STOCKHOLM INSTITUTE OF TRANSITION ECONOMICS

The Russian Economy in the Fog of War

Report by the Stockholm Institute of Transition Economics (SITE) at the Stockholm School of Economics

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Preface

This report was commissioned by the National Institute of Economic Research (NIER) from the Stockholm Institute of Transition Economics at the Stockholm School of Economics (SITE) to analyze the Russian economy in the shadow of Russia's war against Ukraine. The analysis includes a background of how the Russian economy worked before the war, detailing how important international oil prices changes have been for economic growth. It also provides a description of the political economy of the Russian economic system and what the trade patterns were prior to 2022. The report then focus on a wide range of economic indicators as reported by Russian authorities and discuss how this is now part of the Russian war propaganda. This includes indicators of fiscal and monetary policy, trade, reserves and the financial system.

Inflation and economic growth are particularly important components of the propaganda narrative, and the report provides a critical review of official statistics for these key economic indicators. It also provides some alternative measures of inflation and growth that paints a very different picture of the Russian economy compared to the official numbers.

Since the start of Russia's war against Ukraine, the Western coalition that support Ukraine have introduced sanctions with the aim to restrict the resources available to Russia in waging this war. The report details these sanctions and how they impact the Russian economy. The sanctions have a direct bearing on the medium and longer-term outlook for the Russian economy, including on fundamental growth factors and the increasing risk of a full-blown economic crisis in Russia which is discussed in a separate section in the report.

The report ends with a concluding section that summarizes the main ideas of the report. It then also adds a rich list of reference for further reading and analysis for the interested reader as well as an appendix that provide a more comprehensive timeline of the sanction that have been introduce so far.

Executive Summary

THE MAIN MESSAGES OF THE REPORT ARE:

- The fog of war also affects economic reporting and narratives around the strength of the Russian economy.
- Key economic indicators such as inflation and real GDP growth should be treated with a significant degree of care and official numbers of these variables should not be cited without an explicit warning that they are part of the Russian propaganda narrative.
- There are signs of mounting imbalances in the Russian economy with an increasingly inconsistent policy mix of fiscal stimulus and monetary tightening.
- The reserves that have been contributing to the financing of fiscal war expenditures will not last forever and may run out as soon as in a year. This will increase the pressure on the central bank to loosen its key rate and at some stage also finance the budget with its printing press, with potentially serious implications for inflation and the exchange rate.
- Imbalances are also building up in the financial system after a period of fiscal subsidies of mortgages and other lending to offset the effects of the central bank's crippling policy interest rate.
- Although a full-blown economic crisis is not likely in the short run, these imbalances combined with a bleak medium and longer-term outlook are contributing to an increasing risk of such a crisis in the coming years.
- Autocratic states also have budget constraints and will have to respond to pressures on both the revenue and cost side of these constraints.
- The price Russia can get for its sale of oil on international markets continues to be the most critical variable in determining the foreign exchange revenues of the country with direct implications for the fiscal space, inflation, the exchange rate, growth, and the probability of an economic crisis.
- Furthers measures to constrain imports and increase the price of imports will impact the budget constraint of the government and the economy in general from the cost side.
- The analysis in the report does not focus on the impact of specific sanctions but can be used as a basis for future discussions of limiting the available resources of the Russian war machine.

STRUCTURE OF THE REPORT

Since Russia's full-scale war against Ukraine, economic indicators have become a part of the Russian propaganda it uses inside and outside its borders to influence its domestic audience as well as policy makers and the general public in countries that support Ukraine. This report provides a short overview of how the Russian economy developed before the war as a reference point to the analysis of the current state of the Russian economy and the credibility of several economic indicators that are now used to support a narrative that the Russian economy is doing well, despite its war efforts and the sanctions this has led to. In particular, the report focuses on the dependency the Russian economy had and still has on the revenues it derives from its oil exports. Fluctuations in these revenues are to a large extent determined by international oil prices (and in contrast only a little by the quantities produced) that for decades have determined the faith of the Russian economy. The price of oil has been the main driver of growth, the development of the ruble exchange rate, inflation, reserve accumulation, and the stock market. In short, exogenous changes in oil prices determine the welfare of the country and the resources it has to project power outside its borders.

The current state of the Russian economy according to official statistics is then covered by going through standard economic indicators such as GDP growth, inflation, monetary policy, fiscal

policy, reserves, trade, the exchange rate and the financial sector. It then offers a critical analysis of this official view and questions the credibility of two key economic indicators, growth and inflation, where it is shown that inflation may be significantly higher than official numbers suggest and growth significantly lower.

Sanctions are an important part of how the Russian economy is doing today and this is discussed in some detail in the report. The perception of the effects of sanctions in sanctioning countries are an important ingredient in building popular support for the introductions and continuation of sanctions. This starts with a general understanding of economic developments, which is why the first parts of the report is also important for this discussion. The sanctions section goes through the different sanctions that have been introduced by the main purpose of these sanctions: curtailing export revenues; curtailing government revenues; curtailing trade; and constraining the financial sector. It also makes a general note on the importance of using proper counterfactuals when analyzing the impact of sanctions.

With all of the above as an input, the report then presents a medium and longer-term outlook for the Russian economy. The section also adds a discussion of general economic determinants of longer-term growth and details how key structural factors such as investment, labor, and productivity are likely to impact growth in the coming years. The conclusion is that all the structural factors point in a negative direction for Russian growth. This negative outlook is further compounded by the expected continued decline in oil prices as predicted by future oil prices.

A concluding section summarizes the findings of the report and discusses the policy implications of the analysis provided in the report. They are already summarized in the bullet points above and will not be repeated here.

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1 Background

Why is a report on the Russian economy needed now? The short answer is that the world needs to understand what resources Russia has to wage its aggressive war against Ukraine and find ways to limit those resources. Currently this analysis is complicated by several factors. First, as in any other country, most of the statistics on the Russian economy are produced by Russian government entities. These are central parts of the war machine and its propaganda. The so called "fog of war" now also includes numbers that are frequently cited by Russian leaders, as well as by journalists, policy makers, and others in the West and elsewhere. To complicate matters further, these numbers then form the basis of forecasts by International Financial Institutions (IFIs) and other organisations, with few comments regarding the credibility of the numbers, even when used in policy discussions.

The lack of independent statistics on key indicators also complicates the analysis of how sanctions and countersanctions affect the Russian economy, which feeds into various propaganda narratives around how "strong" the Russian economy is and how "useless" sanctions are.

Another important issue when looking at Russian economic data is use a solid analytical foundation. There are several dimensions to consider here. For instance, time horizons are critical when current statistics are used to form longer term forecasts. What may look like a strong growth number today may instead harbor significant risks to the medium- and longer-term outlook depending on how it came about. This can be due to the build-up of macroeconomic and financial instabilities and/or by underinvestment in structural growth factors, such as innovation, property rights institutions, human capital and critical infrastructure.

More generally, while Russia is trying to sell the story of a great economy with limited problems, policy makers and others in the West may at times be overly confident of the imminent collapse of the Russian economy and thereby the end of the war. Given how hard it is to predict the exact timing of an economic collapse due to increased macroeconomic imbalances, neither side may be proven right or wrong in a visible way in the near future though. This can be disappointing for those who support Ukraine and want a quick crisis in Russia to solve the problem. But history shows that authoritarian regimes in countries like North Korea, Cuba or Iran can survive for a very long time despite not focusing on the well-being of its own populations. Not because the economy is doing well but because of repression. However, we still want to limit the resources of these types of regimes so that the damage they can inflict on neighbors and others can be constrained. The same is true for Russia today; it is not about a total collapse but about limiting available resources to a state that violates international law. This is why a report on the Russian economy is needed.

Against this backdrop, the Swedish government commissioned a report from the National Institute of Economic Research (NIER, or Konjunkturinstitutet, KI in Swedish) to analyze the economic situation in Russia. NIER in turn commissioned a report from the Stockholm Institute of Transition Economics at the Stockholm School of Economics (SITE, or Östekonomiska institutet in Swedish).[1] The report should analyze the Russian economy in the shadow of the war,

[1] SITE was set up as a research institute at the Stockholm School of Economics (SSE) in 1989 with the mandate of studying developments in the Soviet Union and Eastern Europe. Today, SITE is a leading research-based policy institute on these issues. SITE has also built a network of research institutes in the region that includes the Kyiv School of Economics (KSE). KSE not only provides a premier economics education to future leaders in Ukraine but is also involved in the analysis of the Ukrainian, as well as the Russian, economy, including analysis of the role of

including: economic growth prospects; the development of key economic indicators in areas such as inflation, the labor market, international trade, monetary and fiscal policy, and reserves from a cyclical and structural perspective; and the emergence of imbalances in key economic sectors.

To address these issues, this report first takes a look at how the Russian economy worked before 2022 and the implications of the political economy of the Putin regime. The purpose of this is to offer a lens through which current events need to be seen to be able to understand the shocks to the system taking place and what this means for how the Russian economy is changing. In the following section various indicators of the current state of the economy based on official Russian statistics are provided. This section contains numbers that are cited by both Russian officials and outside observers, often with very little discussion of what numbers make sense or how they should be interpreted under the current circumstances. Comparing current to pre-war times reveals that the narrative suggested by current statistics does not align with the "normal" functioning of the Russian economy, and moreover that a trend back toward Soviet-style economic practices is underway. Then follows a segment in which the credibility of the official statistics is discussed and some attempts from independent sources to calculate alternative measures are mentioned. An illustrative example is given of how critical inflation rates and exchange rates are for the interpretation of how the Russian economy is doing. In section four follows a discussion on how sanctions and counter-sanctions have been implemented with some comments on what we (can) know about their impact. We then turn to a discussion on the medium- to long-term implications of all this for the growth prospects of the Russian economy. The report concludes with a discussion of what we have found and points to the importance of getting the analysis right and thinking critically about the credibility of the data provided by the Russian government in a time of war. The report also contains a rich list of references and an appendix with a timeline of sanctions for the interested policy maker or researcher who wants to take this analysis a step further on their own.

2 The Russian Economy Before the Full-Scale Invasion

To evaluate both the current state of the Russian economy—especially given the uncertainties surrounding data quality and credibility—as well as the importance and likely impact of various policy responses, one needs to understand its basic functioning. The workings of any country's economy is always a complex matter but the case of Russia is in some dimensions unusually simple, in other dimensions more difficult. The unusually simple part has to do with modelling what primarily has driven economic growth in the Russian economy. The more complicated part has to do with the political economy of Russia, which is the way in which holders of political power in Russia can dictate decisions, control information flows, and create narratives to their own advantage. We will here briefly sketch the main points for the respective parts.

2.1 Orders of Magnitude and Economic Structure

In a global context, Russia is sometimes labeled a "great power". There are good historical reasons for this. It was one of two opposing poles in the cold war; it remains a major nuclear state; it is a permanent member of the UN security council with veto powers; between 1998 and 2014 it was part of the G7 which with the inclusion of Russia became the G8; and in terms of land size Russia is by far the largest country in the world. In terms of *economic* size, however, Russia is not a "great power" with a GDP of around 2000 billion US dollars. That is about 1/10th of the combined GDP of the EU-27 (about 20 000 billion US dollars), or approximately

sanctions in limiting Russia's destructive capacity. KSE has been an important contributor of data and analysis that underlies this report.

the same size as the Nordic countries combined. The size of the US economy is about 27 000 billion US dollars or more than 13 times the Russian economy. Compared to other BRIC countries, Russia is behind Brazil (2200 billion US dollars), distanced with some margin by India (3600 billion US dollars), and only around 10 percent of the Chinese economy (17 800 billion US dollars). [2]

These proportions are important when comparing numbers of many things, including military spending as a share of GDP. The EU would for example only need to spend $1/10^{th}$ of the GDP share compared to Russia to reach the same absolute value of military spending. A coalition that includes the US, the UK and other Western countries brings this proportion to something like $1/50^{th}$ of the GDP share. In other words, there is no reasonable scenario where Russia could afford to outspend the West on military equipment and personnel if the West decided to enter a full-blown arms race with Russia in the longer run, when short-run production constraints are not the deciding factor.

Table 1. Selected Indicators in 2021

	Year	RUB bn	USD bn	% GDP*
Russia nominal GDP	2021est	128000	1730	100.0
US GDP in USD	2021est		22993	1329.3
EU GDP in USD			17078	987.3
Value of total goods export	2021		490	28.3
Value of oil and oil products export	2021		179	10.3
Value of gas and LNG export	2021		62	3.6
Value of imports	2021		304	17.6
Trade balance	2021		186	10.8
Current account	2021		120	7.0
Assets of the banking system	2020	88100	1191	82.3
Retail loans	2020	20000	270	18.7
Corp loans	2020	44800	605	41.9
Other	2020	23300	315	21.8
Assets of Sberbank	Nov-21	38778	524	30.3
Assets of VTB	Nov-21	19896	269	15.5
Assets of Gazprombank	Nov-21	8267	112	6.5
Households' cash and deposits	Sep-21	56035	757	43.8
Ruble	Sep-21	40245	544	31.4
FX	Sep-21	15791	213	12.3
Government debt**	Jul-21	30703	415	24.0
debt in ruble	Dec-21	17158	232	13.4
eurobonds	Sep-21		39	2.3
other	Jul-21	12600	170	9.8
International reserves	end-2021		630	36.4

Note: * In percent of Russian GDP the same year. ** Different reporting dates so components will not add up to total.
Source: Rosstat, CBR, Ministry of Finance of Russia (MoF), and IMF

It is also important to understand the relative importance of trade, reserves, the financial system etc. in the Russian economy before the full-scale invasion (see Table 1). The table shows the importance of oil and gas exports; that the banking system is relatively large, with a few banks especially important before the war; that debt was at manageable levels; and that the Central

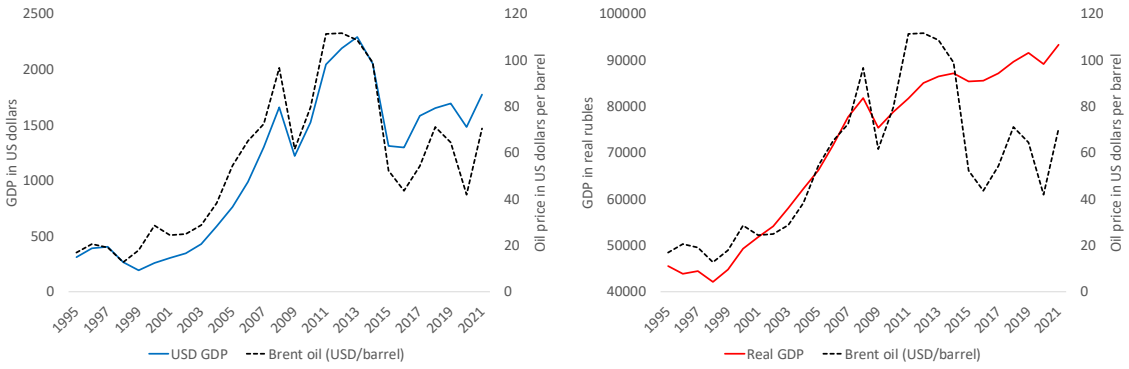
[2] In so called Purchasing Power Parity (PPP) terms the Russian economy is relatively larger as is the economies of the other BRIC countries. Most notably, China is in PPP terms, the largest global economy. PPP is most relevant when comparing individual welfare between countries but the more relevant number for comparing economic strength in a global context is the market exchange rate value of GDP which is used here.

Bank of Russia (CBR) had amassed significant international reserves. While this was part of building "Fortress Russia" it also provides a roadmap of what to go after with sanctions once Russia started the full-scale war against Ukraine.

2.2 Russian Growth Under Putin

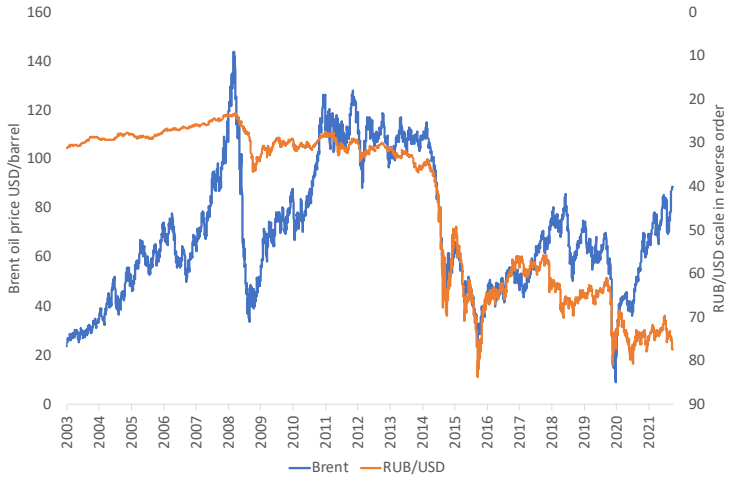
While the Russian economy remains small compared to the EU and the US, it has grown quite rapidly over the past decades, especially from 2001 and until the global financial crisis in 2008/09. This growth period coincides with the two first tenures of Vladimir Putin as the president of Russia. In relation to the experience in the 1990s after the dissolution of the Soviet Union in 1991 and the Russian crisis in 1998, it is easy to see how one can associate the Russian economic success during this period with Putin being the president of Russia. However, this economic success is in no small part a function of what happened with international oil prices in this period. This is shown in Figure 1. Although the exact correlation between the growth of Russian GDP and international oil prices depends on the measure of Russian GDP that is used, both when using real GDP in ruble terms (right panel) or in US dollar terms (left panel), the main pattern remains the same.

Figure 1. Russian GDP and the Price of Oil



Source: Rosstat and U.S. Energy Information Administration

Figure 2. Ruble/US dollar Exchange Rate and the Price of Oil



Source: CBR and U.S. Energy Information Administration

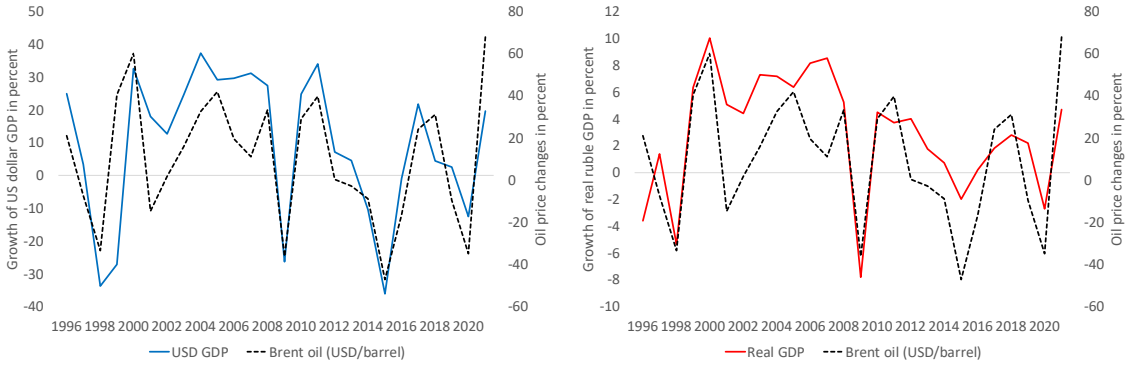
The major difference between using US dollar terms and real GDP in rubles is in 2014 when the oil price fell so much that the CBR had to let the ruble float, and the currency depreciated from

33 RUB/USD to 66 RUB/USD between January 2014 and January 2015. This happened to coincide with Russia's annexation of Crimea and occupation of Donetsk and Luhansk and the sanctions that were introduced then, so one may think that this was the reason for the policy change and fall in the exchange rate. However, it was again simply a consequence of Russia's dependency on international oil prices, that in the same period fell from 108 dollars per barrel to 50 (Figure 2). In other words, when international oil prices were cut in half, so was the value of the ruble.

Although the relationship between GDP and oil prices seems rather clear when looking at levels, it suffers from the statistical issue of non-stationary time series which complicates the interpretation of correlations. However, the same series in terms of growth rates, which does not suffer from the same problem, show the same strong correlation (Figure 3). Becker (2019) shows that depending on what measure of GDP is used and the time-period that is included in the analysis, between 60 and 95 percent of Russia's GDP growth can be explained by changes in one exogeneous variable alone: the change in international oil prices. It is important to note that, from a pure national accounts perspective, changes in prices do not generally lead to real growth. This is also the case for Russia so when GDP growth is decomposed into domestic consumption, investment, and net exports, growth comes, in many years, from the first two factors and not from net exports, of which oil is a major part. This might lead to the conclusion that oil exports are not critically important for growth. However, this view overlooks the significant relationship between increased oil exports and boosts in domestic consumption and investment. Essentially, domestic demand factors are strongly related to oil export revenues, causing oil prices to be a major driver of GDP growth. This connection is also evidenced in the historical correlation between the Russian stock market index (RTS) and oil prices up until 2020 (Figure 4).

