russian Empire had adopted in 1897 and regarded as integral to its role as a Great Power, depended on running a trade surplus. Via the ports of the Baltic and the Black Sea, and the rivers and railway lines connecting them, the Russian Empire delivered grain to the industrial core of Europe – primarily Great Britain, Germany, the Netherlands, and Northern Italy. In these countries, the development of agricultural productivity trailed the rapid expansion of demand for food and fodder, a result of population growth, urbanization, and the attendant increase in meat consumption.

In the age of total war, grain supplies were a vital strategic question. If food and fodder supplies were severed during the war, this would have ramifications for the morale on the battlefield and the home front, and make it difficult to move armies that relied to a great extent on horses for their logistics. When, during World War I, international trade was interrupted by the trade embargoes and naval blockades of World War I, the Russian Empire's agrarian potential thus came into the focus of other belligerents. The British Empire, desperate to bring down the price of wheat due to fears of working-class unrest, attempted to take the Dardanelles in a bid to allow grain from the Russian Empire to be exported again, but failed disastrously (Lambert 2021). Germany and Austria, for their part, looked to control the grain harvest in Southern Russia and Ukraine to compensate for wartime shortages and the lack of overseas supplies. In the treaty of Brest-Litovsk with the anti-Bolshevik Ukrainian Rada, they stipulated the delivery of 1 million tons of grain and 400 million eggs (only a tiny fraction of which was eventually delivered). Later that year, another treaty with the RSFSR stipulated that the Soviet state had to pay 6 billion marks as an indemnity to Germany, much of it in the form of grain deliveries, but the defeat of Germany in November 1918 soon rendered these agreements obsolete. However, even after the German defeat, military planners continued to look to grain from Russia to make Germany independent from overseas food supplies (Ritschl 2005).

Grain Exports in the Service of Soviet Power

As much as grain from Russia was vaunted during the First World War, it became more or less irrelevant to international food security once peace had been restored (Figure 1 on p. 31). Soviet export potential had shrunk dramatically compared to before the war, owing to the destruction of infrastructure, the suppression of agricultural markets by the Soviet state, and the break-up of large farms in the wake of the Russian Revolution. At

the same time, grain production overseas had expanded rapidly in response to wartime shortages (which, as we have seen, partly sprang from the absence of Russia on world markets). Once European agricultural production had bounced back from the wartime slump, a glut in global grain markets formed, and the price of wheat declined severely – from over $800 in 1925 to below $300 in 1932 (Timoshenko, Agriculture and the Depression, p. 550).

For all the diminished potential, grain exports remained, as under the Tsars, a vital priority for Soviet leaders. Just like in Tsarist Russia, any prospect of reconstruction and rearmament was contingent on the resumption of grain exports, which would generate hard currency for the purchase of technology and materials abroad. When Stalin launched shock industrialization with the First Five-Year Plan in 1928, it was clear that the enormous quantity of imports required could only be financed by exporting more grain. As a result of these exports, the Soviet Union, for a brief and fleeting moment, was back again as one of the world's major grain exporters. Only with the famine of 1932/3 and the availability of alternative sources of hard currency (such as domestic gold production) did grain exports for industrialization lose their significance. Soviet grain exports remained relatively low since and never reached the levels of 1930, let alone of 1913, again (Figure 2 on p. 31).

Stalin had hoped that agricultural productivity and output would rise as a result of the collectivization of agriculture, initiated in the same year (Tauger 2006). However, the opposite was the case. Agricultural productivity dropped both due to resistance to collectivization and the inefficient labor organization on collective farms. The failure of collectivization did not persuade Stalin to abandon his ambitions for industrialization, and grain exports continued in the face of tremendous domestic shortages. Bread rationing had been introduced in early 1931 – the ration for heavy manual labor stood at 800g a day, most ordinary citizens were entitled to a mere 400g (Davies 1996, p. 533–534) – and famine conditions prevailed in the main exporting regions of Ukraine and Southern Russia from early 1932 to the summer of 1933.

Soviet Food Power

For all of the lackluster performance of Soviet agriculture, which limited the amount of food aid it could provide, the Soviet Union did pursue a vision of food power. As early as 1920, Stalin expressed hopes of leveraging the agricultural potential of Russia in international politics. In a speech given during the Civil War in Tsaritsyn (later Stalingrad), in the grain-rich Russian South, he said: "Even though we do not have large reserves right now, we need to create a food fund for the West. The victory of the revolution in Italy and Germany will give rise to a food crisis the day after the revolution when bourgeois America will stop supplying them with grain."[1]

To an extent, Stalin's vision of a communist bloc with grain supplies from the Soviet Union at the center became a reality during the Cold War when the Soviet Union extended food aid in return for loyalty. With much of East-Central Europe reeling from food shortages in the immediate postwar era, and Stalin reluctant to allow for more American aid into these countries, the Soviet Union stepped in, despite severe shortages, even famine, at home. Of the poor harvest in 1946, 10% of all procured grain (i.e. the grain taken by the state from collective farms) was designated for export to Soviet satellites in Eastern Europe (Ganson 2009, p. 104). Food aid to "brother states" continued throughout the Cold War, as Mongolia, North Korea, and Cuba came to rely permanently on Soviet deliveries to alleviate their food shortages. On other occasions, notably in the wake of unrest in 1956, 1968, and 1981, the Soviet Union delivered food to the countries of East Central Europe. The Soviet Union's role as the hegemon of the socialist bloc thus added to the strains on domestic food supply (Figure 2 on p. 31).

The Soviet Union as a Major Grain Importer

Geopolitically much more significant than Soviet food aid during the Cold War was the dependence of the Soviet Union on grain *imports*, 80% of which were purchased from the Soviet Union's international rivals, like the U.S., Canada, and Argentina (Kostecki 1984). The dependence on grain imports in the second half of the twentieth century was not indicative of a calorie deficit on the Soviet side. Rather, it was the result of the post-Stalinist leadership's priority for raising meat and dairy production and the concomitant growth of the livestock herd, which domestic agricultural production could not adequately supply. The limitations in fodder supply begot a chronically undernourished livestock herd and ultimately forced the Soviet Union to systematically import grain during the 1970s and 1980s (Figure 3 on p. 32). Fatefully, the Soviet buying spree coincided with, and doubtless aggravated, the rise of food insecurity in developing countries following the quadrupling of food prices within 18 months of June 1972.

The dependency of "The Second World" on grain imports from the "First World" was a defining characteristic of the latter stages of the Cold War. While

1 Doklad na kraevom soveshchanii kommunisticheskikh organizatsii Dona i Kavkaza, October 27, 1920, in Stalin, I.V., Sochineniia T.4 (Moscow: Gosudarstvennoe Izdatel'stvo politicheskoi literatury, 1947), p. 374–381, p. 379.

the expansion of Soviet grain imports was, first and for emost, the consequence of the expansion of the Soviet livestock herd, it was enabled by fortuitous financial and political conditions. The Oil Shock of 1973, when oil prices tripled, produced a windfall of hard currency. The Nixon administration saw agriculture as an area for closer economic cooperation between the Soviet Union and the U.S. without the risk of enhancing Soviet military capacities by selling technologically sophisticated goods. Grain sales to the Soviet Union also promised to generate support for the Republican Party in the American farm belt.