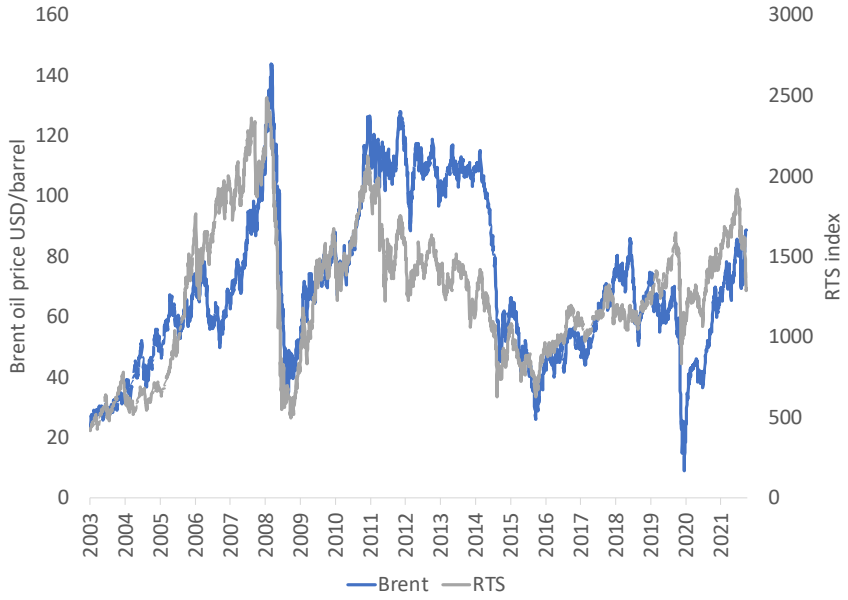
In essence, Russia's economic performance is primarily influenced by one external factor: fluctuations in oil prices, rather than the fact that Putin assumed the presidency. This underscores the significance of targeting sanctions that limit Russia's earnings from its oil exports. Pushing down the price that the world pays for Russian oil has a very significant impact on Russian GDP directly today and on the growth that determines future GDP.

Figure 3. Russian GDP Growth and Changes in the Price of Oil



Source: Rosstat and U.S. Energy Information Administration

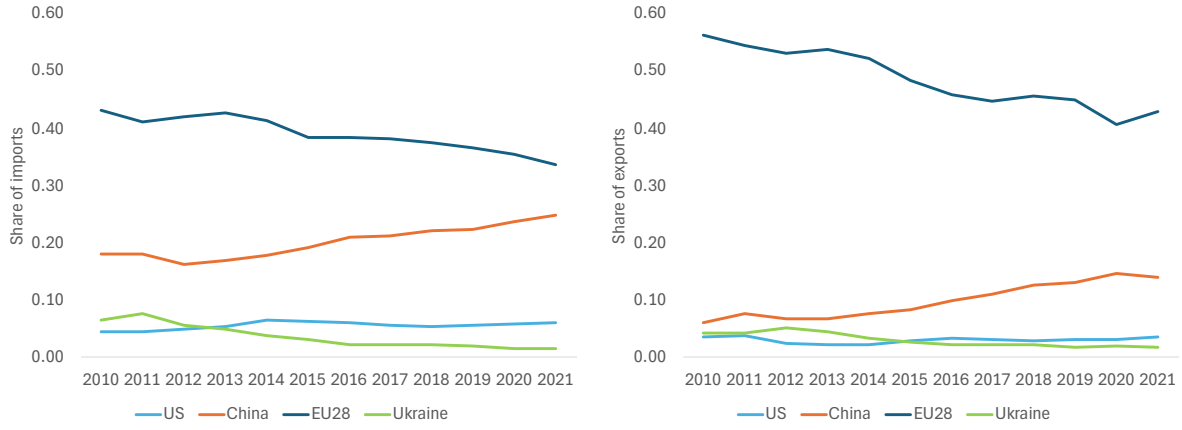
Figure 4. Russian Stock Market Index (RTS) and the Price of Oil



Source: CBR and U.S. Energy Information Administration

Another way of illustrating how natural resources dominate the Russian economy is to look at trade flows. A break-down of what Russia exports, and to whom, shows that more than half consists of sub-soil assets, and more than 40 percent of the total is oil and oil products. When instead looking at imports, it is clear that Russia depends on the rest of the world for machinery, electronics, vehicles, pharmaceuticals, and other goods that require innovation and competitive manufacturing. In short, the Russian economy in terms of trade relations can be described as exporting mainly natural resources, while importing manufactured items and being highly dependent on importing advanced products. The main trading partners of Russia used to be countries in the EU followed by China, while the US accounted for a relatively small share of Russia's trade and lower than the initial share of trade with Ukraine. However, already with Russia's annexation of Crimea and occupation of Donetsk and Luhansk in 2014, the trends shifted towards more trade with China and less with the EU and Ukraine (Figure 5).

Figure 5. Russia's main trading partners before 2022



Note: EU28 since UK was part of the European Union until 2020.
Source: IMF Direction of Trade Statistics

It is important to note that this relationship is not symmetric, Russia was not equally important for the EU28 as the EU28 was for Russia. Since the Russian economy is so small in comparison to the EU28, the size of EU trade with the rest of the world is much larger. Russia as a market was about 4 percent of EU exports, and about 7 percent of imports to the EU came from Russia in 2021. Almost all of what the EU imported was natural resources, mainly oil and gas.[3] These proportions are important to keep in mind when judging statements about the relative cost of, for example, imposing sanctions.[4]

2.3 The Political Economy of Russia

The Russian economy cannot be discussed without addressing the basic relationship between markets, the political system, and the general population. With the risk of trivializing a very complex set of developments, the relationship between market reforms and politics can be characterized as having two phases: before and after Putin. The first decade, and especially the first years, of transition was a disastrous period in terms of economic growth and welfare of the population. It also resulted in an unusually high concentration of private wealth in the hands of the so-called Russian "oligarchs", very wealthy individuals with disproportionate political power.[5] With Putin's presidency, the political and judicial system were used to take back control over these oligarchs. But instead of building a system with checks and balances, political and economic power was concentrated under the president. This led to a new generation of oligarchs with close ties to Putin and his political elite, which has essentially dominated much of Russia's economy over the past decades. In this system, many firms operate as nominally private, while all their activities are subject to government approval, and in many cases the ultimate decisions are taken, and profits are reaped, by the political elite.[6] Looking at the share of billionaires across different sources of wealth illustrates how the Russian system is different even from the other BRIC countries (Figure 6).

A well-known trait of the Russian political economy system is the enormous outflow of money to tax havens. As most profits are made from rent-seeking, and since the judicial system is arbitrary, genuine investment in innovation, research and development in Russia are not the preferred option for many of the country's wealthy. Instead, money is often "parked" in so called tax-havens or invested in assets primarily in the West. These are of course most visible in the forms of yachts and luxury real estate in prime locations globally but show up also in official statistics. Looking at Russian financial flows between 1995 and 2018 the net cumulative outflow of money was around 700 billion dollars (Becker, 2019), money which could have contributed to productive investments in Russia, had the conditions for investments been more favorable.

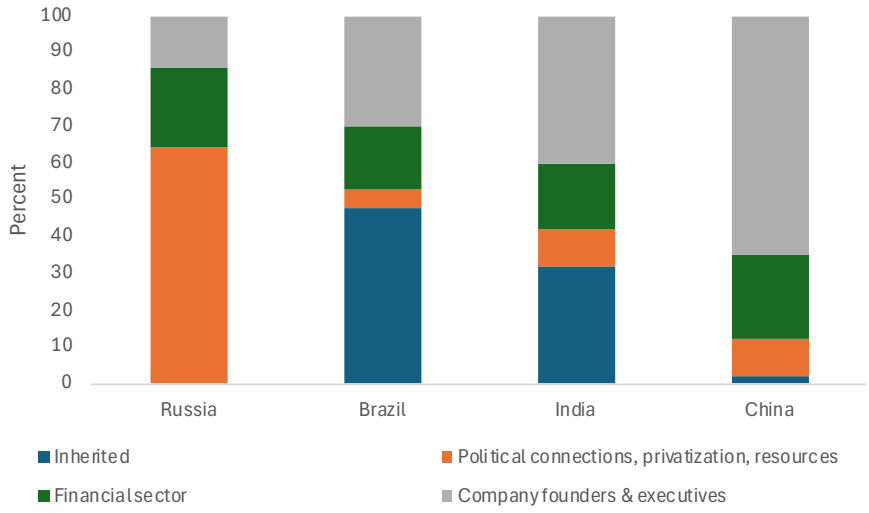
The destination of some of these outflows is also interesting. To exemplify, in 2018 the size of foreign direct investments from Russia to Cyprus stood at 167 billion dollars. In that same year

[3] Becker and Åslund (2024) discuss the mutual dependence of the EU and Russia when it came to energy imports and exports respectively before 2022.
[4] This does not contradict the fact that individual countries and sectors were very dependent on trade with Russia pre-2022. In terms of energy imports the EU's Russian share pre-2022 was about 30 percent (about 2/3 oil and 1/3 gas) and for some individual countries such as Lithuania, Slovakia, Finland and Hungary it was more than 2/3 of all energy.
[5] See, e.g. Guriev and Rachinsky (2005) on oligarchs in the early 2000s, and e.g. Boone and Rodionov, 2002 and Aslund, 2004 on their positive impact as counterweights to corrupt politicians in transition, and Stiglitz, 2002, Goldman, 2004, and Hoff and Stiglitz, 2004 on their negative influence on especially perceptions of markets and capitalism, and belief in democratic institutions.
[6] For a short overview of how the oligarchy has shifted under Putin, see https://theconversation.com/meet-russias-oligarchs-a-group-of-men-who-wont-be-toppling-putin-anytime-soon-178474

the total GDP of Cyprus was 24 billion dollars. The only reasonable interpretation of such numbers is that Cyprus is not the ultimate destination of any real investments, but rather a way of getting money out of Russia to a multitude of other final destinations.

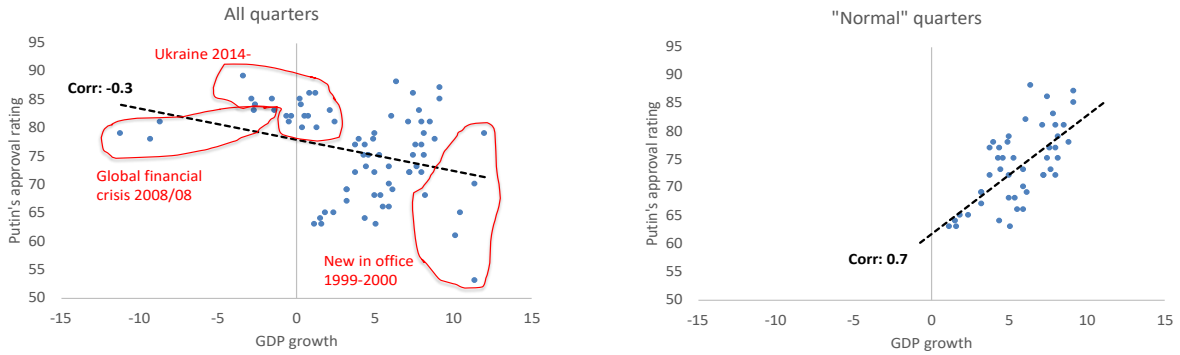
In short, the Russian economy has failed to create an environment conducive to long-run economic growth. Instead, it largely relies on wealth generated from natural resources to sustain economic activities. However, a significant portion of this wealth does not contribute back to the Russian economy, as it is often invested or spent outside the country.

Figure 6. Distribution of Billionaires by Source of Wealth, 2014



Source: EBRD

Figure 7. Putin's Popularity Ratings vs GDP Growth



Source: Becker (2019) based on data from Levada and Rosstat

Another important political economy dimension in Russia has to do with the relationship between the popularity of the president and economic progress. All political leaders, in all systems, need approval from the population in some form, which could be based on delivering prosperity or creating narratives around outside threats or national identity. However, when this fails, modern autocrats also resort to ever harsher repressive measures to keep protests at bay, just as dictators have done in the past.[7] Becker (2019) shows how Putin's popularity before the war at a first glance seems to be disconnected from economic growth (in contrast with the

[7] For further reading on this topic, the book "Spin Dictators" by Guriev and Treisman (2023) is highly recommended.

general political idea of "it's the economy stupid"). However, when the scatter plot removes three specific episodes from Putin's time in office—his first year in the office, the global financial crisis, and the invasion of Crimea—the usual positive correlation between growth and popularity also held in pre-war Russia. Today, it is not so clear that one can trust popularity ratings in Russia given the oppressive state, but pre-war ratings were probably more in line with voter opinions.

In short, before the full-scale invasion, Putin managed to temporarily boost his popularity by annexing Crimea. However, this effect then faded, and his popularity went back to being linked to economic growth. This is an important insight to bring to the current discussion on narratives around how well the Russian economy is doing. The other part is that the elite (oligarchs etc.) around Putin got rich on natural resources and connections to the government. If the government then enters a phase when resources are instead constrained due to Russia's war against Ukraine, the elite will likely also be less supportive of the president.

3 The State of the Russian Economy

In this section we first focus on the Russian economy from the start of the full-scale invasion in February 2022 to mid-2024, mostly relying on official statistics. We then turn to a discussion of interpretation and some alternative measures of growth and inflation.

3.1 The Current Situation According to Official Statistics

Following Russia's full-scale invasion of Ukraine in February 2022, the Russian government ceased to publish large swaths of previously public data. For a full overview of the most important indicators being masked early on see Anisimova and Smitt Meyer (2022) and the related online appendix. Since then, Russia has for many vital indicators recontinued its previous publications, albeit with the content being harder to track down, less detailed, only available in Russian, and at times disclosing suspiciously positive figures. With these caveats in mind, below follows a brief overview of the development of Russia's key economic indicators since the full-scale invasion based on the statistics provided by official Russian sources.

3.1.1 GDP Growth, Inflation and Monetary Policy

The most cited indicator of how the Russian economy is doing (like for any other country) is real GDP growth. Computing real GDP starts with computing nominal GDP and then divide this number by a GDP deflator to arrive at real GDP. The deflator should basically remove price changes and leave us with quantities or real output. In other words, we want to know for example how many cars are produced and not how the price of cars has changed. This may sound trivial but also involves what type of cars are produced so there should be an adjustment for how the relevant specifications of a car today compare with a car that was produced last year. To make it blunt, it matters if the car that is produced is a Lada or a BMW; if it has 200 horse power or 50; if it has ABS breaks and air bags or not; and so on. The same issues of course also matter for the computation of CPI but whereas the CPI basket should be stable over time, the GDP deflator allows for the basket of goods to change while keeping the specifications that are used to compare a certain good constant over time. If the basket of goods and services for the deflator is similar to the basket of goods and services in the CPI index, the two would be the same, but since this is not always the case, there can be a difference that may or may not be significant. Another difference between the GDP deflator is that it includes goods and services purchased by all sectors of the economy, households, business and the government, while CPI only includes what households buy. When we discuss alternative measures of growth in the next

section, we will return to these issues. In summary, the details of how real GDP is computed in Russia today is an important part of any discussion of Russia's real GDP growth and how well the Russian economy is doing in the middle of the war.

Figure 8 shows the official Rosstat numbers for quarterly real GDP in Russia and the corresponding real growth rates on a quarterly and annual basis from 2019 to the first quarter of 2024, which is the latest available number for GDP. The quarterly numbers are useful to more closely identify which quarters are the most important when it comes to large changes in growth, while the annual number corresponds to the growth numbers that are more often discussed. In the case of Russia in this time period, it is clear that the economy took a significant hit in the quarter when Russia started the full-scale invasion, which explains the full year decline of GDP in 2022 of 1.2 percent. However, the remaining quarters in 2022 as well as all of the quarters in 2023 all showed positive quarterly growth. For 2023 this led to an annual growth of 3.6 percent according to the official statistics. We will not comment on the plausibility of this number here but will return to this issue in a separate section below.

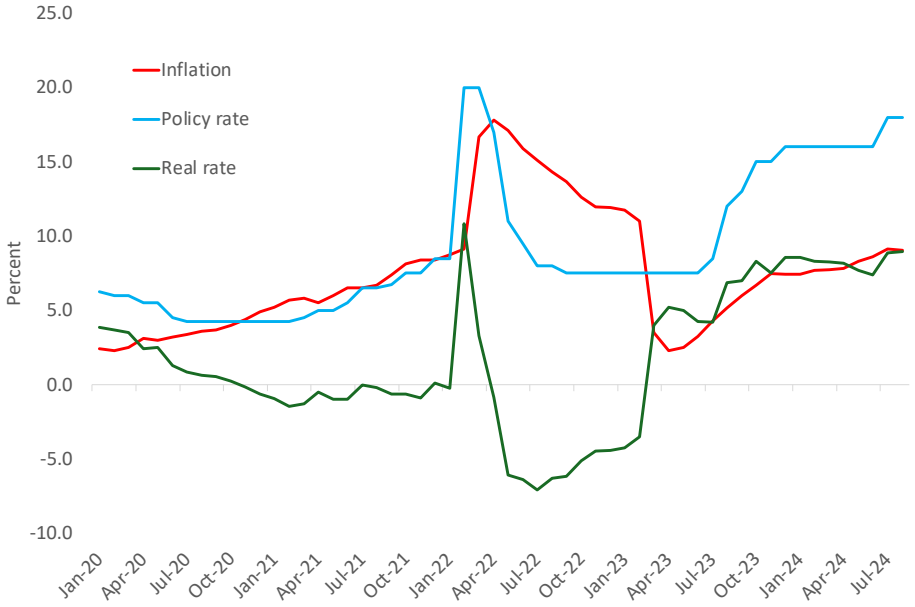
Figure 8. Real GDP, Level and Growth Rates

Note: Quarterly real GDP in 2021 prices seasonally adjusted. Quarterly (q-on-q) and annual (q on same q last year) growth rates computed from this series.
Source: Rosstat

Although many important economic indicators have been in and out of publication by the Russian authorities, the CBR has consistently reported monthly CPI throughout this period. Just like GDP growth, inflation is a vital indicator of how well an economy is doing and how the purchasing power and welfare of households change over time. It is also what the CBR focused on when it sets its key policy rate and the CBR has stated that it aims for inflation of around 4 percent per annum. Higher inflation signals an economy that is overheating and puts pressure on the exchange rate, which in turn motivates increases in the policy rate just like it does in other countries that target a certain level of inflation.

Figure 9 presents the official monthly inflation rates as reported by the CBR starting from 2020 together with the policy rate and the implied real interest rate as the difference between the policy rate and inflation. Notably, inflation surged sharply after February 24th, 2022, which was met with an immediate hike of the policy rate from 8.5 percent to 20 percent to also defend the currency. This sent the real interest rate up from negative territory to almost plus 11 percent. Soon after the trends reversed and by July 2022, the policy rate was down to 8 percent while inflation was still high, leading to a real rate of minus 7 percent, a swing of 18 percent in a few months. The real rates stayed negative for a few months, but when inflation suddenly dropped from around 12 percent to between 2 and 3 percent in the first half of 2023, the real rate turned sharply positive. In the second half of 2023 and so far in 2024, the key policy rate has kept going up without the same strong increase in inflation, which has led to a real rate of around 8 to 9 percent. This puts in doubt the credibility of the more recent inflation numbers or alternatively the competence of the CBR. With its most recent decision, the key policy rate is 19 percent, so the real rate is still at a record high level.

Figure 9. Inflation, Key Rate and Real Rate



Source: CBR

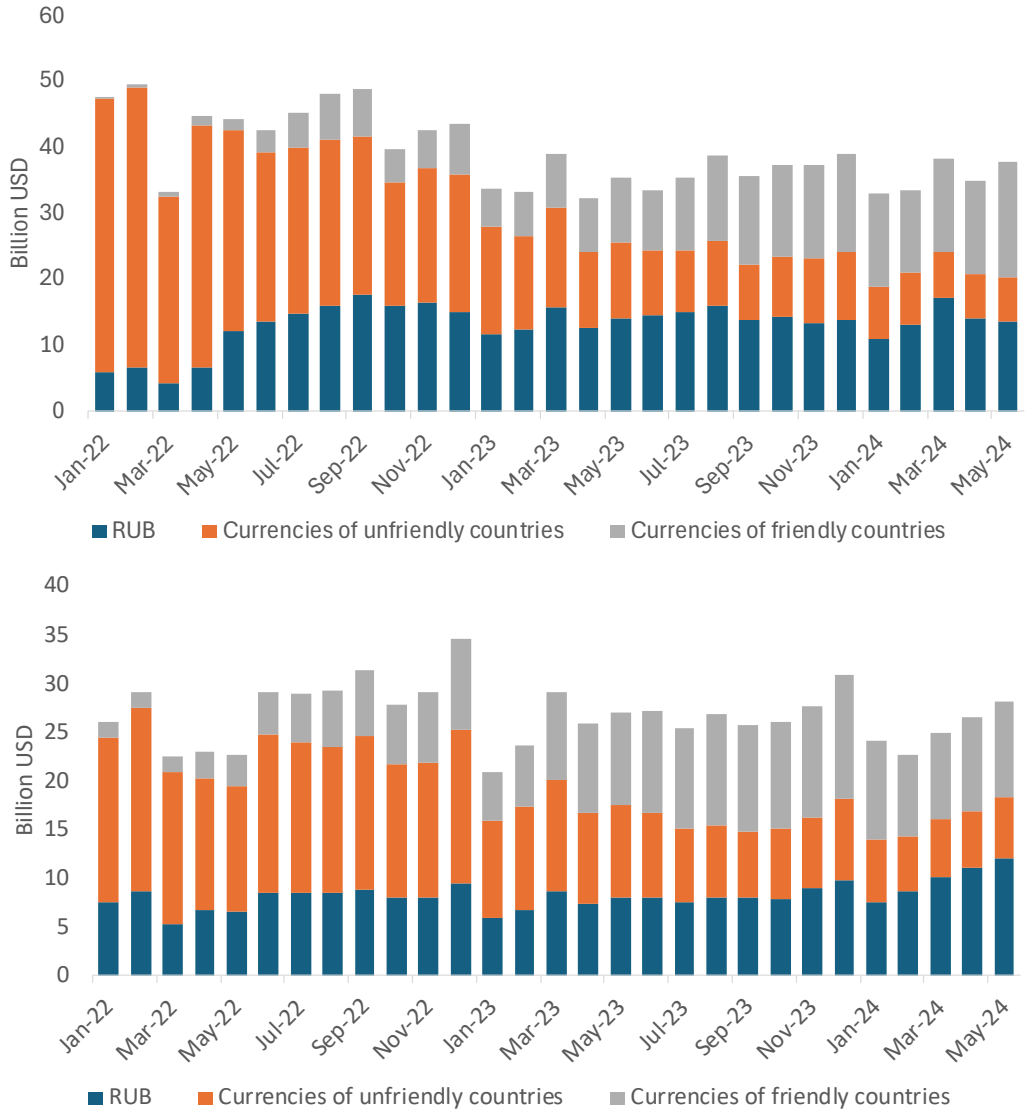
3.1.2 Trade

Russia relies heavily on international trade both as a source of export revenues and as a source of critical inputs and goods for both military and civilian production. In fact, the Russian economy is very unbalanced, given that it primarily exports energy, grain, and raw materials while relying heavily on imports for mostly everything else. To analyze trade flows, import and export figures are ideally broken down in volumes and value and by exporting or importing partner. To get a fuller picture of supply chain dynamics, any such data from the customs offices would also be split into categories following the international standard international trade classification (SITC).

However, as mentioned above, the Russian government has since the full-scale invasion ceased to publish large swaths of previously public data. The most apparent masking, closely linked to oil-related sanctions, concerns trade statistics. In 2022 such detailed statistics were made completely unavailable, but the CBR has since resumed publishing monthly import and export data. This data is however no longer split into categories or trading partners, rather it is

concentrated in two categories reflecting trade in "friendly" and "non-friendly" currencies. Moreover, the data are published in US dollar value, with no detail as to how currencies, particularly the ruble, are converted into dollars. Similarly, the Federal Customs Service of Russia currently publishes data on export and imports by continents only. Despite the lack of detail, the existing data paint a general picture of Russia's pivot in trade from Western markets toward China, India, Iran, Türkiye, Belarus and other so-called "friendly" countries. The pattern of an increasing share of trade consisting of "friendly" countries' currencies holds true also for imports. In addition to the pivot, the export data reveal a substantial drop in total value, by as much as 24 percent between February 2022 and May 2024 (upper part of Figure 10). No similar drop can be seen in the import data (lower part of Figure 10).

Figure 10. Russia's Exports and Imports

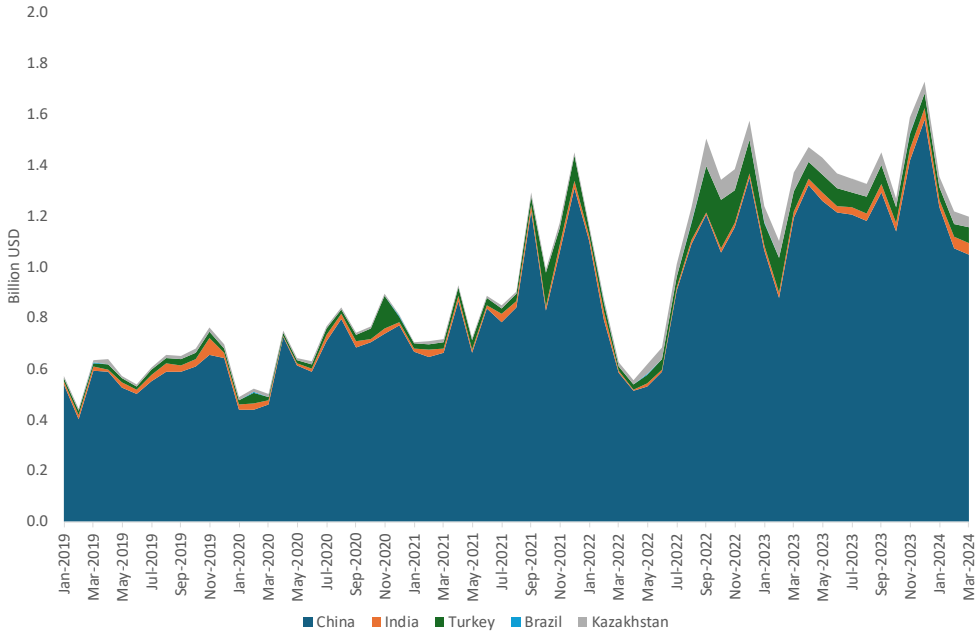


Note: "Unfriendly countries" include, among others, Australia, Canada, the European Union, Iceland, Japan, New Zealand, Norway, Singapore, South Korea, Switzerland, Taiwan, Ukraine, the United Kingdom and the United States of America (The Russian Government, 2022a).
Source: CBR

Since March 2022, Russia has permitted parallel imports, also known as "grey imports", which involve the import of goods into the country without the authorization of the manufacturer or copyright holder (The Russian Government, 2022b). Many goods from sanctioning countries are

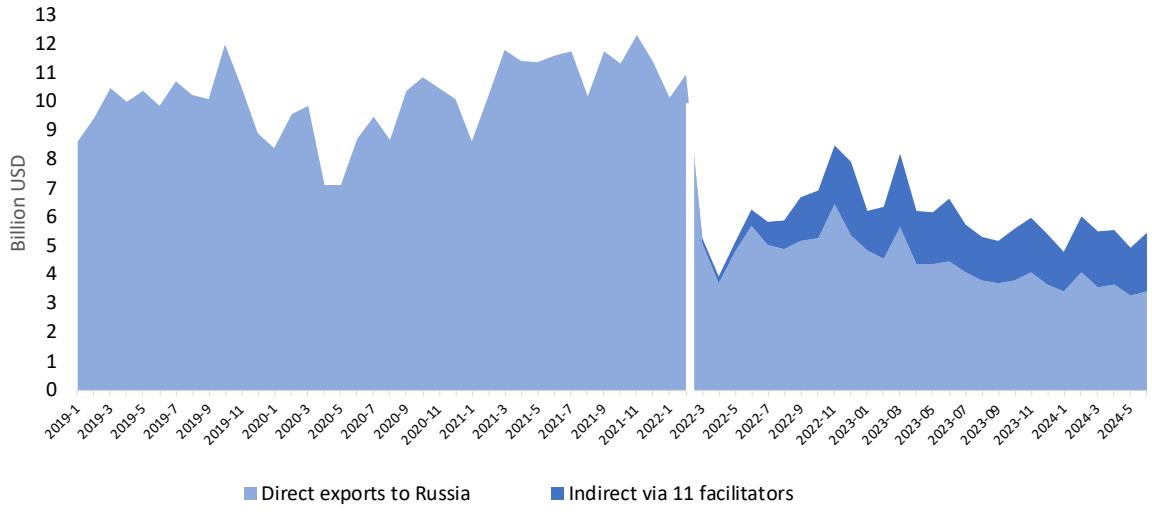
transported through transit countries to Russia, sometimes without the knowledge of the companies involved (see, for example, Dagens Nyheter, 2023). This redirection is apparent in the increased volumes of sanctioned goods entering Russia from Kazakhstan and Türkiye, as shown in Figure 11.

Figure 11. Russia's Imports of Selected Sanctioned Goods From Five Non-Sanctioning Countries



Source: Darvas et al. (2022)

Figure 12. Western Total (Direct and Indirect) Exports of All Goods to Russia



Note: Light blue denotes Western direct exports to Russia from USA, Canada, Japan, Korea, Taiwan, UK, Switzerland, Norway, Austria, Belgium, Czechia, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Netherlands, Poland, Slovakia, Spain, Sweden, Australia, New Zealand. Dark blue denotes indirect exports through 11 facilitating countries above the average exports between January 2019 and February 2022; Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Türkiye, Turkmenistan, United Arab Emirates and Uzbekistan.
Source: CORISK (Bjørtvedt, 2024)

However, it is crucial to note that, despite the increase in Western exports through Russia's neighboring countries, this surge does not compensate for the overall decrease in direct exports from the West, as illustrated in Figure 12. That imports figures hold up is basically explained by the increase from China, with a smaller additional contribution from India, as shown in Figure 11.

Additionally, the benefits of trade hinge upon several factors that are hard to quantify, in particular given the lack of detailed data. The data above shows the value of imports over time, but value depends on quantity and price. In other words, if cheaper products are replaced by more expensive ones of similar quality, then the benefit of trade is reduced even if the reported value stays the same. The same thing happens if the same goods are imported but through third country circumvention, as transaction costs go up. This is, for instance, because shipping routes have to be redirected and goods have to go through a greater number of middlemen, all expecting a share of the profit. Finally, if higher-quality goods are replaced with equally priced but inferior-quality goods from another provider then the benefit of trade is lower even though the reported value of trade stays the same. It is for a reason that, before the full-scale invasion, Russia imported a significant share of, in particular, high-end goods from the democratic West, facilitated by well-established legal import channels. The shift in trade partners and routes incurs costs, both directly and indirectly, affecting the price-to-quality ratio. However, putting exact numbers on these costs is beyond the scope of this report.

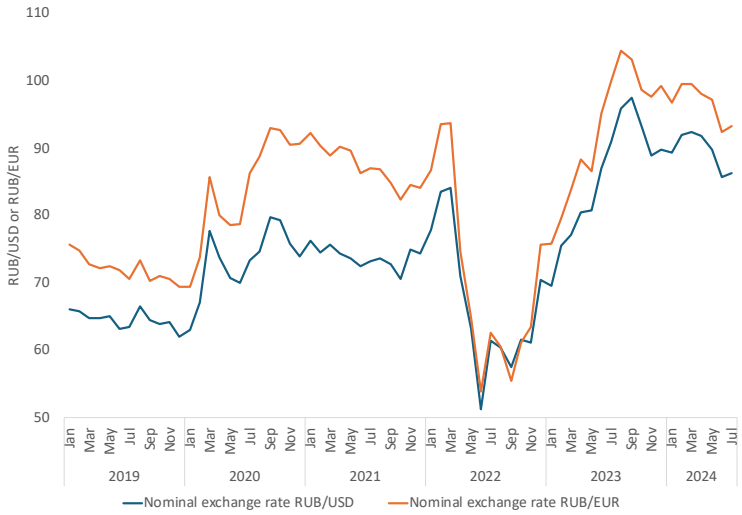
3.1.3 Exchange Rates

Due to sanctions and restricted access to euro and the US dollar, Russia has faced challenges in obtaining access to foreign borrowing. This situation has significantly influenced the forex market, leading to a marked increase in the share of the Chinese yuan in forex trading. Increased dependencies on a small number of currencies and volatility in the value of the Rubel affects Russia's competitiveness on the global market. As Russia's main trading partner is currently China, the rubel/yuan exchange rate is of particular importance. Data on exchange rates are provided on a monthly basis by the CBR and are shown below.

Between 2014 and the full-scale invasion in 2022, Russia had a floating exchange rate with the rate determined by trades on the MOEX. Following the full-scale invasion in 2022, the value of the ruble significantly declined against both the US dollar and the euro, as depicted in Figure 13. Since then, the CBR has however substantially intervened to strengthen the Ruble by, for instance, restrictions on taking out foreign exchange, asking importers to pay in Rubles and hiking the policy rate. This was further helped by oil price developments. Following this, the Ruble more than rebounded from the 2022 drop, but is now no longer considered to float freely[8] [9]. Following new sanctions from the US, there is since June 12th 2024 a ban on trading in dollars and euros on the MOEX. By that time, the majority of trades on MOEX were already being conducted in yuan[10], and a substantial portion of Russia's trade had shifted away from the US dollar (Krainc, 2024). Therefore, the official RUB/USD and RUB/EUR exchange rates are since determined on the basis of information collected from commercial banks[11].

[8] https://www.bofit.fi/en/monitoring/weekly/2024/vw202435_1/
[9] https://www.allianz-trade.com/en_global/news-insights/economic-insights/russia-rallying-ruble.html
[10] https://www.reuters.com/markets/europe/russias-national-wealth-fund-148-bln-jan-1-finance-ministry-2023-01-18/
[11] https://www.bofit.fi/en/monitoring/weekly/2024/vw202435_1/

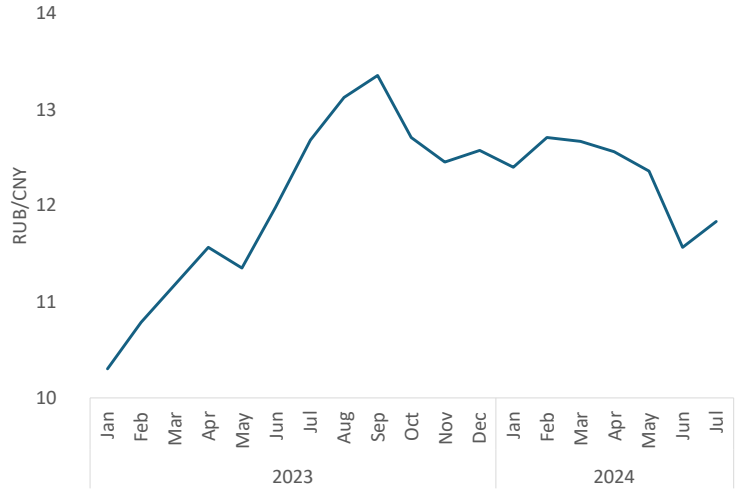
Figure 13. Nominal Exchange Rates



Note: Exchange rates reported for the end of the period.
Source: CBR

As for the ruble/yuan exchange rate, the CBR details no figures prior to 2023. Nonetheless, it is evident that the ruble has weakened significantly against the yuan in the last year and a half, especially in the summer months of 2023, as depicted in Figure 14.

Figure 14. Nominal Exchange Rate, Ruble and Yuan



Note: Exchange rates reported for the end of the period.
Source: CBR

The weakening ruble should be seen in light of the fact that the absolute majority of all trades since June 12th 2024 are being conducted in yuan. Additionally, the latest Financial Stability Report from the CBR indicates that regulatory measures in China and the threat of secondary sanctions are complicating Russia's ability to acquire yuan from external sources.

3.1.4 Fiscal Policy

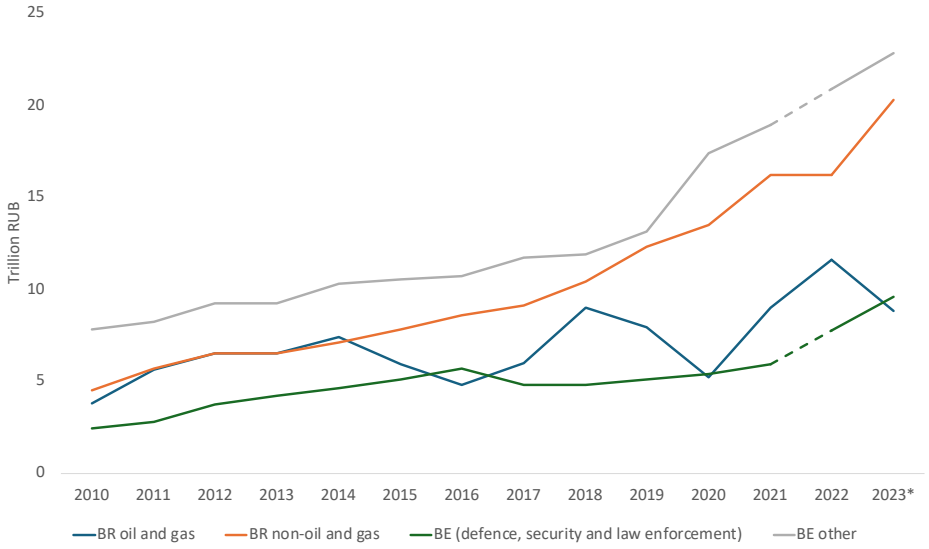
To understand major developments in Russia's capacity to sustain the war, it is crucial to analyze the fiscal space, i.e. the state's revenues and expenditures. Given the Russian budget's heavy reliance on oil and gas revenues, our analysis specifically focuses on these indicators on the revenue side. On the expenditure side, the key development is the increase in spending on law enforcement and defense. Finally, the budget balance is important, and to what extent it is

financed by depleting existing reserves or through borrowing, as this gives an idea of the sustainability of current spending patterns.

Since the full-scale invasion of Ukraine, the MoF has not published detailed monthly data on budget expenditures. Despite this, using VPNs allows access to the MoFs webpage, which publishes snippets of information, including total expenditures. Various institutions, such as the Bank of Finland Institute for Emerging Economies (BOFIT) and the KSE Institute, monitor and report on a range of fiscal indicators, primarily referencing either the MoF or open sources.

The preliminary estimates for 2023 show that federal budget revenues grew last year by 5 percent and amounted to 29.1 trillion rubles, or 340 billion US dollar if recalculated using the CBRs official average exchange rate (BOFIT, 2024a). As Figure 15 shows, in 2023 budget revenues from oil and gas were estimated at 8,8 trillion Rubles or 30 percent of all revenues. Estimates of budget expenditures in 2023 amounted to 32.4 trillion rubles (380 billion dollars) or a 4 percent increase from 2022. Expenditures on defence, law enforcement and security in 2023 amounted to 22.8 trillion Rubles, or 29.6 percent of all expenditures (about 8 percent of GDP). The spending on defense and security has been constantly increasing (about threefold since 2010), indicating a clear priority for continuing the war in the upcoming years and contributing to recent GDP growth.

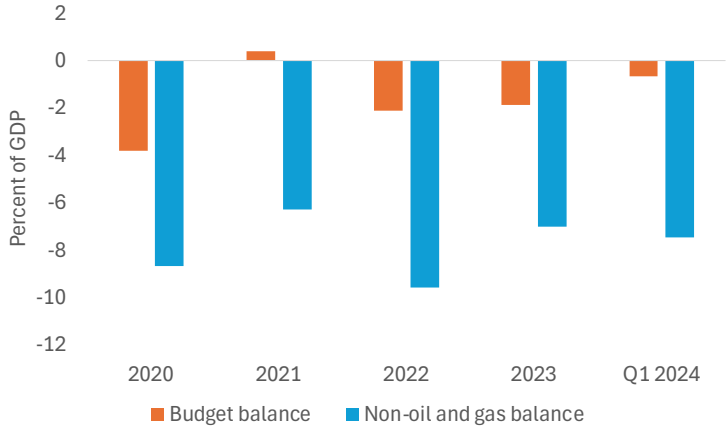
Figure 15. Budget Revenues (BR) and Expenditures (BE)



Source: Data for 2010-2021 from Russian Ministry of Finance, data for 2022 is unavailable for BE (denoted as dashed lines), data for 2023 from Prokopenko (2024)

Figure 16 shows both the overall fiscal balance and the non-oil and gas fiscal balance. The overall balance has amounted to a deficit of 1-2 percent of GDP since Russia's war against Ukraine started, while the non-oil and gas balance has been a deficit of 8-10 percent of GDP. This again highlights the central role of oil and gas revenues for the Russian budget.

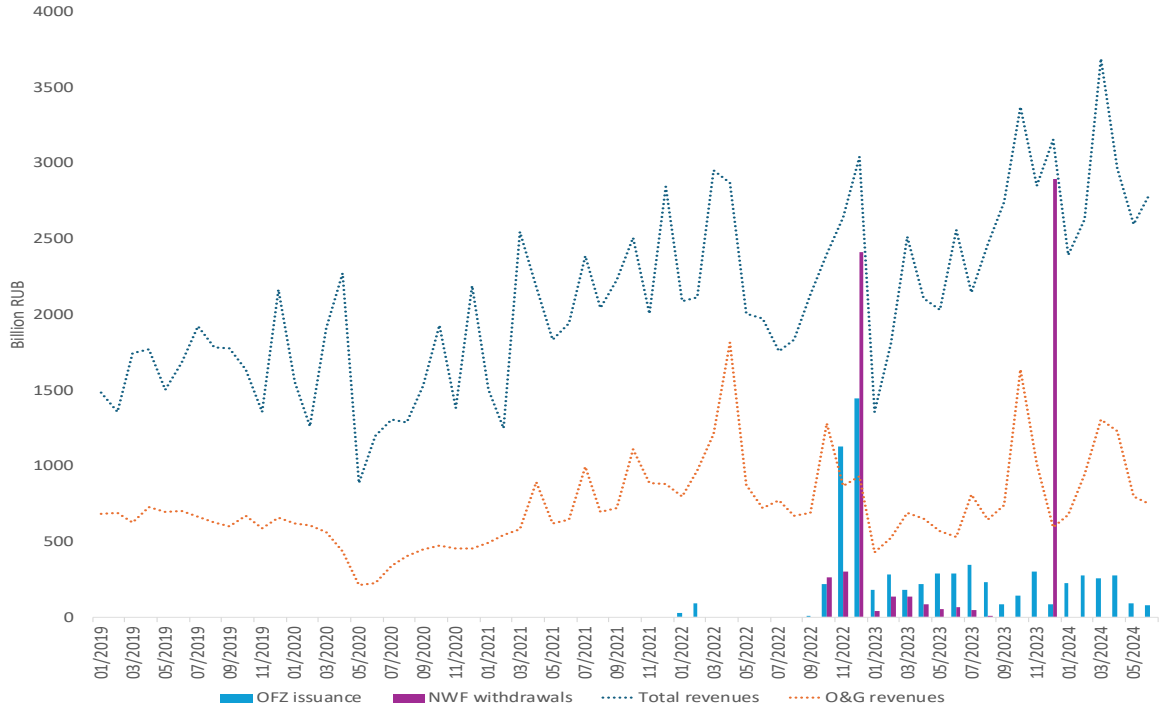
Figure 16. Fiscal Balances



Source: Russian Ministry of Finance and Rosstat

Figure 17 shows the Russian federal budget over time, revenues from oil and gas (O&G), and their contribution to the budget, which has visibly dropped after the invasion. The significant increase in the total budget which can nevertheless be observed is partly funded through government bond issuances (OFZ) and withdrawals from the National Wealth Fund (NWF), as is seen in Figure 18. These sources provide only a one-time financial boost, making them unsustainable for long-term fiscal planning. Additionally, it can be assumed that the remaining budgetary needs are met by increasing various taxes. Relying on these methods can have limited sustainability and may lead to potentially adverse effects on the economy. Both funding mechanisms—depleting savings and increasing the tax burden—could undermine economic stability and growth, as they do not provide a consistent or reliable revenue stream for ongoing budgetary commitments.