During the 1980s, the reliance on grain imports became a heavy burden on the Soviet Economy. As a sanction in response to the Soviet invasion of Afghanistan in late 1979, U.S. President Jimmy Carter banned American grain sales to the Soviet Union. The Grain Embargo sent shock waves through the Soviet political elite, raising the specter of another 1963-style food crisis (when 30 million pigs had to be culled) and, potentially, domestic political unrest in its wake. In the event, the material harm from the grain embargo was limited, because the Argentine Junta defied Carter's ban and allowed the Soviet Union to buy up almost the entire available surplus from Argentina. The embargo appeared ineffective and was soon lifted after Ronald Reagan became president in 1981. Meanwhile, the Soviet grain deficit reached staggering proportions, and the Soviet Union became the world's largest grain importer (not counting other socialist countries, which also imported heavily). Throughout the 1980s, some 25%–30% of total Soviet cereal consumption was imported, and more than 40% in 1984 (Pikhoia 2000, p. 453).

As they repeatedly forced the regime to tap into the gold reserve, food imports contributed significantly to the deterioration of the financial situation in the late Soviet Union, especially after revenues from oil exports declined in the 1980s. Reluctant to cut back on domestic meat consumption (likely the result of resistance from the agro-industrial complex), Gorbachev continued grain imports until Soviet reserves were exhausted. In 1990, Gorbachev was forced to ask the American president for financial aid to cover food imports (Gaidar 2007, p. 196). Ultimately, the Soviet Union did not have a choice but to buy grain from its political rivals because no other country, certainly not within the Eastern Bloc, would have been able to satisfy the rapacious Soviet demand for grain, and because the post-Stalinist leadership (in contrast to Stalin) prioritized domestic consumption over the Soviet Union's financial standing.

It is no exaggeration to say that the sorry state of agriculture constituted one of the fundamental weaknesses of Soviet power. It exposed the leadership's promises of plenitude as void, made it difficult to provide food assistance to the "Third World" and diverted resources away from the modernization of industry. The abysmal performance of Soviet agriculture certainly loomed large on the minds of post-Soviet leaders and made the restoration of "food sovereignty" a priority as they dismantled the Soviet system. As a result of their reforms – not discussed in this article – Russia, Ukraine, and Kazakhstan are, again, among the world's top food exporters.

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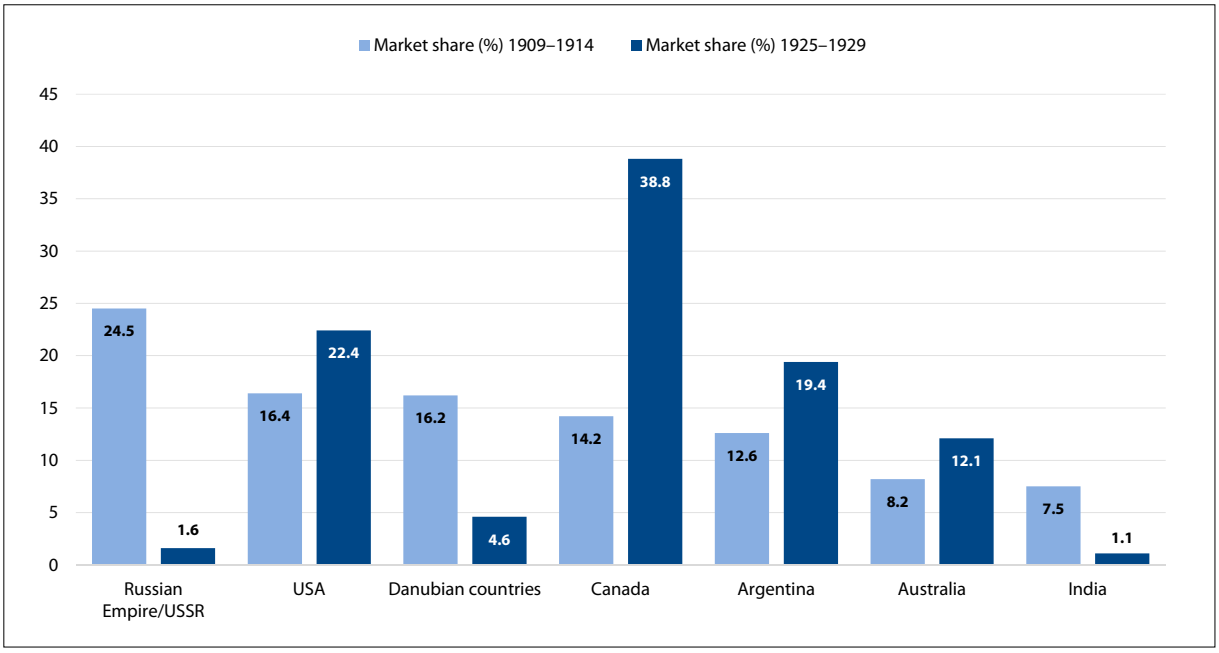
Figure 1: The World's Leading Grain Producers before and after World War I