Figure 17. Russia's Federal Budget Revenues and Financing



Source: KSE, using data from the Russian Ministry of Finance

The Russian state budget has become even more sensitive to the changes in oil prices. For example, the 2024 budget was planned upon a projected oil price of 71 US dollars per barrel, which means that a lower oil price would undermine the Russian capacity to finance the war. In this context it's important to understand the dynamic of oil prices and its impact on Russian budget revenues. For example, a 10 US dollar per barrel drop in the price of oil would reduce Russia's state budget by approximately 1.6 trillion rubles (Prokopenko, 2024).

Box 1. Examples of Extra-Budgetary Expenditures, 2022-2024

- February 2022. Subsidies to offset the difference in interest rates for preferential loans dedicated to priority industrial investment projects.
- March 2022. Subsidies to credit institutions and financial organizations to compensate for lost income on preferential loans issued to SMEs and self-employed between 2019 and 2024.
- March 2022. Subsidies and state investments to manufacturers of metalworking equipment and machine tools, numerical control devices and certain types of tools.
- April 2022. 8.1 billion rubles allocated to investment projects in the Far East; state subsidies for the creation of digital platforms for the production of high-tech industrial products; subsidies in excess of 1.5 billion rubles to airports for partial reimbursement of operating costs during the introduction of flight restrictions.
- April 2022. State subsidies to agriculture for the purchase of agricultural machinery and equipment for the projects related to the construction and modernization of breeding and seed and genetic centers, as well as the development of dairy cattle breeding. Additionally, at least 153 billion rubles allocated in subsidies to banks as part of concessional lending to farmers.
- May 2022. State subsidies to tour operators to compensate for the loss of foreign tourists after closure of the airspace. Subsidies to the State Air Traffic Management Corporation to maintain its activities in 2023.
- August 2022. Federal subsidies to transport companies to reimburse the cost of transporting citizens from the occupied territories in Ukraine to Russia.
- September 2022. More than 1.3 billion rubles allocated to reimburse the costs of maritime transportation of goods to and from the Kaliningrad region.
- November 2022. Subsidies to oil and gas enterprises for the purchase of new domestic drilling rigs. 12.6 billion rubles allocated to support exporters of agricultural products and 800 million rubles for rail transportation of agricultural products at preferential rates.
- January 2023. Reimbursements allocated to livestock breeders covering part of the costs of raising cattle and related production.
- February 2023. Wide range of subsidies to farmers and agricultural cooperatives, ranging from 5 to 8 million rubles depending on the type of production.

The NWF reserves would be at risk of depletion if the average annual oil price fell and stayed below 60 US dollars per barrel. Theoretically, any decline in revenue could be managed in alternative ways, through loans, budget cuts, or by raising funds via a public offering on the Russian stock exchange. However, now Russia's access to these instruments is very limited so it is highly likely they would have to stay within the limits of existing reserves if oil prices stay low and the war continues, or start to fund the war with the printing press of the CBR.

On the expenditures side, the Russian government moves towards a planned economy, implementing a wide range of direct and indirect stimuli measures to support domestic production. A lot of subsidies, compensations, grants, preferential loans, tax benefits, credit holidays implemented within the government's Anti-Sanctions measure since 2022 create additional pressure on the fiscal system.[12] Box 1 reports some examples of additional non-planned expenditures from the Russian budget during 2022-2024. A list of some implemented anti-sanctions measures can be found in the Appendix. These additional measures require significant additional financing, the main source of which is the NWF.

3.1.5 The National Wealth Fund

Russia's sovereign wealth fund, called the National Wealth Fund, was established in 2008 following the division of the former Oil Stabilization Fund into the NWF and the Reserve Fund. The latter was intended to stabilize fiscal revenues but was depleted by 2017 due to falling oil prices and escalating fiscal demands. Originally designed to support the Russian pension system, the NWF has since also been used to address shortfalls in the general government budget, particularly after the depletion of the Reserve Fund (Columbia Center on Sustainable Investment, 2013; SWF, 2024). Functionally, the NWF serves as a safeguard against reductions in government revenue resulting from declining oil and gas prices and plays a critical role in buffering the economy against downturns by setting aside surplus revenues (Sohag, Hassan, Kalina, and Mariev, 2023).

Prior to the 2022 full-scale invasion, fiscal policy mandated that revenues exceeding a specific oil price threshold—originally set at $45 per barrel—be allocated to the NWF. In 2023, this policy was modified so that all revenues exceeding 8 billion rubles were directed to the NWF (Korunskaya, 2023). For 2024 and 2025, the budget plan reintroduces the price threshold, setting it at $60 per barrel, with proceeds above this price planned to be channeled into the NWF (Astrov et al., 2024). However, following the invasion, deviations from these fiscal practices have occurred. Notably, in December 2023, approximately $38 billion was withdrawn from the NWF to finance the budget deficit (Reuters, 2023b).

While the number of withdrawals from the NWF are not regulated per se, previously the NWF operated under the tradition of investing excess revenues, either domestically or in foreign reserves, a system designed to ensure a sufficient level of foreign reserves over time. Similarly, sales of foreign reserves were indented to cover economic downturns (Columbia Center on Sustainable Investment, 2013; Prokopenko 2024). As such, the NWF is highly connected not only to oil and gas prices but also to the exchange rate.

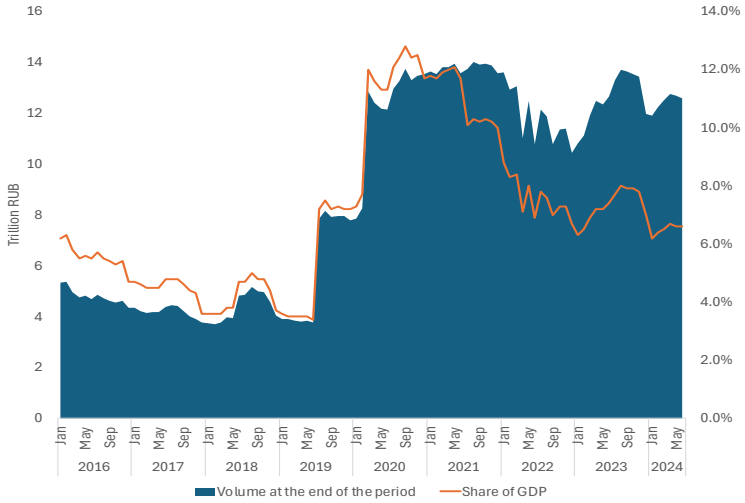
Monthly data on the NWF is still released by the MoF.[13] As Figure 18 shows, the NWF's assets at the beginning of 2022 were valued at 13.9 trillion rubles. By June 2024, the NWF amounted to 12.7 trillion rubles[14], a decrease by almost 13 percent over four years. This does not take into consideration the substantial increase in the inflation rate, so a better measure is the share of GDP. That has fallen from 12.1 percent in May 2021 to 6.6 percent in June 2024, i.e. a far more substantial drop.

[12] https://base.garant.ru/57750630/

[13] However, it should be emphasized that the KSE Sanctions Group currently refrains from republishing such figures as NWF statements are "increasingly difficult to interpret".

[14] 147 billion US dollars, or 6.6 percent of GDP, based on official figures.

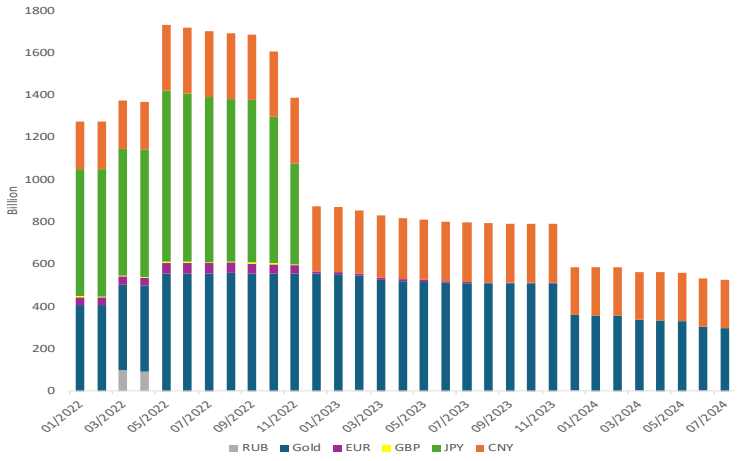
Figure 18. NWF Volume and as Share of GDP



Note: In 2019, the NWF volume doubled due to the OPEC+ agreement to increase oil prices. The doubling of the NWF in 2020 was due the higher oil prices, a budget surplus and the NWF investing in Sberbank (Liik, 2020).[15]
Source: Russian Ministry of Finance

Additionally, over the past two years, the liquidity of the assets held by NWF has decreased significantly.[16]The assets composition has also changed drastically from liquid assets previously being split in GBP, JPY, CNY currencies and gold, to only CNY and gold. The move away from other foreign currencies to CNY, gold and only a small portion of Rubles earlier in 2024 have decreased the NWF's liquid assets by about half, since January 2022. This makes the NWF increasingly sensitive to changes in the yuan exchange rate and fluctuations in the gold price. It also defies the previous tradition of foreign reserves investment in times of oil and gas revenues surplus, pointing to the need, from a government budget perspective, to utilize the NWF reserves to cover high current expenditures.

Figure 19. NWF Liquid Assets, by Type and Currency



Note: Gold is reported in tons.
Source: KSE, using data from the Russian Ministry of Finance

[15] https://www.themoscowtimes.com/2019/08/05/russias-national-welfare-fund-doubled-in-july-to-124-billion-a66714

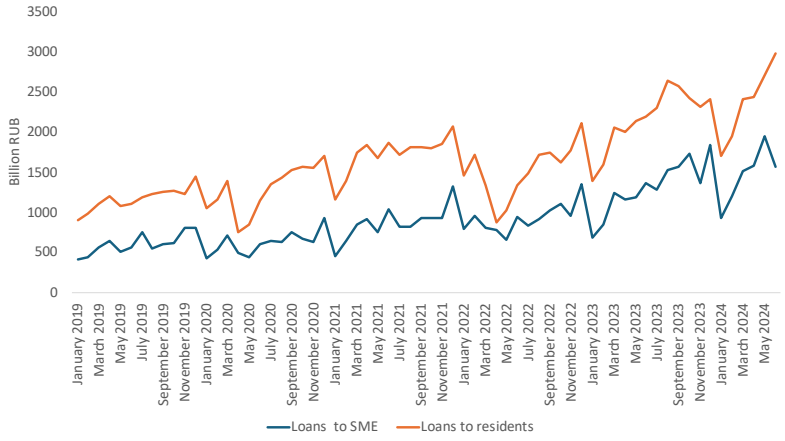
[16] Liquid assets refer to foreign currencies and gold. In the non-liquid assets category, Sberbank and "other" assets are included, following the approach by the KSE Sanctions Group.

3.1.6 The Financial Sector

The financial sector is critical for the efficiency of any economy. It is also a sector that relies on trust, and when that trust is eroded, the whole economy can quickly spin off into a crisis. The impact of the early sanctions against this sector were contained by countermeasures that stabilized the system but at the cost of lower contributions to economic development. However, since 2022 the Russian government has also implemented several policies that gradually increase the risk exposure of the banking sector to compensate companies and consumers for losses of real income. In this way the Russian banks have been forced to take on more risks related to overdue debt and loans to high-risk borrowers.

The implementation of anti-sanctions measures, aimed at stimulating growth in the domestic markets, inevitably causes pressure and a variety of risks in the banking sector. As Figure 20 shows, the amount of loans to both households and Small and Medium sized Enterprises (SME) have been increasing significantly after 2022 compared to 2019-2022, reflecting the government stimuli measures. That this growth of the debt burden is a major risk is also acknowledged by the CBR itself.[17]

Figure 20. Loans to SMEs and Residents

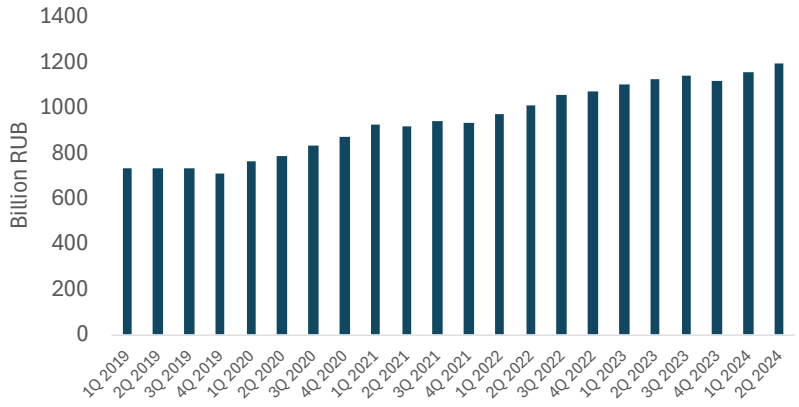


Source: CBR

Behind this increase in loans are a series of unprecedented measures implemented by the Russian government since 2022. State-subsidized loans with guarantees are now accessible to all enterprises across various sectors. The targeted sectors include construction, IT, housing, energy, infrastructure, electronic equipment production, agriculture, and the oil and gas industry.[18] Alongside loans to SME, the amount of loans to individuals has been increasing as well. To stimulate household consumption, the government has introduced programs such as preferential car loans, indefinite moratoriums on consumer loan repayments, and various mortgage subsidy programs. Consequently, and despite the tightened monetary policy, Russian banks experience risks from growing unsecured consumer loans, with an annual growth rate at 17 percent as of 1 April 2024, according to the CBR. As a result, overdue debt on loans to individuals reached 1.2 trillion Rubles as of June 2024, as seen in the figure below.

[17] https://www.cbr.ru/eng/analytics/finstab/ofs/4_2023_1_q_2024/
[18] https://base.garant.ru/57750630/

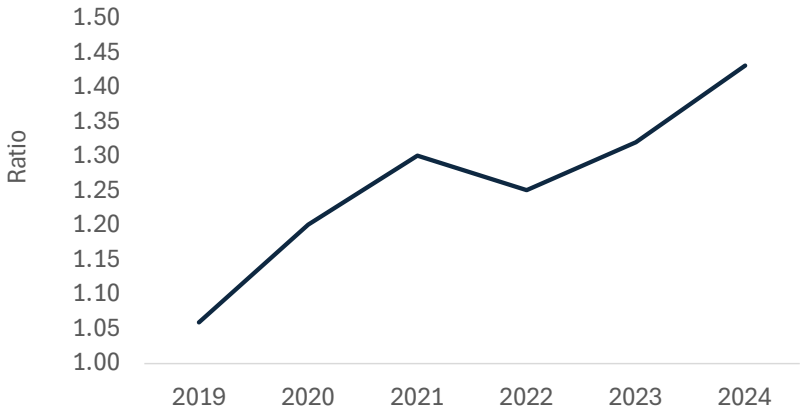
Figure 21. Overdue Debt on Loans to Individuals



Source: CBR

Individuals' debt burden, whose growth is shown in Figure 22, remains one of the major risks for Russian financial stability, despite the rising incomes (especially given that the latter is caused by the boost of the "war economy" and a wide range of different subsidies).

Figure 22. Debt to Income Ratio for Individuals



Source: CBR and Rosstat

An additional factor contributing to the increase in financial instability has been the full exemption of regions from repaying debts on budget loans in 2022. From 2023 to 2024, they were only required to repay 5 percent of the debt annually. Then, from 2025 to 2029, the remaining debt balance must be repaid in equal installments.[19]

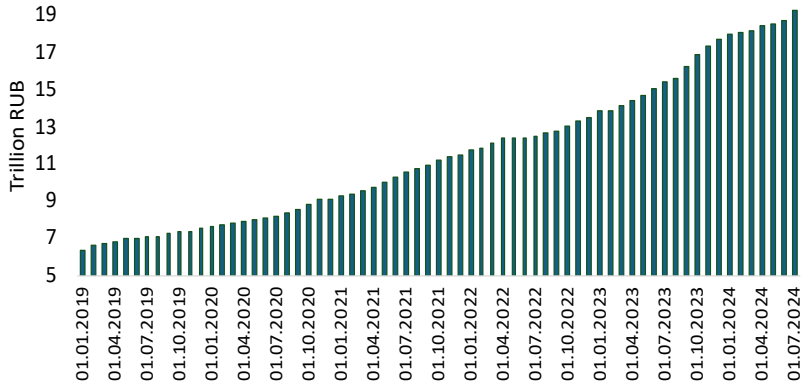
Financial stability is also threatened by the increased concentration of risk in corporate lending since the beginning of 2022. The corporate sector's substitution of external debt, along with the increased need for working capital and investment, has driven domestic credit growth. As a result, the debt of the five largest companies reached 56 percent of the banking sector's capital.[20] In March 2022, Russia implemented a moratorium on the initiation of bankruptcy proceedings, creating a significant risk related to the need to support loss-making enterprises in the longer-term.

Imbalances in the financial system have been reflected in the residential real estate market as well. The amount of state subsidies for mortgage almost doubled since January 2022, to some

[19] https://base.garant.ru/404768559/
[20] https://www.cbr.ru/eng/analytics/finstab/ofs/4_2023_1_q_2024/

extent due to the implementation of a new state programme, called "IT mortgage"[21] for employees of IT companies since January 2023. In addition, access to the "Family Mortgage"[22] has been expanded for families with two children who are under 18 years old since December 2022. Since the beginning of 2024, the subsidised mortgage programmes have accounted for nearly 70 percent of the growth rate of mortgage lending and come with a significant fiscal cost. This program was suspended in July, 2024.[23] According to the CBRs projections from the recent Financial Stability Report, the termination of the large-scale subsidized mortgage lending program from 1 July 2024, along with modifications to the terms of other subsidized programs, may lead to a temporary decline in housing demand. They deem this necessary, though, to decrease the share of loans with a low downpayment (less than 20 percent).[24]

Figure 23. Household Mortgages



Source: CBR

3.2 A Critical Look at Inflation and Growth

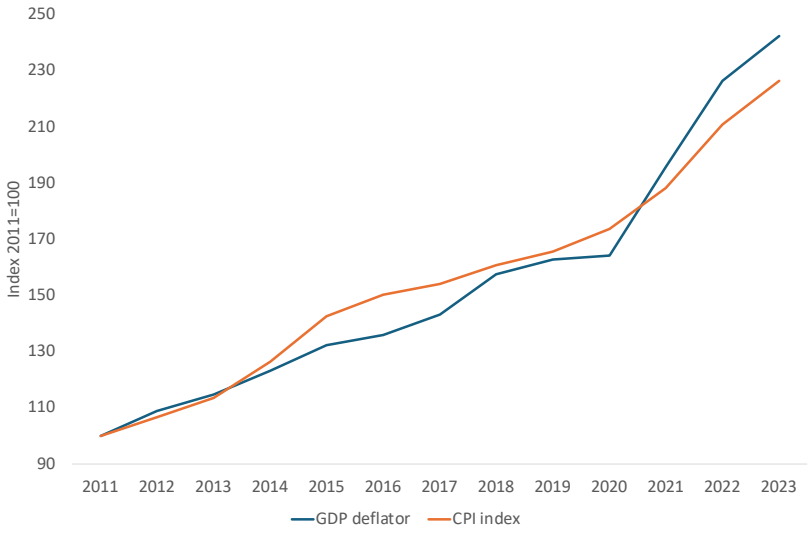
The inflation rate and the real growth rate are probably the two most cited economic indicators when it comes to painting a picture of how any economy is doing. This is also true for discussions about the Russian economy. Inflation is of great interest as a key indicator of the success or failure of economic policy and how households can make ends meet in any country across centuries. It is usually available at a relatively high frequency, which also makes it a recurrent variable discussed in both the news, in policy discussions, and around kitchen tables. Furthermore, changes in prices of goods and services is a key ingredient when nominal GDP is converted into real GDP. This is in turn used to calculate real growth rates. Therefore, a closer look at inflation in Russia is warranted, and connected to this, the impact different ways of deflating nominal GDP have on the estimated real growth rate.

First, we note in Figure 24 that the GDP deflator and the CPI index have diverged significantly during 2022 and 2023. This can happen because the GDP deflator includes the prices faced by businesses and the government in addition to households, whereas CPI only looks at the prices households face. In 2022 and 2023, the GDP deflator shows more rapidly increasing prices than CPI, while in previous years these measures moved more closely together. There are several possible interpretations of this. First of all, it may simply be that the business and government sector buys goods and services that were particularly vulnerable to changes in exchange rates and increased costs due to sanctions. In addition, it may also be an indication that a larger share of

[21] https://base.garant.ru/406269529/
[22] https://base.garant.ru/406052199/
[23] https://base.garant.ru/409022918/
[24] https://www.cbr.ru/eng/analytics/finstab/ofs/4_2023_1_q_2024/

GDP and thus the deflator is linked to activities in these sectors so that their weight in the basket increased. This is not unreasonable since these sectors are directly involved in the war machine where costs undoubtedly have increased significantly. This also suggest that household consumption may becoming a smaller share of GDP, which has implications when looking at GDP growth. Less of GDP is contributing to the welfare of households when the government spends increasing amounts on the war. The general assumption of connecting GDP growth to making people better off is not relevant in this situation, which should be included in any discussion of how the Russian economy is doing.

Figure 24. GDP Deflator vs CPI Index



Note: Both the GDP deflator and the CPI index have been rebased so 2011=100.
Source: Rosstat and authors' calculations

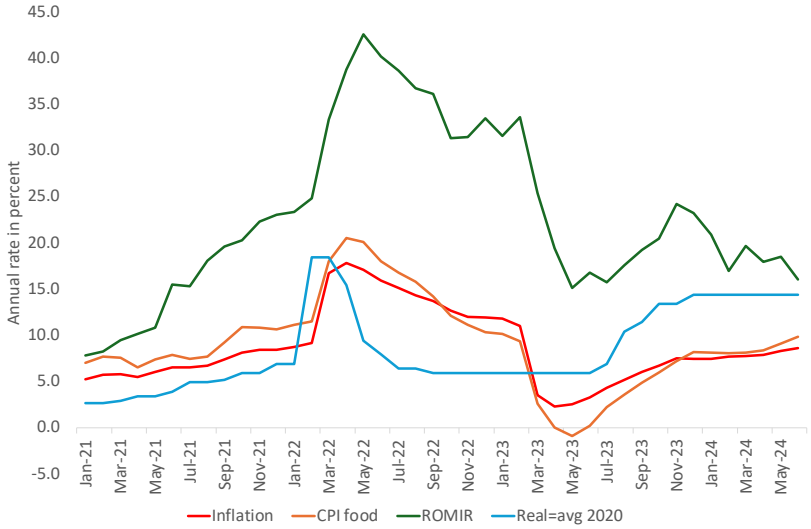
Another issue this raises is the credibility of the official inflation numbers put out by Rosstat. Figure 25 shows some alternative measures of inflation that suggest that the official numbers may seriously understate the inflation households face. The first alternative measure is the fast-moving consumer goods (FMCG) index produced by the independent Russian public opinion monitoring service ROMIR.[25] The FMCG mostly includes food and cosmetics and ROMIR estimates that the share of FMCG in total household expenditures is around 50 percent. Their index produces consistently higher inflation rates than both total CPI and the food CPI index produced by Rosstat. In May of 2022 their inflation measure peaked at over 40 percent at an annual rate. It has since come down significantly but has remained at around twice the rates published by Rosstat. In June 2024, which is the latest month currently available, the ROMIR inflation rate is at 16 percent versus 8-10 percent for the CPI and food CPI inflation by Rosstat. In contrast to ROMIR, Rosstat traditionally considers the share of food in the Russian CPI basket to be 38 percent, which Milov (2022) argues is too low and leads to an underestimation of inflation. Secondly, Rosstat observes prices for goods which consumers do in fact buy. It is likely that many Russian households have started to buy cheaper substitute goods due to the sanctions and budget constraints and that such substitution effects will not be reflected in CPI.

An alternative to the ROMIR index is to look at the CBRs key rate and see what inflation rate that is consistent with a real interest rate at the average level of what it was in 2020. It is notable how this measure has diverged from the official inflation numbers since the fall of 2023. The latest available numbers indicate that this measure is around 16 percent compared to the official

[25] https://romir.ru/index/deflyator-pribavil-v-iyune-17-pp

inflation of 9 percent. In sum, the official inflation numbers look rather optimistic when compared to both the ROMIR inflation and what would be consistent with more normal actions of the CBR.

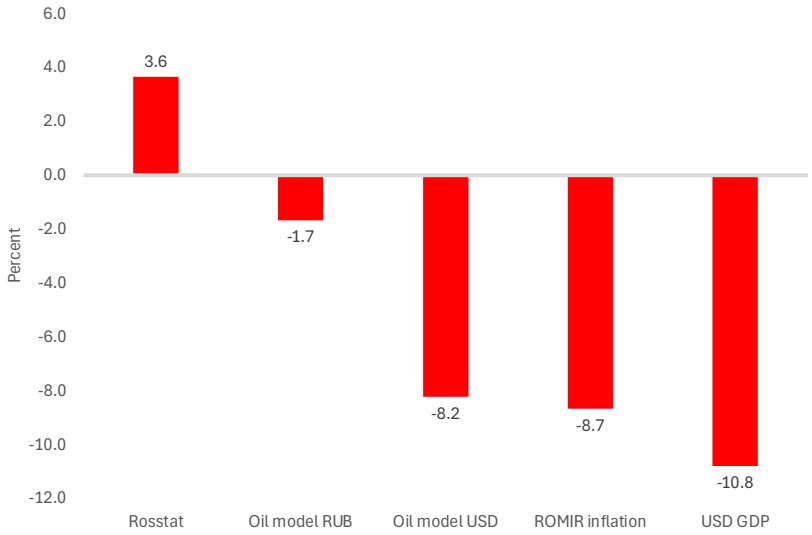
Figure 25. Alternative Measures of Inflation



Note: All series are monthly and show annual inflation based on the same month previous year.
Source: Rosstat, CBR, ROMIR, and authors' calculations

How price changes are calculated are of course also central when it comes to computing real GDP growth. Figure 26 shows some alternative measure for real GDP growth to be compared with the official growth rate of 3.6 percent (the first bar). The first two measures are based on a simple macro model that links GDP growth to changes in oil prices as discussed in Section 2. The second bar is the predicted growth rate when the actual oil price change of minus 12 percent on average between 2022 and 2023 is used and the measure for GDP is real GDP in ruble terms. The third bar is the same calculation based on the model that looks at GDP in US dollar terms. The fourth bar is if nominal GDP is deflated by the ROMIR inflation index, and the final bar is based on growth in GDP measured in US dollars. As is evident in the figure, all the alternative measures of growth are negative, ranging from around minus 2 to minus 11 percent. There are of course one specific factor in 2023 that is important in comparison to the model predictions in the figure, which is the massive fiscal stimulus that comes with military and security spending. However, this argument does not carry through to the measure based on ROMIR inflation or the measure based on US dollars. Those two measures instead indicate that the fiscal stimulus created massive inflation and a depreciating currency rather than real economic growth. Furthermore, it also hints at the uneven distributional effects of the fiscal stimulus; it is likely that households, and particularly those that have consumed imported goods and services, will have faced a significantly worse economic development than what the aggregate real GDP growth number would suggest. Again, this is an indication that GDP is less and less relevant as an indicator of how the welfare of people in Russia develops.

Figure 26. Alternative measures of GDP growth in 2023



Source: Rosstat, ROMIR, U.S. Energy Information Agency and authors' calculations

In addition to questioning growth and inflation at the macro level, researcher and analyst have also focused on other economic variables that are no longer available from official Russian sources. The unavailability of trade data especially in 2022 prompted mirroring statistics efforts from, among others, BOFIT at the Bank of Finland (see Simola, 2022b) and Bruegel (Darvas et al., 2022). Additionally, CREA's "Fossil fuels tracker" details Russia's fossil exports. These independent efforts bring important insights into the true state of the Russian economy, while they also each have their limitations. As for mirroring statistics from Bruegel, this covers 38 economies (about 80 percent of Russia's 2019 trading partners) and reports values of trades only. While CREA does report on volumes, it covers no other goods than fossil fuels and data is available only from 2022 and onward.

Other alternative sources are increasingly being used by researchers and think tanks concerned with understanding the Russian wartime economy and effect from targeted sanctions. For instance, Schmidt and Sakhno (2023) and Kochnev and Sabouniha (2023) construct alternative activity trackers of the Russian economy. In theirs and similar work, authors draw data from sources including Google (Google Trends), Romir, Sberbank, QuantCube, trading countries' statistical databases, Kpler and EUROSTAT, to name a few. In addition, some private Russian companies provide detailed customs and railway data, however they require knowledge of Russian and typically a personal contact as well as payment to access the data. While the above-mentioned studies only paint part of the full picture, they are important efforts to counter the propaganda that is often part of the data published by Russian authorities and then uncritically reused and redistributed by some think tanks and journalists.[26]

4 Economic Sanctions

When a country is subjected to sanctions due to military aggression, it triggers a complex series of economic dynamics. Initially, sanctions introduce direct costs and challenges, prompting the sanctioned country to adopt policies aimed at mitigating and circumventing these hurdles. Although these measures may reduce initial losses, the alternative solutions are often less efficient, and economic losses continue to accumulate.

[26] For a further discussion on the need of validating official figures see Sonnenfeld et al. (2022).

As the sanctioned country adapts to these conditions, the nations imposing the sanctions may tighten restrictions further by closing loopholes, which forces the sanctioned country to respond yet again. This back-and-forth escalates into a costly cycle, with the severity of the impact dependent on factors such as the strength of the sanctions, available alternatives, political control, and economic reserves.

Over time, the economic situation gradually worsens. Based on sufficient economic reserves, the sanctioned country may temporarily shift to a war-focused economy, at the cost of strong political control, however this shift is only a short-term solution. This war economy can initially stimulate growth and generate income by tapping into existing reserves, but it is not sustainable.

In the longer term, the focus on the war economy and the utilization of reserves lead to the crowding out of investments in human capital, physical infrastructure, and technological developments in alternative sectors that offer higher economic returns. This reduces the potential trajectory for future growth.

4.1 Sanctions Against Russia

The primary objective of the sanctions that have been imposed by a large group of countries against Russia after the full-scale invasion of Ukraine in 2022 is curtailing the country's ability to sustain military operations. However, it must be stressed that military resources, in the context of an authoritarian country engaged in war, entail a significant reorientation of the entire economy to serve military needs. This implies that all available resources, whether economic or otherwise, can be channeled toward bolstering military capabilities. To achieve the sanctioning coalition's goal, it is therefore imperative to implement measures that comprehensively curtail the whole of Russian incomes and the general functioning of its economy to the greatest extent possible, while at the same time avoiding too large turmoil in global markets.

Reducing Russian incomes requires a multifaceted approach with varying degrees of importance. First and foremost, constraints on energy exports must be prioritized. This is paramount not only due to the direct economic revenues generated, but also because of the sector's far-reaching impact on the entire economy. The energy sector serves as a linchpin in the Russian government's fiscal stability and has multiplier effects throughout the whole economy, as we discussed in Section 2.

The second tier of this strategy encompasses all other exports and imports, as well as financial flows, fundamental for economic efficiency outcomes. Restricting these transactions can have a cascading effect on Russia's economic functioning and capacity to fund military endeavors. Furthermore, it is vital to target specific components, materials, and technologies that directly enable the production of weapons. By limiting access to these critical components, Russia's military production capabilities are constrained. These targeted measures are integral to the overarching objective of restricting Russia's war-sustaining resources.

Finally, other measures such as sanctions targeted at specific individuals, travel bans, airspace restrictions, and the like have more of a symbolic function. Yet, this should not be underestimated in terms of indirect effects through public opinion, both within Russia, in sanctioning countries, and globally. Constraints on consumption and lifestyles of the elite have the potential to undermine the support for the war from some of the Kremlin's key constituencies. However, a proper analysis of these political dimensions is beyond the scope of this report. A more comprehensive list of the major sanctions imposed on Russia after the full-scale invasion of Ukraine in 2022 is reported in chronological order in the Appendix.

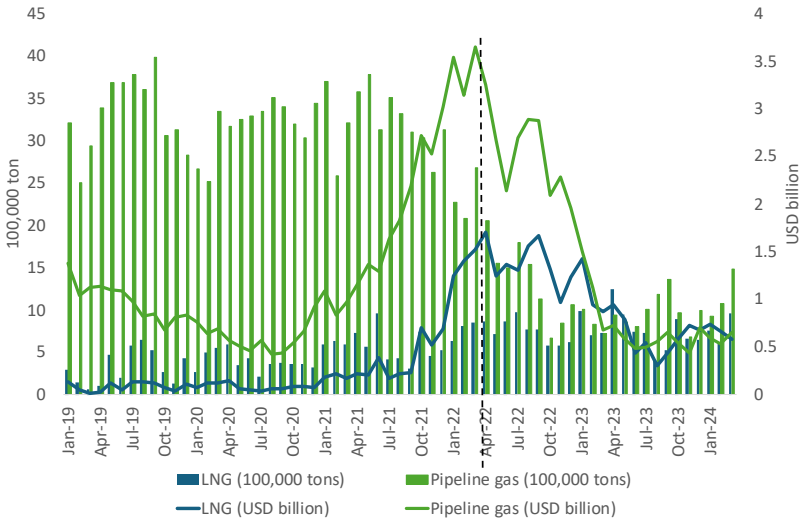
4.2 The Energy Sector: Curtailing Export Revenues

As mentioned in previous chapters, energy exports have paramount importance within the Russian economy. The sanctions on the energy sector, and the decoupling from the European market that resulted, have had significant effects on the Russian oil and gas industries and the budgetary revenues that come from them.

The gas sector, and in particular Gazprom, Russia's largest natural gas producer, is suffering huge losses. After cutting ties with the European market, a strategic move by Russia to create economic and political difficulties for the EU during the winter season of 2022–2023 which, as known, backfired, Gazprom reported significant losses. Data from Gazprom itself show a fall in revenues by 41 percent and a 71 percent drop in sales profits in the first half of 2023, with gas production decreasing by 25 percent (Milov, 2024). By the first quarter of 2024, Gazprom recorded its first annual loss in over two decades, nearly 7 billion US dollars in 2023. Reorienting supply lines to Asia is challenging due to the lack of infrastructure, as gas is mostly transported via pipeline. The sale prices of gas to China are already below the profitable range set in previous agreements: an average of 297 US dollars per thousand cubic meters in 2023 and an anticipated 271 US dollars in 2024[27] to be compared to 350-380 US dollars negotiated in pre-invasion contracts. These low prices suggest ongoing losses, and with China having more alternatives, Russia's efforts to negotiate better terms have been in vain.

Figures 27 and 28 show exports of gas in volume and value over time. Figure 29 shows a pie chart of the largest gas importers in 2023 and up to august 2024. These can be compared with Figure 33 reporting the largest importers of Russian fuels in 2021 and 2013 (before the annexation of Crimea).

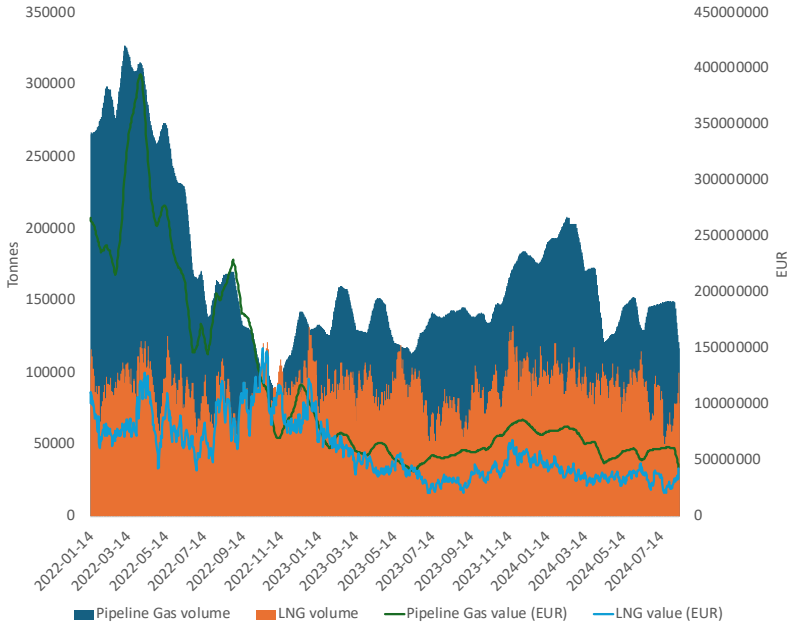
Figure 27. Russia's gas exports to EU27



Source: Darvas et al. (2022)

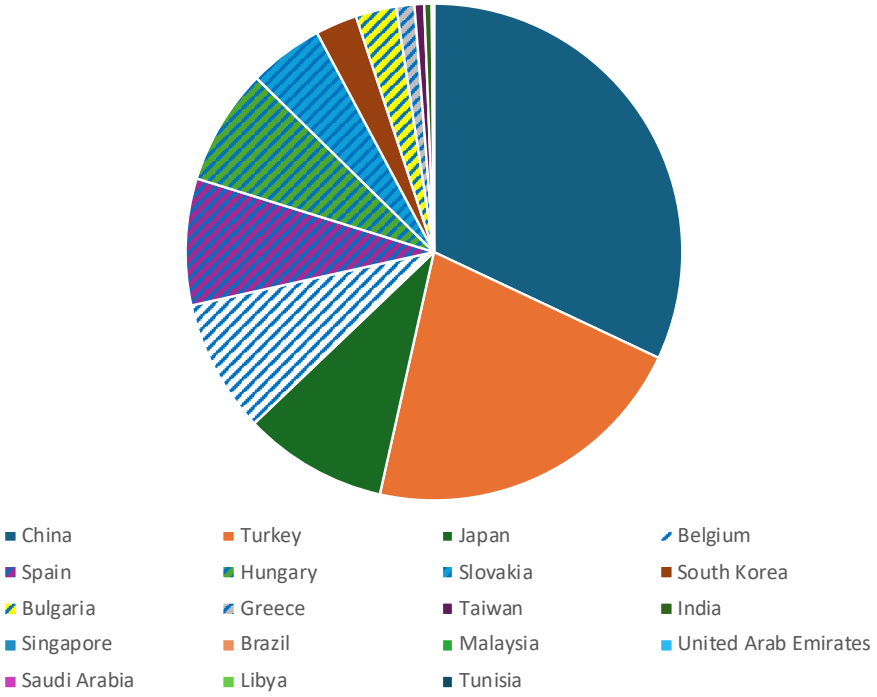
[27] Gazprom refuses to publish any data on gas-supply prices to China via Power of Siberia. These numbers were published by Reuters, citing obtained internal materials of the Russian government. The officially disclosed volume of supply was 22.7 billion cubic meters (bcm), and the cost of Chinese imports of piped gas from Russia was 6.4 billion US dollars. Thus, the average 2023 price from Russia to China can be estimated to 282 US dollars/tcm (in 2020–2022, the price was well below 300 US dollars/tcm).

Figure 28. Russia's total gas exports



Source: CREA Fossil Fuel Tracker (2024)

Figure 29. Largest importers of Russian gas, 2023-2024



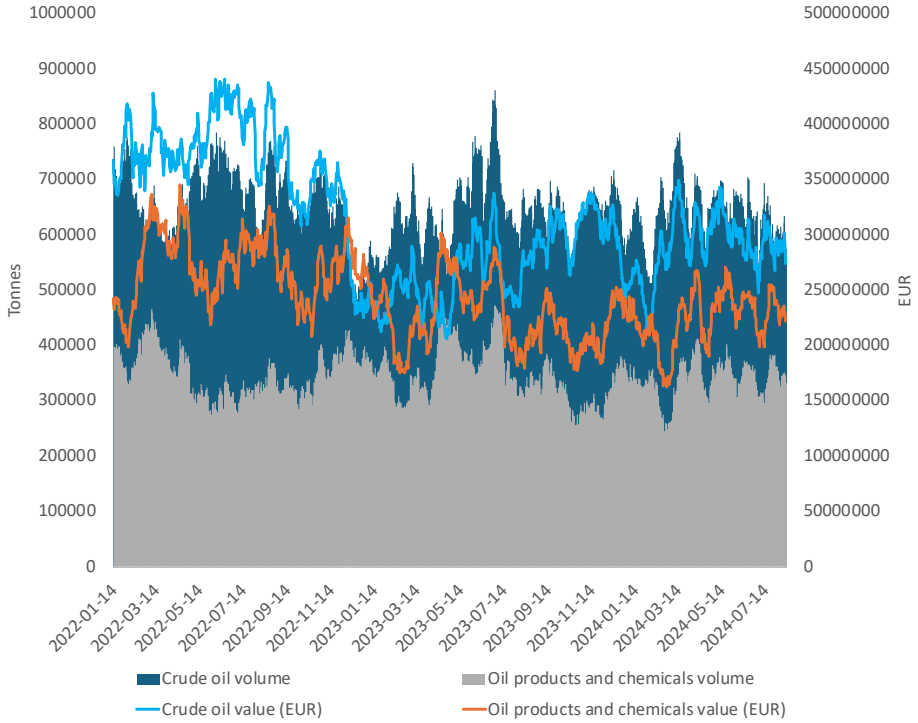
Note: Striped countries are EU members.
Source: CREA Fossil Fuel Tracker (2024)

The oil sector had, in contrast, more opportunities to reorientate and otherwise cope with sanctions. Although reliable data on Russia's actual oil output is scarce due to government restrictions, experts agree on the assessment that oil output remained rather stable. New markets were opened, and moreover the sector benefited from a reduced tax burden to stimulate production, although the fiscal burden is set to increase through a new mechanism for the

taxable export price and a range of other measures.[28] However, the EU oil embargo coupled with the price cap forced Russia to sell oil at lower prices, at least for an initial period, which led to substantial losses of revenues. While discounts on Urals crude to Asian markets have decreased over time, increasing revenue from these sales, the logistical challenges and higher costs of shipping have limited the profitability of exports to the Asian markets. Spiro et al. (2024) calculate that the sanctions on the oil sector (embargo + price cap) have collectively led to an increase in transaction costs for Russia in the range of 10-20 US dollars per barrel. A difference of 15 US dollars per barrel on all crude represents about 1.2 percent of Russia's GDP, while 15 US dollars per barrel on Urals crude represents about 0.75 percent, or about 50 million US dollars per day.