Source: World Agriculture: An International Survey (London: Oxford University Press,1932), p. 75, reproduced after: Topik, Stephen and Alan Wells (2012) "Commodity Chains". In: A World Connecting, 1870-1945, *edited by Emily S. Rosenberg, pp. 685–815. Cambridge, MA: Belknap Press of Harvard University Press, here: p. 699*

Figure 2: Grain Exports from Imperial Russia and the Early Soviet Union in millions of metric tons p.a.

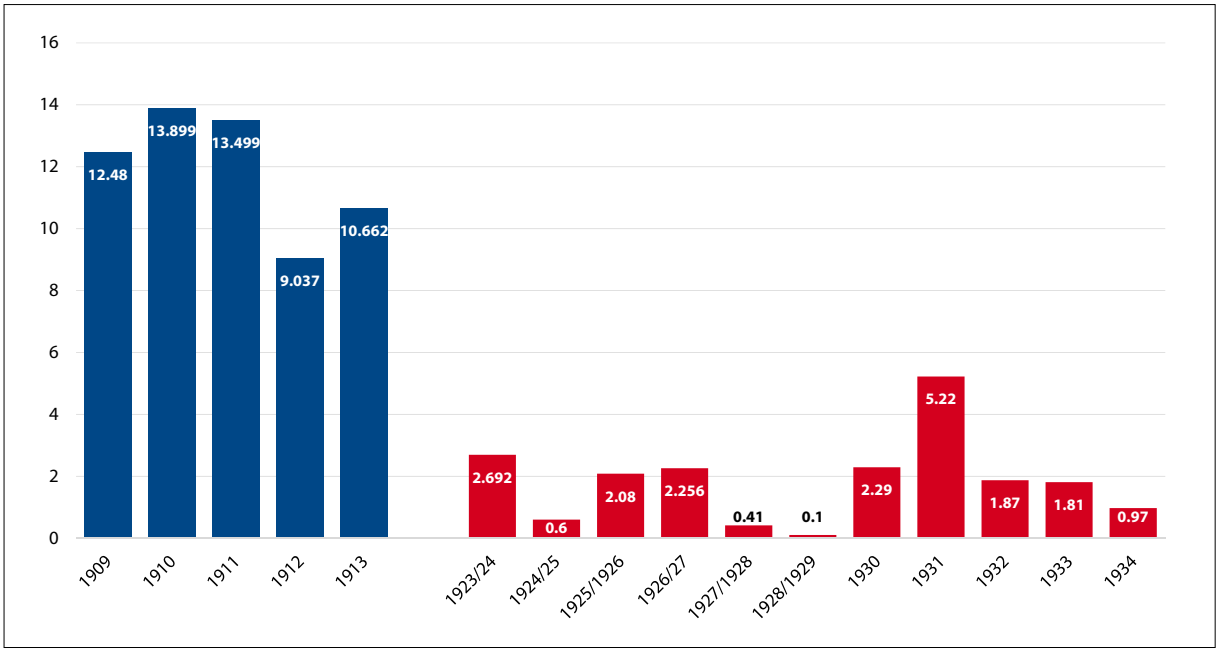


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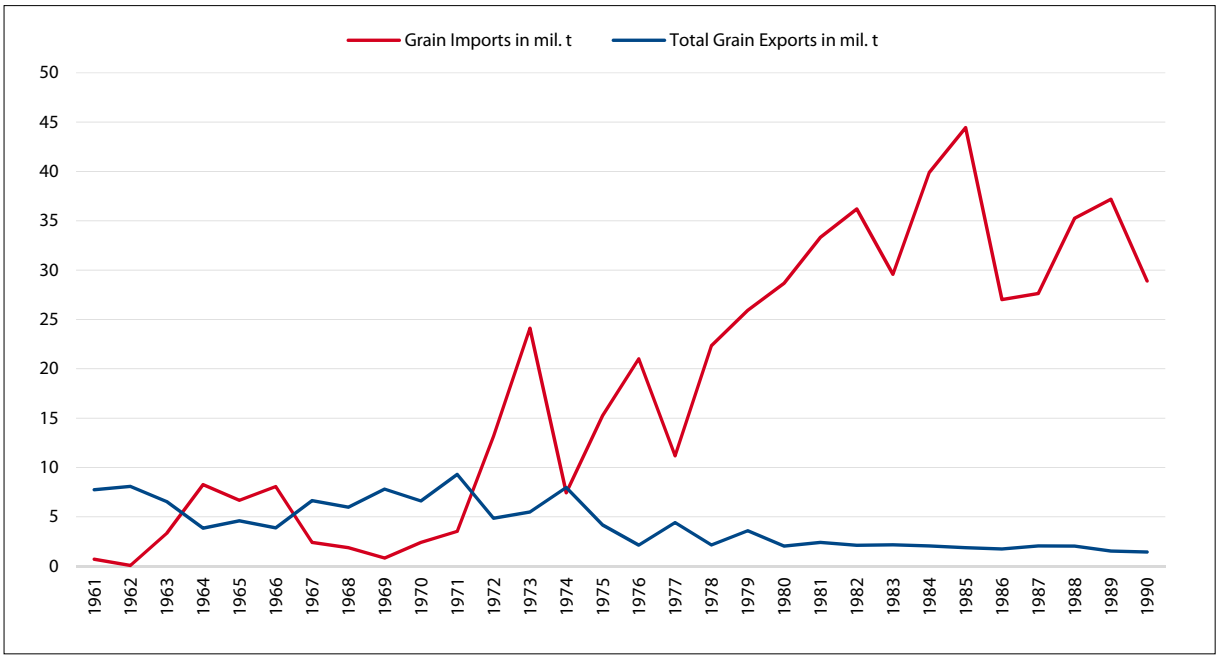
Figure 3: Soviet Grain Exports and Imports (Cumulated Imports and Exports of Wheat/Wheat Flour/Barley/Oats/Corn/Rye), 1960–1990



Year	Grain Imports in mil. t	Total Grain Exports in mil. t
1961	0.701	7.7471
1962	0.0672	8.0827
1963	3.3297	6.5437
1964	8.2534	3.841
1965	6.6642	4.6011
1966	8.0687	3.8722
1967	2.3964	6.6404
1968	1.8673	5.9779
1969	0.8101	7.80988
1970	2.4089	6.60593
1971	3.5302	9.30083
1972	13.1744	4.852975
1973	24.1066	5.4844
1974	7.437669	7.9702
1975	15.246863	4.172579

Year	Grain Imports in mil. t	Total Grain Exports in mil. t
1976	21.008147	2.120273
1977	11.183014	4.413837
1978	22.340564	2.142351
1979	25.927069	3.586379
1980	28.66589	2.036785
1981	33.33206	2.397212
1982	36.192388	2.117165
1983	29.572755	2.160302
1984	39.898109	2.051329
1985	44.443662	1.865884
1986	27.012666	1.739598
1987	27.624386	2.053248
1988	35.256728	2.023703
1989	37.193304	1.527137
1990	28.899922	1.431507

Source: FAOSTAT

ABOUT THE RUSSIAN ANALYTICAL DIGEST

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