Figure 30 shows the volumes and values of oil exports over time. Figure 31 provides an estimate of the losses of potential revenue due to the effect of sanctions, roughly calculated by multiplying the volumes by the discount experienced by Russia relative to the Brent price, and then subtracting the average transaction costs estimated by Spiro et al. (2024). Figure 31 reports the largest importers of Russian oil for the period 2023 up to August 2024, to be compared with Figure 33.

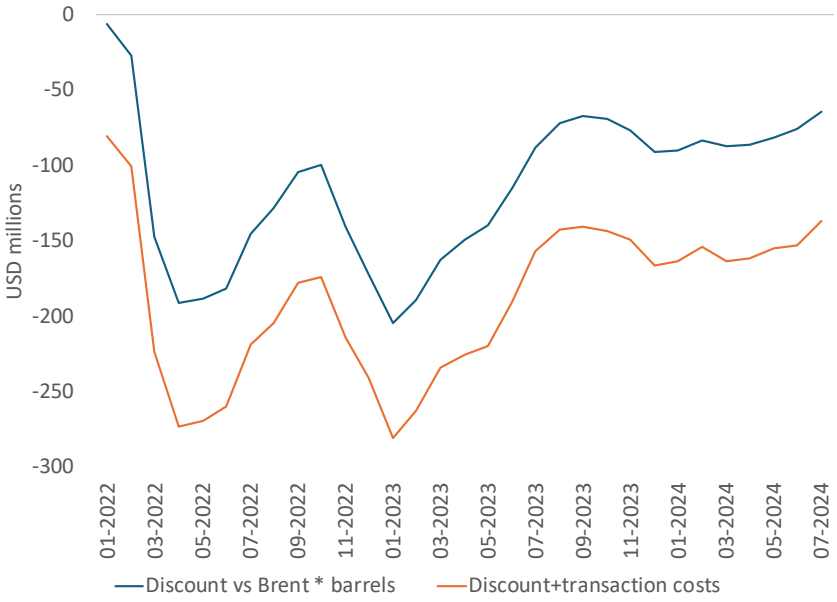
Figure 30. Russia's oil exports



Source: CREA Fossil Fuel Tracker (2024)

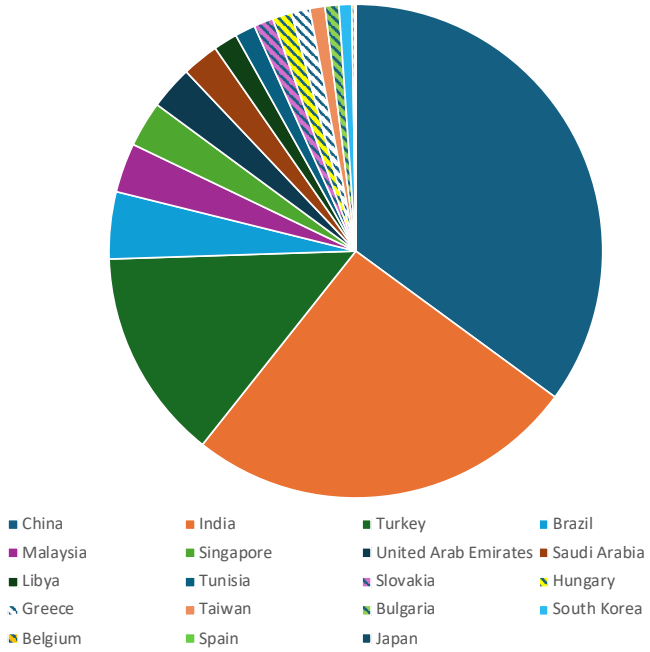
[28] https://carnegieendowment.org/russia-eurasia/politika/2024/06/russia-war-economy-money?lang=en

Figure 31. Estimated losses from oil exports



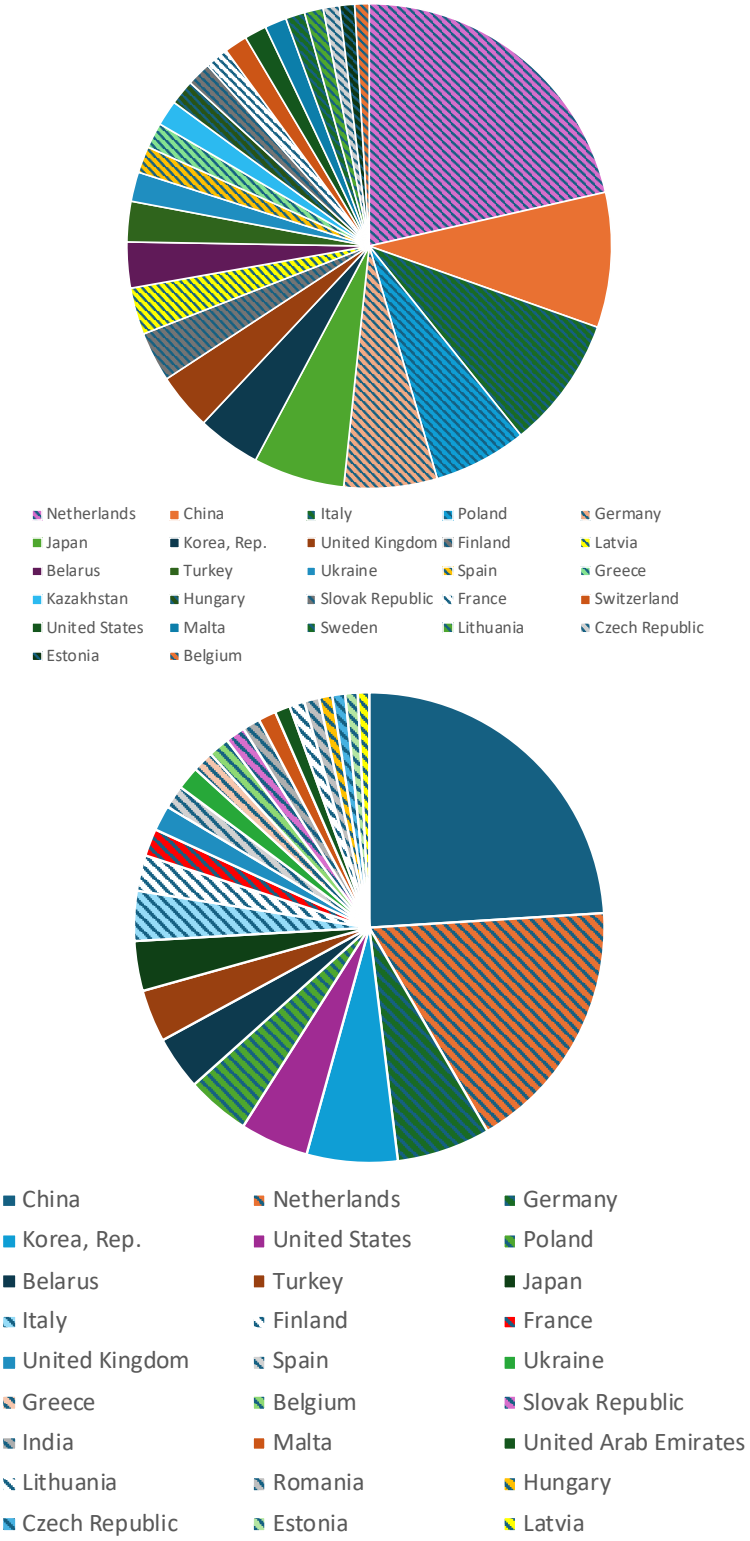
Source: KSE, using data from the International Energy Agency, 2024; transaction costs estimated by Spiro et al. (2024)

Figure 32. Largest importers of Russian oil, 2023-2024



Note: Striped countries are EU members.
Source: CREA Fossil Fuel Tracker (2024)

Figure 33. Largest importers of Russian fuels, 2013 (upper) and 2021 (lower)



Note: Striped countries are EU members.
Source: WITS

There are currently very limited sanctions on liquefied natural gas (LNG) exports, and sales to EU have surged after 2022.[29] Russia is now the second largest supplier of LNG to the EU, and the EU accounts for roughly 50 percent of total Russian LNG exports (up from 39 percent in 2021). A report by CREA (Katinas, 2024) also indicates a heavy reliance on the European market and mentions that a significant portion of exports from Russia's main LNG projects were destined for Europe (72 percent from Yamal LNG and 86 percent from Portovaya and Vysotsk). However, as Figure 27 and 28 show, the drop in pipeline gas exports after the invasion is clearly not compensated by this increase.

4.3 Curtailing Government Revenues

The Russian state budget is the biggest loser from the sanctions against the energy sector. According to the MoFs own data, the share of oil and gas revenues in the Russian federal budget went from 36.5 in 2021, to 40.2 in 2022 and down to 30.9 percent in 2023[30] (respectively 68 to 8 to 5.1 percent of GDP). The projection for 2024 is a further drop to 29.8 percent although based on an optimistic level for the oil price (71.3 US dollars per barrel). Before the full-scale invasion, Gazprom alone was contributing 7 percent of the state budget. With the ongoing losses delineated above and expected low profitability for the foreseeable future, this level of contribution will be hard to recover.

The well-known and much discussed circumvention of oil sanctions is not expected to contribute directly to the Russian state budget, either. The fact that Russia continuously manages to get around restrictions using a "shadow fleet" of oil tankers with unclear ownership to ship to Asia without incurring the price cap, or going through third-party intermediaries to potentially resell to Europe, creates many issues of its own. However, regardless of the financial gains from these operations, which are estimated to yield only a few dollars per barrel due to various constraints, these activities are generally conducted beyond the oversight of regulatory authorities (Milov, 2024). Although these activities may still indirectly fund parts of the military or security apparatus through undisclosed agreements concerning the ownership and control of the ships involved, oil exports are taxed according to official crude oil prices. And these official rates do not account for the shadow transactions.

Not even the LNG boom brings anything but minimal contributions to the Russian state coffers, as LNG production and exports are as of now untaxed. The Russian government raised the profit tax on Novatek, the main LNG exporter, from 20 percent to 32 percent for the period 2023-2025, and the possibility of other one-time lump sum taxation as well as profit taxes on these firms have also been announced.[31] However, the strategy of hiking tax rates ad hoc is not sustainable as it once more affects the long-term profitability of these already troubled industries.

While the energy sector is a major contributor, it is not the sole source of revenue for the state. All economic activities within the country contribute through taxation, channeling various streams of revenue to the state. For instance, the KSE Institute estimated that in 2023, foreign

[29] In EU's 14th sanctions package, a ban on transshipping Russian LNG via Swedish and other ports that are not connected to the EU gas pipeline network were introduced.
[30] Prokopenko (2024) calculates slightly lower shares, at 35.7 in 2021, 41.7 in 2022, and 30.2 in 2023.
[31] See "Tax Code of the Russian Federation (Part Two)" dated 05.08.2000 N 117-FZ (as amended on 08.08.2024) (as amended and supplemented, entered into force on 12.08.2024), Article 284. Tax rates" accessible at https://www.consultant.ru/document/cons_doc_LAW_28165/eb9180fc785448d58fe76ef323fb67d1832b9363/ See also Forbes report https://www.forbes.ru/biznes/513784-spg-dla-nikogo-kak-rossia-planiruet-narasivat-proizvodstvo-gaza-v-usloviah-sankcij and news agency Interfax report *https://www.interfax.ru/business/864698*

firms contributed a total of US dollars 6.4 billion in profit taxes to Russia. Therefore, a major goal of the sanction strategy is to broadly curtail the functioning and efficiency of the economy overall. The voluntary withdrawal of foreign firms from the Russian market, while not formally part of the sanctions strategy, also supports this objective and should be encouraged.

4.4 Import Restrictions: Curtailing Military Capacity

The ability to wage war has both a financial and a technological component. Therefore, beyond restricting the income side, targeted measures on specific components, materials, and technologies that directly enable the production of weapons are integral to the overarching objective of impeding Russia's war-sustaining effort. Moreover, trade restrictions in general, directed at exports and imports more broadly, as well as financial flows, have a large potential to affect the economy, rooted in fundamental economic efficiency considerations. Restricting trade and financial transactions can have a cascading effect on Russia's economic functioning and capacity to fund military endeavors. As a reference, there is evidence that sanctions on Iran have significantly delayed its ability to develop nuclear weapons, according to several reports[32] from the International Atomic Energy Agency (IAEA). Sanctions have limited Iran's access to necessary materials and technologies, and also generally degraded the country's economic situation and thereby production capacity.

Detailed official trade statistics have, as mentioned above, been made unavailable, as part of the information war and propaganda. Working with mirrored trade data and various proxy methods, several sources have nevertheless been able to document important changes in trade patterns, which prima facie look troubling. China and the Global South absorb now more of Russia's exports, with China alone gaining substantial export market shares in Russia's imports, while Western countries may have preserved much more of their market share in Russia's imports than official data indicate. Meanwhile, the Global South and post-Soviet neighbors struggle to gain market shares. Post-Soviet states have gained roles as intermediaries and facilitators of circumvention exports for Western goods to Russia, but they seem to lose market share for their own export products (Bjørtvedt, 2024).

All in all, though, a series of reports by Corisk[33] and Bruegel (Darvas et al., 2024), highlight a decline in Russia's imports of critical goods, despite the mechanisms to circumvent sanctions. Even in this case, China, India, Türkiye and other non-sanctioning countries have helped replace the departing Western technology companies. However, this has proven costly. For example, Novatek has reported a 17 percent (nearly 4 billion US dollars) increase in capital expenditures for the Arctic LNG-2 project due to switching from Baker Hughes (a US company) turbines to Shanghai Electric equipment (Milov, 2024). Similar cost increases and losses in productivity can be reasonably expected across the Russian oil and gas industry. In this way, trade restrictions act as a complement to energy sector sanctions.

In general, Russia's trade costs— the expenses associated with imports and the costs incurred by trading partners when purchasing Russian exports—have significantly increased. These costs, which include shipping, insurance, customs bribery, and trade route risk premiums, contribute to inflation within Russia and erode the competitiveness of its exports. According to a recent CORISK report (Bjørtvedt, 2024), sanctions have led to a more than doubling of Russian export trade costs and almost a tripling of import trade costs from 2021 to 2024, which deviates markedly from global trends and far exceeds the cost increases experienced by other countries. Currently, the risk of secondary sanctions is forcing counterparties even from "friendly"

[32] https://www.iaea.org/newscenter/focus/iran/iaea-and-iran-iaea-board-reports
[33] https://www.researchgate.net/profile/Erlend-Bjoertvedt

countries to mitigate their risks by refusing to cooperate with Russian companies and their related entities.[34] More complicated supply chains and payment schemes are making imports more expensive, increasing input costs and disrupting supplies, which is reducing the profit margin on Russian companies' products and their competitiveness in international markets.

Additionally, when it comes to so called high-priority goods, research by KSE (for example, Bilousova et al., 2024) highlights that components manufactured in the West continue to be discovered in materials retrieved from the battlefield. These components are found to be used in recent production of weapons and ammunition. This suggests that export restrictions in the sanction coalition countries are not strictly enforced, and that the monitoring of important flows is imperfect.

In addition to rising costs, the availability of suitable import substitutes is uncertain. Research by BOFIT (Simola, 2024), based on company surveys and a limited sample of product data, indicates significant shortages of items like circuits, coaxial cables, and AC motors. These deficits highlight the challenges in finding adequate replacements for imports and the inability of domestic production to make up for the lost imports. Quality is also an issue. According to some reports, 40 percent of microchips and components imported from China to Russia are defective,[35] while the poor and declining quality of Chinese military exports is a well-known ongoing issue reported by several trade partners. Box 2 shows how the composition of the Russian car fleet is changes towards Russian and Chinese cars, not a good shift from a quality and security perspective for Russian consumers.

Although most imports are not restricted, a growing challenge for Russia's ability to import, especially technology, both war-relevant and other, is the lack of convertible foreign currency due to the fall in exports of oil, gas and minerals to Europe and the depreciation pressure put on the ruble by the shrinking trade surplus. The share of Western currencies in export revenues is shrinking fast, as shown in Figure 12. Despite sanctions, Russia still receives significant hard currency from some Western countries, which facilitates its import capacity. However, there are ongoing challenges in managing foreign exchange needs, as evidenced by the need to increasingly rely on transactions in yuan for imports from China.[36]

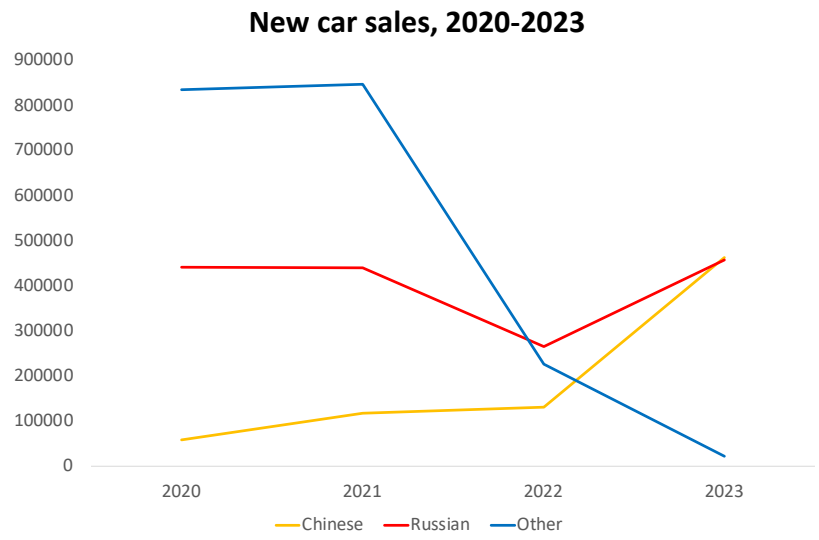
Whatever is traded is now more expensive for Russia. And the price to quality ratio has increased through various mechanisms. However, more can be done. As noted by Sonnenfield and Tian, the Yale team who has followed the business landscape in and out of Russia since the full-scale invasion, significant segments of the Russian export economy, particularly the metals, lumber and plywood sectors, continue to be largely unaffected by sanctions. They argue and show with data that fears that such sanctions will destabilize the global economy are unfounded.[37] More proposals on how to tighten the sanctions regime are continuously presented by the Yermak-McFaul Expert Group on Russian Sanctions.[38] While it is clear that export revenues are crucial and widely discussed due to their impact on the Russian economy, the subtle yet profound effects of a shortage of imported goods and services, including from companies leaving the country, should not be underestimated either. This slow erosion significantly weakens the foundations of numerous other sectors in the economy.

[34] https://www.tbsnews.net/bangladesh/rooppur-power-plant-russia-wants-630m-interest-paid-15-sep-938446
[35] https://www.osintforukraine.com/archive-do-not-touch/where-does-russia-get-its-microchips-94rgm
[36] https://www.researchgate.net/profile/Erlend-Bjoertvedt
[37] https://fortune.com/2024/03/22/latest-sanctions-russia-insufficient-yale-professor-business-exodus-ukraine-politics/
[38] https://fsi.stanford.edu/working-group-sanctions

Box 2. The Russian Car Fleet

The press frequently reports on the smuggling of luxury Western-made cars into Russia in significant numbers and with relative ease.* However, data on the composition of new cars sales pictured below shows that the composition has shifted dramatically; the market share for European, Japanese, South Korean, and American cars has virtually dropped to zero.** Meanwhile, the market share for Russian cars has returned to pre-war levels. The real standout in the market, however, is Chinese cars, whose market share has surged nearly eightfold in just three years, even surpassing the Russian market share in 2023.

According to leading dealers in Russia, stocks of imported cars were largely depleted by the end of summer 2023. Consequently, the price for one of the last available high-end brands, such as BMW, could be more than double that of the corresponding price in the US market. Despite these high costs, demand for such luxury brands remains robust, overshadowing the less profitable mid- and low-end segments. According to the Russian agency AUTOSTAT, the average price for a new passenger car increased by almost 50 percent for two consecutive years, potentially fueling consumer debt.***



Source: Association of European Businesses

* Just one recent example: https://news.sky.com/story/brand-new-luxury-british-and-european-cars-are-entering-russia-despite-being-banned-heres-how-13218444
** Data sourced from: https://aebrus.ru/en/media/press-releases/sales-of-cars-and-light-commercial-vehicles.php
*** https://eng.autostat.ru/news/24454/

4.5 Impairing Financial Sector Efficiency

The financial sanctions imposed on Russia directly after the full-scale invasion of February 2022, especially those targeting the CBR, SWIFT, and various assets, were designed to have an immediate impact by crippling Russia's financial system. The primary short-term objective of these sanctions was to hinder Russia's ability to finance its military operations. While the ruble recovered relatively quickly, the hand of the CBR was forced towards interest rates hikes and capital control. Disconnecting Russian banks from SWIFT, the Society for Worldwide Interbank Financial Telecommunication, was also meant to disrupt Russia's trade and financial activities, making it challenging to receive payments for exports or make payments for imports, and

hampering the ability of Russian businesses to interact with foreign partners, potentially leading to a decline in trade, investment, and overall economic activity.

CBR was able to handle the initial shock to the financial system, albeit at some cost. The main function of financial sector sanctions at this point is as a complement to other restrictions. They make financial transactions that accompany trade transactions more costly, cumbersome, and in principle more traceable. Furthermore, restricting access to financing and investment makes it more difficult to expand and modernize the energy infrastructure, contributing to long-term loss of productivity and profitability of the sector. The same is true for other sectors.

The latest US sanctions (July 2024) include placing the Moscow Exchange and its subsidiaries, the National Clearing Center and the National Settlement Depository, on the sanctions list. These developments are expected to increase the volatility of the Russian ruble and complicate the import of goods, thereby reducing the demand for foreign currency (Prokopenko, 2024). This will lead to higher prices of imported goods due to the need to develop more expensive methods to circumvent the sanctions. This further complicates the CBRs efforts to control inflation. As of now, this has also resulted in a stronger role of the yuan as the main foreign currency used in Russia. However, Chinese banks are also increasingly wary of the risk of being subject to secondary sanctions. As a result, an increased use of cryptocurrencies and bartering as alternative trading methods have been noticed (Prokopenko, 2024).
A recent Bruegel report (Hilgenstock et al., 2024) suggests leveraging even further the financial system for sanction enforcement, by requiring financial institutions to play a role in monitoring and impeding illicit trade in export-controlled goods. This includes applying anti-money laundering and counter-terrorism financing strategies to the trade of restricted goods. It also calls for non-financial companies to implement due-diligence procedures similar to those used by banks to ensure compliance with export controls. An important complement is establishing a clear risk of detection and significant penalties for non-compliance, to motivate companies to monitor their supply chains more rigorously. Beyond limiting Russia's military capabilities, these strategies play a broader role for maintaining Western credibility in future conflicts.

4.6 The Frozen Reserves: Curbing Fiscal and Monetary Policy

One of the most significant financial sanctions was the restriction on the CBR from accessing a large portion of its foreign currency reserves held in international accounts. These reserves are typically used to stabilize the national currency, manage inflation, and finance government spending. By freezing these assets, the sanctions had the potential to significantly weaken Russia's financial stability and its ability to fund war expenditures, leading to economic instability.

The initial concerns were that confiscating Russia's 300 US dollar billion in foreign exchange reserves could conflict with international law, and furthermore, that such a move might jeopardize the US dollar's status as a key global reserve currency, by pushing Russia and China as well as the other countries in their economic sphere towards the yuan. These concerns have been dismissed by some legal and economic experts (as argued by Sonnenfield and Tian in Fortune[39] and Timothy Ash in Project Syndicate[40]), while others still think this is an issue. The most likely effects of a final agreement on seizure would be, in the current situation, further increased pressure on Russian state finances, while at the same time creating space to financially support

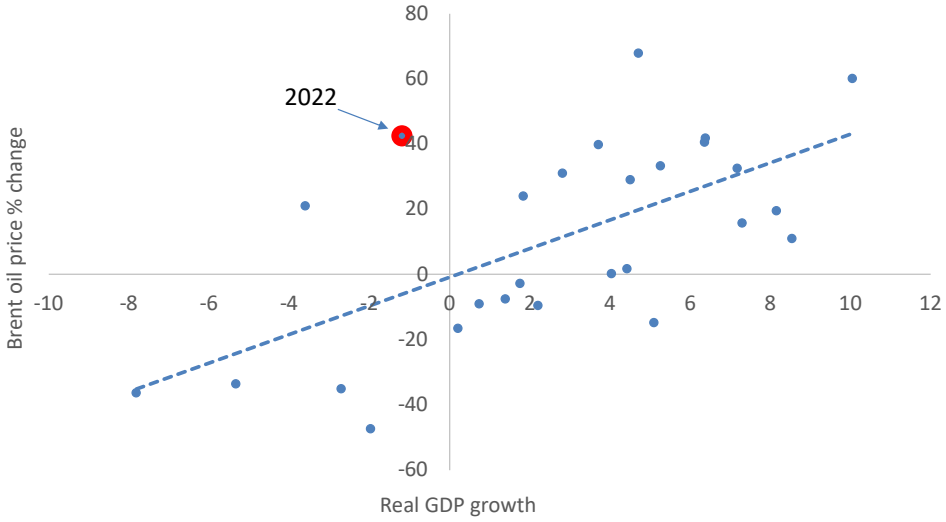
[39] https://fortune.com/2024/03/22/latest-sanctions-russia-insufficient-yale-professor-business-exodus-ukraine-politics/
[40] https://www.project-syndicate.org/commentary/case-for-seizing-russian-assets-reserves-for-ukraine-by-timothy-ash-2024-06

Ukraine. Without access to significant foreign currency reserves, Russia would face difficulties in stabilizing its currency in the face of economic sanctions and fluctuating oil prices. This would likely exacerbate the depreciation of the ruble. A devalued ruble could lead to further inflationary pressure as the cost of imported goods rises, further straining household budgets and business operations. The seizure of foreign reserves could also heighten the risk of a deeper economic recession. Investment, both domestic and foreign, might decline due to increased economic uncertainty and the lack of available foreign currency to support business operations. Most importantly, the present arrangement for international support to Ukraine, where Western taxpayers bear the cost of support while Russian taxpayer assets remain safeguarded does not make sense and above all it is not sufficient for a Ukrainian victory. Allocating frozen Russian reserves to Ukraine could significantly shift the balance of the war in Ukraine's favor, while at the same time reducing the financial load on Western taxpayers.

4.7 Measuring the Effect of Sanctions—What is a Relevant Counterfactual?

Understanding the basic functioning of the Russian economy is crucially important in judging how sanctions affect the Russian economy and any analysis of the impact of sanctions must start with a reasonable counterfactual of what would have happened to, for example, GDP growth without sanctions. In the case of Russia, this should start with what the growth rate would have been for a certain change in international oil prices. As a first example one can look at a scatter plot of Russian GDP growth and changes in international oil prices and see what happened to GDP growth in 2022 when sanctions were first introduced (Figure 34).

Figure 34. Scatter Plot of Russian Real GDP Growth Versus Changes in Oil Prices 1996-2023



Source: Rosstat and U.S. Energy Information Administration

While the decline of Russian GDP was "only a percent or two" as it is often said, in a normal year with oil prices increasing by more than 40 percent, GDP growth has been between 5 to 7 percent, with the regression line predicting growth of around 9 percent. Comparing a realized growth of minus 1 to 2 percent with growth of anything from 5 to 9 percent means that growth in 2022 was between 6 to 11 percent lower than expected. If this in turn was a result of sanctions, this is not a trivial effect on growth. This is of course not a full evaluation of the impact of sanctions in 2022 but it serves as an important illustration that any analysis of the impact of sanctions need to start with a reasonable counterfactual and zero growth is not a

reasonable starting point for Russian growth without knowing what happened to oil prices that year.

5 Medium- and Long-Term Outlook

Contrary to the views of some Russian policymakers and sometimes even analysts outside of Russia, the Russian economy adheres to general economic principles. Long-term growth is driven by the same fundamental factors as in other economies, and the determinants of inflation and exchange rates are the same. Both the government and the private sector face budget constraints, and a robust financial system is crucial to avoid crises. Moreover, the economy is influenced by the cost of uncertainty, opportunities to benefit from international trade, state involvement in markets, and the way resources are distributed across various sectors.

5.1 Structural Issues

The growth of any economy hinges on three primary factors: investment, labor, and total factor productivity—the latter often divided into technological progress and allocative efficiency (the extent to which resources are channeled to the sectors with greatest economic potential). While these elements provide a somewhat mechanical breakdown of economic growth, translating them into everyday discussions about economic development reveals the indispensable roles played by education, innovation, market forces, effective institutions, trust, and robust property rights in shaping long-term growth. This can be seen in today's Russia, where government policies and current sanctions constrain capital investments. As to the labor force, adding to already stagnating long-term demographic trends that limit workforce growth, the situation is further exacerbated by significant losses among younger cohorts, who have either been casualties of the ongoing war or have left the country to avoid conscription. Furthermore, the exodus of foreign investments and sanctions on trade means efficiency losses due to costly attempts at self-sufficiency and weakened bargaining positions towards suboptimal trade partners. As discussed in the previous section, this creates cascading effects on the productivity and development of all sectors of the economy.

5.1.1 Investments

Foreign direct investments (FDI), which typically enhance productivity and stimulate domestic investments, have largely withdrawn from Russia due to its war against Ukraine. Many international companies exited the Russian market after the invasion began, causing FDI levels to drop significantly (Simola, 2022a). The pace of company exits has decreased in the past two years, only about 40 percent have fully exited. This is in some cases due to regulatory challenges and in some cases due to no intent to leave. Yet, revenue from foreign enterprises fell by approximately 80 million US dollars between 2022 and 2023 (Astrov, 2024). When also considering companies that are in the process of leaving, the proportion increases to about 60-80 percent. Additionally, it becomes clear that the exit share is kept low by countries regarded as "friendly" to Russia, such as China, Iran, and the United Arab Emirates. It's crucial to recognize that FDI encompasses not just financial capital but also physical assets, technology, know-how, and access to foreign markets. The withdrawal of these companies, which often provided essential services like software, IT systems, and maintenance for various industrial and consumer products, has cascading negative impacts across many sectors of the Russian economy, that moreover compound and accumulate over time.

This is perhaps particularly salient in the energy sector, due to its importance in the Russian economy. The gradual withdrawal of Western oilfield-services companies, which provide essential technology for maintaining oil production efficiency, is a big challenge for future

productivity. The outsourcing of such services between the end of the 1990s and the beginning of the 2000s led to dramatic increases in productivity, estimated to be at least 30 percent (Milov, 2024). The potential full departure of these services could result in a comparable loss and significantly impact Russia's oil output and overall industry stability. Similarly, building LNG facilities that could have helped divert gas to other markets will be increasingly challenging to do in the future due to lack of access to essential Western technology.

The domestic investments that still take place are mostly linked to the public sector in one way or another and focused on sectors that are supposed to contribute to the war machine. Although these investments can act as a short-term fiscal stimulus to the economy, their long-term growth impact is much more limited, and potentially even negative as it leads to a misallocation of resources. Investments in arms production leads to outputs that are used to destroy lives and infrastructure in Ukraine in contrast to peaceful investments in factories that could produce for instance cars, trains, medical equipment, and IT equipment that would contribute to the productivity of the Russian economy. Likewise, it crowds out public investments in basic infrastructure, human capital, and the welfare of the Russian population. It is thus not only the size of investments that matters for economic growth but also how they are allocated across sectors in the economy. Efficiency losses occur in general when the state starts intervening in markets and directing resources for political reasons. The Russian war economy is a particularly flagrant example of that.

5.1.2 Labor Force

The size and qualifications of the labor force plays a key role in real economic growth and reflects the capacity for further development in a country. That is why it is important to understand the dynamics of the labor force composition and how it is used across the economy. Indicators of wages, unemployment and potential labor force show the actual labor use and visualize the growth constraints the Russian war economy is facing.

The war economy and substantial investments in the defense sector have boosted labor demand, leading to a notable decrease in official unemployment. The loss of young men killed or injured in battle or fleeing the country to avoid conscription has further contributed to this. The labor market now appears to be at its capacity, with an exceptionally low unemployment rate, at 2.4 percent in June 2024, as can be seen in Figure 35 below.

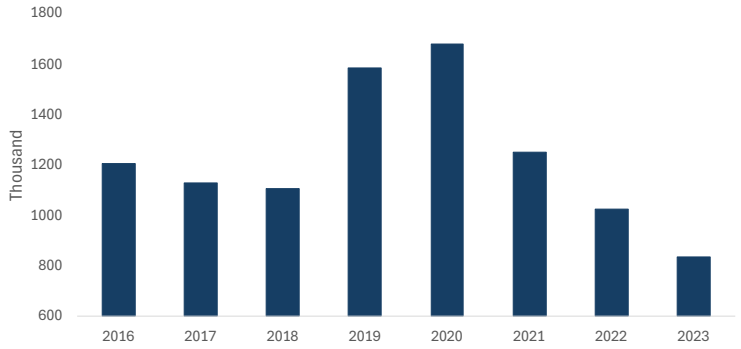
Figure 35. Unemployment Rate

Source: Rosstat

Further evidence of the labor supply constraints is given in Figure 36. It shows the potential extra labor force available in the age group 15-72, as defined as survey respondents expressing an

interest in employment for pay even though they are currently neither working nor registered as unemployed.

Figure 36. Potential Extra Labour Force (Individuals Aged 15-72)

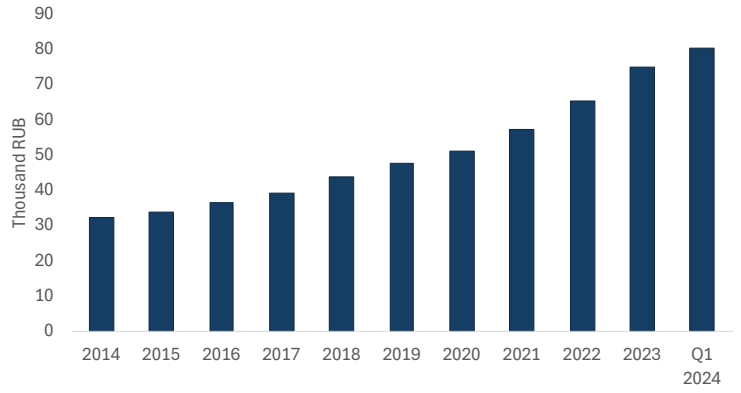


Source: Rosstat

One can think of this as the additional group of potentially "employable" in the working age population. As can be seen, this group is now at historically low levels at approximately 835 000 in 2023, after a 16 percent drop from the previous year following a further 18 percent drop between 2021 and 2022. This is likely the effect of the strong labor demand, attracting members of this group into the official labor force, which further reinforces the significance of the low levels of official unemployment.

Not surprisingly, the tight labor market has led to a substantial wage inflation, contributing to the high inflation levels we discuss in Section 3. As can be seen in the figure below, wages in the first quarter of 2024 went up by 17 percent from 2023, following a 10 percent increase from the first quarter of 2022.

Figure 37. Average Monthly Nominal Wages



Source: Rosstat

Concerns regarding the labor force shortage was even expressed by Putin in his "Address to the Federal Assembly" on February 29, 2024, where he proposed implementing a new national project called "Personnel". The project asks for an additional 2.4 million people in the labor market by 2030. How this will happen is unclear, though, and current demographic trends are no help. The war and the accompanying international isolation further complicate the efforts to reach that target. It is more likely that competition for labor will continue to increase, causing labor costs to rise. If labor productivity does not improve accordingly, this will intensify inflationary pressure.

Beyond the aggregate numbers, there are also important details when it comes to what happens with the composition of the workforce. The war requires soldiers in great numbers at the front lines, mostly young males, with many of them ending up killed or injured.[41] The war has also triggered an outmigration of citizens due to sanctions and the threat of conscription. Notably, those emigrating are predominantly middle-class business owners and educated workers in conscription age. Furthermore, migrants also move their capital to their new home countries, as for instance shown by the significant financial flows being directed from Russia to the United Arab Emirates since the invasion began in February 2022 (Alexander and Malit, 2024). This suggests that the brain drain not only results in a reduction of skilled labor but also in a loss of capital and investment.

Taken together, these facts and figures provide a clear picture of the labor supply constraints Russia face, as well as the consequences they have on macroeconomic imbalances and the potential for medium-term growth. As the economy is working at its potential, the massive fiscal stimulus from the war economy will mostly result in wage inflation and even higher interest rates from the CBR. Such imbalances significantly undermine the short-term economic boost from fiscal stimulus and lead to negative consequences for long term real economic growth. The quality of human capital is also affected, as those feeling most threatened by conscription are the young, and the young and educated are the most internationally mobile group of the workforce.

5.1.3 Innovation

It is possible that in the very short run the massive investments in the military industry and the need for superiority on the battlefield can increase innovation in that sector. Military innovations have also in history at times spilled over into civilian use, increasing productivity beyond the specific sector. However, this hypothetical benefit is very likely to be dominated by a whole set of factors pointing in the opposite direction due to the Russian aggression. The exodus of foreign companies, that is projected to increase in magnitude, includes the most technology advanced and innovative companies previously on the Russian market. Foreign owned companies also generally generate externalities on domestic firms in terms of know-how and innovation, as documented in for instance Gorodnichenko et al. (2010). There is thus both a direct and an indirect negative effect on innovation, where domestic Russian companies will fall further and further behind the global technology frontier due to diminishing capabilities and incentives to invest in R&D as exposure to competition and opportunities for cooperation with leading global businesses vanishes.

Innovation also requires human capital and a system that rewards risk taking. As discussed above, the war has led to an exodus of the young and talented with good options abroad. The increasing dominance of the state sector and priority accorded to military capacity also stymies entrepreneurship as protection of property rights and judicial independence becomes increasingly uncertain. International country risk indicators consistently highlight severe downside risks for investments in Russia. Entrepreneurs also need access to financing. As previously mentioned, currently the government offers subsidized loans across many sectors. However, when government resources become scarce, the focus on financing the military sector, combined with high interest rates driven by an overheated economy, will significantly restrict funding availability in other areas.

[41] The reported number of combat losses varies by source. BBC Russia has confirmed 50 000 casualties, while the General Staff of the Armed Forces of Ukraine claims the figure could be up to ten times higher (https://www.bbc.com/news/world-68819853).

The general step in the direction of increased authoritarianism and repression is also bad news for innovation in Russia. There is ample evidence of a negative relationship between authoritarianism and the level of innovation, at times referred to as the "Popper's hypothesis". Research suggests that democratic institutions are more conducive to innovation due to greater freedom of expression, collaboration, and openness to new ideas. Meanwhile, autocracies often suppress dissent and control information, which stifles creative and innovative efforts necessary for technological progress (e.g. Helms 2020).

In sum, all the fundamental growth factors point in the wrong direction for the Russian economy, with severely limited labor supply, physical investments in the wrong sectors, and an institutional environment that will reduce innovation and productivity over time.

5.2 Mounting Imbalances

Focusing investments in non-productive sectors depletes resources as they fail to generate future revenues. As the Russian government prioritizes war spending, it faces its budgetary limits, but it also affects companies' budgetary limits, through increased taxes and reduced public services. The situation is made worse by the fact that many Russian companies are directly or indirectly part of the public sector. They contribute to and draw from the government's budget, and in many cases are responsible for the provision of community services and financial support to other businesses and households in lieu of the government. An example of the partial transition back to a planned system is that, since July 2022, organizations involved in public procurement are prohibited from refusing to enter into agreements or state contracts for supplying goods, performing work, or providing services that support the activities of the Russian Federation's Armed Forces, other military units, and bodies during counter-terrorism operations or other operations outside Russia's territory.[42]

Another sign of growing imbalances is that Russian budgetary plans tend to get revised upwards, as most recently in the new budget framework for 2025-27. While the previous plan for 2025 was a reduction in expenses, the new framework lays out an increase by 10 percent, with military spending increasing by 27 percent relative to budget plans for 2024. This is to be financed by increases in taxes, including a hike in corporate profit taxes from 20 to 25 percent, i.e. further pressure on the corporate sector.[43] Over time, the pressure on both the public and the private sector will be more urgently felt by business leaders and workers alike. The state is responding with increasing propaganda and state control of information flows, and when that is not enough, intensified repression and restrictions on freedom of expression. Open opposition and protests are barely visible due to a combination of disinformation, oppression and a long history of political apathy, but the economic and social situation of regular Russians will be increasingly deteriorating.

There is an apparent lack of coordination between fiscal and monetary policy, and current budget plans brings this into the open. The CBRs monetary policy framework for 2025-27 presents four scenarios for the years ahead for the Russian economy and what it would imply in terms of monetary policy. In an analysis, BOFIT points out that the budgetary framework above seems most consistent with the CBRs "positive" scenario, while the CBR themselves find a mildly "negative" scenario more likely. In that scenario inflation remains far above the inflation target and the CBR key rate is kept high with continued detrimental consequences on economic activity.[44] If the government in the end begins to finance its war efforts by using the central

[42] https://base.garant.ru/57750630/
[43] https://www.bofit.fi/en/monitoring/weekly/2024/vw202439_1/
[44] https://www.bofit.fi/en/monitoring/weekly/2024/vw202439_1/

bank's ability to print money, the impact on inflation will be even more acute, further emphasizing the war's cost to its citizens through macroeconomic imbalances. This scenario becomes more probable as Russia's income from exporting oil and gas—along with other fuels, minerals, and raw materials crucial for foreign exchange earnings—declines. Consequently, this could weaken the ruble, undermine confidence in the currency, and potentially trigger instability or even a full-scale financial crisis. This type of development is made more likely by the government's different programs to stimulate demand from households and SME, documented in Section 3. If the government becomes unable to support for instance the subsidies of mortgages it will impact households' borrowing costs, reduce their non-housing consumption, and affect the banking sector's profitability. Historically, such policies of subsidizing unaffordable housing loans have led to some of the most severe banking and financial crises globally.

The government's budget constraint is likely to be exacerbated by lower economic growth over the medium and long term, due to current policy priorities. The extensive fiscal stimulus aimed at supporting the war effort can produce short-term growth, as the production of weapons and the payment of salaries to military personnel, including the hefty compensation packages paid to survivors, stimulate economic activity. However, macro-level growth masks imbalances in how income and production are distributed across sectors and individuals. Despite potential minor economic spillovers from the military sector, this essentially represents a reallocation of resources away from more productive long-term sectors to the military, i.e. a drop in allocative efficiency. This reallocation is detrimental to productivity and leaves the majority of the Russian population worse off. Furthermore, as we emphasize above, due to the structural constraints of the Russian economy on investments and labor, the fiscal stimulus will only have limited impact even in the short run when mounting inflation triggers contractionary monetary policy.

The financial sector is also increasingly under pressure, which is critical given that this is typically where an economic crisis starts. The pressure is partly due to the impact of sanctions, limiting many Russian banks' access to international markets. It is also due to countermeasures enforced by the government, aimed at increasing its control over the financial sector. As we discussed above, to boost the economy in the short run the government has implemented several reforms to subsidize borrowing, both for households and for firms. This has increased domestic borrowing in the financial sector substantially and led to more risky borrowing and higher rates of non-performing loans. It has also led to a higher concentration in the corporate portfolios of outstanding loans to a small number of very large companies – also a sign of risk. As the government starts scaling back some of these costly subsidy programs the rate of new loans may slow down but it will also expose existing borrowers to higher costs. This in turn will further increase the risks born by financial sector institutions.

As the discussion above suggests, while the short-term economic outlook for Russia might seem fairly positive, at least if we believe in the official statistics, the medium and long-term forecasts are far darker. Structural growth is always driven by three factors: innovation, investment and labor, all of which display clearly negative trends. Additionally, the outlook for international oil prices, crucial for Russia's economy, is unfavorable. Projections suggest a decline in oil prices, with Brent crude potentially dropping to around 65 US dollars per barrel in 2026, which could mean prices for Russian oil in the range of 50-55 US dollars. This should be contrasted with the Russian Budget Plan that assumes oil prices of 72 US dollars /barrel (Prokopenko, 2024). This combined with structural challenges paints a grim future for Russia's economic health.

6 Policy Conclusions

To understand how an economy is performing is not a trivial task. It requires, among other things, an understanding of the fundamentals of economic theory, how different markets interact, the scope and limitations of government regulation, what motivates individuals and firms to invest in physical and human capital, and what drives efficiency and innovation. It also involves decisions on what time frame to use for the analysis, what counterfactuals to compare with, and how to model global and political developments affecting opportunities emanating from international exchange. Critically, it requires access to credible information on key economic indicators.

An economic analysis can thus be a challenge even in normal times, but in times of war it becomes even more complex for several reasons. Information on economic outcomes becomes a strategic asset creating strong incentives for manipulation to affect beliefs and actions of the identified enemy. Counteractions to sanctions and military resistance are put in place that boost the economy in the short run, i.e. a reorganization into a war economy, but deplete the fundamentals we know drive long run growth and development. It also affects economic policy making by centralizing decision making, growing the role of the state over the market, prioritizing the short- over the long-run, and stifling human creativity and innovation through control and repression. It follows that a naïve analysis, not considering these constraints and incentives, relying on potentially misleading data and information, and not understanding the important distinction between the short and medium run, can paint a deceptive picture of the economic reality.

In our analysis of the Russian economy above we do our best to weed through this informational "fog of war". We first provide a picture of the Russian economy prior to the full-scale invasion to offer an understanding of its structure and drivers of economic growth. Compared to the West, Russia's economy is small, dependent on natural resources, and plagued by weak institutions and unfavorable demographics. Short term economic growth relies primarily on fluctuations in the world price of oil. Long run growth prospects were bleak even before the full-scale invasion, but the war and the response from the Western democracies have further reinforced the negative growth trajectory. The political economy of the Putin regime also relies on generating economic revenues to please the connected elites and sustain some form of economic stability for the general population. Dwindling economic resources threatens those "social contracts", and the regime responds through tighter control and repression.

In the following section we offer a snapshot picture of the current state of the Russian economy relying on official Russian statistics and publicly available information. What this analysis suggests is that if we believe in official Russian statistics, then Russia has economic capacity to sustain current policies in the short run, a conclusion shared with many other observers. We also find, though, that beyond the GDP numbers, the redirection into a war economy is already putting pressure on all sectors not directly involved in the war, causing internal macroeconomic imbalances, increasing risks in the financial sector, and eroding export revenues and existing reserves. Short term growth is kept up by a massive fiscal stimulus, but the impact is mitigated by necessary monetary contraction to deal with inflationary pressures, and structural factors (demographics, weak property rights) limiting the possible economic response to the stimulus.

Furthermore, a critical discussion of key statistics reveals that there are good reasons to doubt even the relatively strong short run growth numbers. The positive short run assessment of the growth of real GDP relies critically on the inflation data provided by the Russian government. Alternative methods provided by independent researchers suggest higher inflation rates, and so

does an assessment based on more reasonable numbers for the real exchange rate. In these alternative scenarios, the span of short run growth rates stretches between plus 3,6 and minus 10 percent.

In the section on sanctions, we show that they have reduced the profit and tax revenues from oil and gas exports substantially, and reduced, even if far from eliminated, access to western-made high-quality components that are war critical or dual use. Counteractions undermine the effectiveness of sanctions, and so does lax enforcement in sanctioning countries. Yet, sanctions gradually undermine the foundations of the Russian economy, and the response must be to strengthen rather than abandon them. We also emphasize that any assessment of the impact of sanctions has to rely on comparing actual outcomes with the correct counterfactual when creating a narrative of success or failure. Comparing official growth numbers in 2022, (minus 1 to 2 percent), with growth in previous years suggests the Russian economy suffered but still weathered the storm pretty well. What is missing, though, is that the very favorable oil prices in 2022 in the absence of the war would have generated levels of growth in the range of 5 to 9 percent according to models of the Russian economy prior to the full-scale war. The actual loss is thus closer to 6 to 11 percent of GDP.

Our analysis of the medium- to long-run outlook for the Russian economy offers an even bleaker picture. Long run economic growth is everywhere driven by investments in physical and human capital, and allocative efficiency and technological development. In today's Russia, foreign investors are leaving the country, and there is an exodus of in particular young and educated citizens. Meanwhile, centralization of power, rising authoritarianism and repression, and increasing state control over markets are all factors known to stifle efficiency and innovation. The reorientation into a war economy is crowding out physical and human capital from alternative productive sectors with potential for higher social rates of return than military production, i.e. a drop in allocative efficiency. The budgetary challenge to finance the war machine is also mounting as reserves are being depleted and export revenues from oil and gas are likely to fall in the near future due to falling world market prices and more effective sanctions. This will reinforce existing macroeconomic imbalances, further driving inflation upward and potentially undermine the credibility of the financial sector.

It is important to stress that this is also a war of information and narratives, where the Russian government has strong incentives to convince the world that their economy is doing fine and that sanctions do not work. The long-term political sustainability of western policies relies on popular support, and support is a function of perceived costs and effectiveness of the policies. It is therefore important to critically assess data and information coming from the Russian government. This is particularly true for western institutions with long-standing credibility and a large audience unable to critically assess what is reported. IFIs carry a huge responsibility to acknowledge the fact that their analysis is based on data provided by the Russian government, and they should take extra measures to critically assess whether their analysis offer a reasonable and robust picture of the state of the Russian economy. More so as their numbers and analysis are picked up by other influential sources of economic information such as the main media channels, and by governments around the world. More attention is needed to generate and analyze alternative sources of information on economic activity, both at the national, firm, and consumer level. Efforts are under way, and research is conducted as this is written, but it is paramount that such analysis is also shared with decision makers and through trusted sources with the general public.

In no area is the importance of the war of narratives more important than when it comes to the costs and effectiveness of sanctions. The correct observation that sanctions are not as effective

as desired sometimes leads to calls for their abandonment rather than calls for stricter enforcement and expanded scope. Along similar lines, support for sanctions is sometimes portrayed as a substitute for military and financial support to Ukraine, while in reality supporters of sanctions see the two as complements. Containing Russian imperialism will take time and resources, and the West need to prepare economically and not least politically for that. The fight to save Ukraine is about financial and military support and containment of the Russian war machine, but also involves policies within Western countries that are designed to maintain democratic support for this commitment. An essential element of this is to conduct credible economic analysis of the Russian economy and the effect of sanctions using reliable data. Only then can we prevail in the propaganda war.

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8 Appendix: Main sanctions and counter-sanctions timeline

The list of sanction is presented on the timeline of implementation of the EU, plus main other measures introduced by the US and UK. Canada, Japan, Australia, New Zealand and other allied countries implemented at different points in time many of the same measures.[i] Sources for the counter-sanction measures are reported in the endnotes.

Sanctions against Russia		**Russian counter-sanctions measures**	
Date	Description	Date	Description
2022-02-22	**UK**. Targeted sanctions on five Russian banks and three oligarchs (Gennady Timchenko, Boris Rotenberg, and Igor Rotenberg), including asset freezes and travel bans. Russia prevented from issuing sovereign debt on UK markets. **US.** Expansion of sovereign debt prohibitions. Sanctions targeted to several oligarchs, financial institutions with subsidiaries, and Nord Stream. The list of designated individuals as well as financial institutions both large and small kept expanding over time.	2022-02-24	Short sales on the exchange and over-the-counter markets suspended[ii]
2022-02-23	**1st EU package** Includes: -targeted sanctions against the 351 members of the Russian State Duma and an additional 27 individuals -restrictions on economic relations with the non-government controlled areas of Donetsk and Luhansk oblasts -restrictions on Russia's access the EU's capital and financial markets and services	2022-02-25	Measures by the Bank of Russia in support of the financial sector due to increased volatility:[iii] - Insurance companies allowed to fix foreign currency exchange rates as of February 18, 2022, for calculating mandatory ratios. - Initiatives to reduce to zero the additional and increased additional rates of insurance premiums for banks in the deposit insurance system. - Dissolution of the accumulated macroprudential capital buffer for foreign currency claims to legal entities; cancellation of premiums to risk ratios for new foreign currency claims. - Credit institutions required to postpone payments of dividends and management bonuses, especially if utilizing premiums to capital adequacy ratios.

2022-02-24	**UK.** Comprehensive set of sanctions blocking key Russian industries from raising finance on UK's financial markets, froze assets of several major Russian financial institutions, including VTB Bank. **2nd EU package** targeting the financial sector, the energy and transport sectors, dual-use goods, export control and export financing, visa policy, additional individual sanctions. Reporting requirement and "freeze" on Russian sovereign assets.	2022-01-03	Ban on the export of foreign currency (cash in the amount of more than $ 10 thousand cannot be taken out from the country)[iv]
2022-02-28	**3rd EU package** Restrictions on Russian access to EU capital markets and technology, particularly in the oil, military, and dual-use sectors Ban on transactions with the Russian Central Bank Closure of EU airspace and EU airports to Russian carriers Ban of state-owned media Russia Today and Sputnik from broadcasting in the EU	2022-01-03	Transfer of ownership of securities require permits issued by the Government Commission for Control over Foreign Investments in the Russian Federation if carried out with individuals from unfriendly foreign states, or individuals from friendly states, if the subject of transactions are securities acquired from individuals of unfriendly foreign states after February 22, 2022.[v]
2022-03-08	**US.** Ban on investments in Russia's energy sector, either directly or indirectly through foreign companies. Ban on import of crude oil, certain petroleum products, liquefied natural gas and coal, as well as Russian diamonds, vodka and seafood.	2022-03-25	Purchase of foreign currency in the domestic foreign exchange market of the Russian Federation by non-resident individuals from unfriendly states is not allowed.
2022-03-03	**3rd EU package** Seven Russian banks (Bank Otkritie, Novikombank, Promsvyazbank, Rossiya	2022-03-25	The amount of any advance payment made by a resident cannot exceed 30% of the total amount obligated by each contract or agreement. This restriction is

	Bank, Sovcombank, Vnesheconombank (VEB), and VTB Bank) are excluded from SWIFT, harming their ability to operate globally. Ban on investing, participating or otherwise contributing to future projects co-financed by the Russian Direct Investment Fund. Ban on selling, supplying, transferring or exporting euro banknotes to Russia or to any natural or legal person or entity in Russia.		likely intended to mitigate financial risk, ensuring that large sums are not paid before the receipt of goods or services and avoiding excessive financial exposure.[vi]
2022-03-15	**4th EU package** Restrictions on critical sectors and technology transfers. Includes a ban on: -all transactions with certain state-owned enterprises -provision of credit-rating services to any Russian individual or entity -new investments in the Russian energy sector	2022-03-29	Companies participating in public procurement will be able to receive up to 90% of the contract price as an advance in 2022.[vii] Grey imports: It is allowed to import in-demand original foreign-made goods into the country without the consent of the copyright holders. Responsibility for the so-called parallel imports is abolished. A list of goods is provided by the Ministry of Industry and Trade.[viii]
2022-04-08	**5th EU package** Includes a ban on: -imports of coal and other solid fossil fuels -all Russian vessels from accessing EU ports -Russian and Belarusian road transport operators from entering the EU -imports of other goods such as wood, cement, seafood and liquor -exports of jet fuel and other goods -deposits to crypto-wallets **US.** Ban on investments in Russia.	2022-04-15 2022-04-19	Backbone enterprises support: interest-free deferral or installment plan for the payment of import customs duties.[ix] Extension up to 60 working days (instead of 3) for the period during which exporting companies from the non-resource non-energy sector are required to sell their foreign currency earnings. (Likely a measure to stabilize a volatile currency market).[x]
2022-06-01	**6th EU package** Ban on the import of Russian seaborne crude oil starting from December 2022 and certain petroleum products from February 2023, with limited exceptions SWIFT exclusion for three additional Russian banks (and one Belarusian bank).	2022-06-15	Credit institutions are recommended to refrain from paying dividends and bonuses to shareholders to management until the end of 2022.[xi] One-year deferral on the payment of insurance premiums for manufacturers of soaps, detergents, cleaning and

	Suspension of broadcasting in the EU for three more Russian state-owned outlets. Import ban on goods from Crimea.		polishing products, cosmetics and perfumes.[xii] Residents are permitted to purchase at auctions bankrupt properties that are controlled by foreign entities from unfriendly countries.[xiii]
2022-10-06	**8th EU package** Introduction of a price cap on sales of seaborne oil to third countries. Expansion of the list of high-priority goods. Additional restrictions on trade and services with Russia targeting individuals responsible for Russia's occupation and annexation of territories and the conduct of "sham referenda." **US.** Ban on import of Russian gold.	2022-10-13 2022-10-15 2022-10-26	Government financing made available for the creation of small and medium-sized centers for electronic, microelectronic and radio-electronic products.[xiv] Capital control: exporting amounts exceeding 10,000 USD requires now permission from the Central Bank.[xv] Restriction on the export of inert gases until the end of 2023.[xvi]
2022-12-16	**9th EU package** Includes bans on: -exports of drone engines; -exports of an expanded list of dual-use goods and technology; -investments in the mining sector; -transactions with the Russian Regional Development Bank; -provision of advertising, market research and public opinion polling services	2023-01-30 2023-02-23	Extension of preferential loan program (with rate capped at 5%) to manufacturers of electronic equipment.[xvii] Brent price used as a basis for oil taxes.[xviii]
2023-02-25	**10th EU package** Includes bans on: -exports of and expanded list of critical technology and industrial goods -imports of asphalt and synthetic rubber -provision of gas storage capacity to Russians -transit through Russia of EU exported dual use goods and technology to third countries	2023-02-18	5 billion rubles allocated to expand the production of aircraft, aircraft engines, instruments and assemblies.[xix]

		2023-03-03	New mechanism to increase the fiscal contribution from the sale of significant assets by entities from unfriendly countries. The contribution to the Russian budget is calculated to be at least 10% of half the market value of these assets. If the assets are sold at a discount of more than 90%, then the contribution increases to at least 10% of the full market value of the assets.[xx]
		2023-03-14	Update of the list of goods for parallel imports. In particular, IKEA brand products, toys and cosmetics are added.[xxi]
2023-06-23	**11th EU package** Includes measures to: -strengthen bilateral and multilateral cooperation with third countries against sanctions' circumvention -prohibit the transit of goods and technology via Russia -tighten export restrictions	2023-07-12 2023-07-21	Importers are exempt from the obligation to provide security for the payment of customs taxes and duties.[xxii] Update of the list of goods for parallel imports.[xxiii]
2023-12-18	**12th EU package** Targeting high-value sectors and circumvention. Includes: -ban on the direct or indirect import, purchase or transfer of diamonds including jewellery - "no russia clause" for EU exporters (explicitly prohibits the re-exportation to Russia and re-exportation for use in Russia of certain goods) -strengthened bilateral and multilateral cooperation with third countries against sanctions' circumvention -tighter export restrictions concerning dual-use goods and technologies -tightened enforcement of oil price cap -further restrictions on imports of goods which generate significant revenues: pig	2023-12-19	Exemption from exchange rate export duties for goods dependent on the import of key components, as well as certain high-tech goods, medicines and pharmaceutical substances, chemical products, household metal products, tools for drilling, pressing and other operations, soy protein. Exemption from duties for SME with total customs value not exceeding 200 euros.[xxiv] Government support to industry in excess of 7.5 billion rubles.[xxv] Ban on the entry of trucks from the European Union, Great Britain, Norway and Ukraine.[xxvi]

	iron, copper and aluminum wires, foil tubes and pipes prohibition on the import of liquefied propane		
2023-12-22	**US.** Executive Order 14114 expanded the U.S. secondary sanctions regime against Russia, particularly targeting non-U.S. financial institutions (FFIs) that facilitate transactions supporting Russia's military-industrial base.		
2024-02-23	**13th EU package** Includes: -restrictive measures on an additional 106 individuals and 88 entities, targeting the military and defence sectors, members of the judiciary, local politicians and people responsible for the illegal deportation and military re-education of Ukrainian children -restrictions on unmanned aerial vehicles (drones) and on exports of goods which contribute, in particular, to the enhancement of Russian industrial capabilities.	2024-02-29 2024-03-20 2024-03-22	Ban on the export of commercial gasoline until August 31.[xxvii] The Bank of Russia has extended restrictions on the transfer of funds abroad for another 6 months.[xxviii] Lifting of the ban on the export of diesel fuel.[xxix]
2024-06-24	**14th EU package** Includes: -ban on reloading services for Russian liquified natural gas (LNG) on EU territory for the purpose of transshipment operations to third countries -ban on new investments for the completion of LNG projects under construction -outlawing the use of the 'System for Transfer of Financial Messages' (SPFS) -ban on port access and the provision of services to vessels contributing to Russia's war -wider EU flight ban -further import-export controls and restrictions	2024-07-15 2024-07-30	Bank of Russia suspended the publication of daily information on the trading volumes of the US dollar, euro and yuan against the ruble, calculated on the basis of over-the-counter trading with settlements "tomorrow".[xxx] Reduced income taxes and insurance premium rates for organizations engaged in the production of special technological equipment, components and consumables for the radio-electronic industry.[xxxi]

[i] See a consolidated list of measures implemented by other countries at https://researchbriefings.files.parliament.uk/documents/CBP-9481/CBP-9481.pdf.
[ii] https://base.garant.ru/403565544/
[iii] https://base.garant.ru/403574698/
[iv] https://base.garant.ru/403590982/7de604a96ccda25589986967395bfe0a/#block_107
[v] https://base.garant.ru/403590982/7de604a96ccda25589986967395bfe0a/#block_102
[vi] Ibid.
[vii] https://base.garant.ru/403783512/
[viii] https://base.garant.ru/403783328/
[ix] https://base.garant.ru/404558732/
[x] https://base.garant.ru/404505752/
[xi] https://base.garant.ru/404834741/
[xii] https://base.garant.ru/404839759/
[xiii] https://base.garant.ru/404896373/
[xiv] https://base.garant.ru/405542711/
[xv] https://base.garant.ru/405461431/1f52fdbaaf35b633c24fc31659dac9f4/#block_6
[xvi] https://base.garant.ru/405556005/
[xvii] https://base.garant.ru/406264347/
[xviii] https://base.garant.ru/406428463/
[xix] https://base.garant.ru/406435633/
[xx] https://base.garant.ru/406609577/
[xxi] https://base.garant.ru/406534585/
[xxii] https://base.garant.ru/407458247/
[xxiii] https://base.garant.ru/407484679/
[xxiv] Minutes of the meeting of the Subcommittee on Customs, Tariff and Non-Tariff Regulation, Protective Measures in Foreign Trade of the Government Commission for Economic Development and Integration dated 19.12.2023, Decree of the Government of Russia dated 27.12.2023 No. 2338
[xxv] https://base.garant.ru/408263839/
[xxvi] https://base.garant.ru/408282731/
[xxvii] https://base.garant.ru/408626013/
[xxviii] https://base.garant.ru/408787559/
[xxix] https://base.garant.ru/408626013/
[xxx] https://base.garant.ru/409367960/
[xxxi] https://base.garant.ru/409460361/