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Heli Simola

What the literature says about the effects of sanctions on Russia



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Bank of Finland BOFIT – Institute for Emerging Economies

PO Box 160 FIN-00101 Helsinki

Phone: +358 9 1831

Email: bofit@bof.fi Website: www.bofit.fi/en

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Abstract

This policy brief frames the discussion of sanctions imposed on Russia since the invasion of Ukraine in a wider international and historical perspective. We present a brief review of recent literature related to the macroeconomic effects of sanctions in Russia and other countries. Our analysis suggests that the general economic effects of the war and sanctions on Russia are neither unprecedented nor insignificant in comparison to previous sanction episodes. The literature also suggests that while the overall economic effects of sanctions on Russia have been diluted by various factors, they have strongly affected the parts of the Russian economy they target.

Keywords: Russia, war, sanctions, trade, FDI

1. Introduction

Russia's brutal year-long war in Ukraine has caused Western countries to extend their economic sanctions on Russia. The war continues, nevertheless, raising considerable debate on the efficacy of the current sanctions regime.

The aim of this note is to broaden the perspective of the current sanctions discussion. We start with a brief review of relevant literature on the international historical experience on the effects of economic sanctions. This is by no means an exhaustive literature survey on sanctions. We keep the analysis concise, focusing on macroeconomic, mainly quantitative, studies and recent research.

We next review the literature on the macroeconomic effects of the sanctions imposed on Russia in 2014 following the illegal annexation of the Crimean peninsula and Russia's wider military aggression in Eastern Ukraine. The discussion winds up with the current situation and the literature related to the effects of the latest sanction rounds.

Our analysis suggests that Russia's economic losses caused by the war and sanctions are not insignificant. There are sanction episodes with larger economic losses, but they are typically associated with smaller economies and global sanctioning coalitions. Our main takeaway is that the current sanctions have had their strongest impact on the sectors they target.

The brief is structured as follows. Section 2 presents general issues related to sanctions. Section 3 reviews the literature on the economic effects and overall effectiveness of sanctions, focusing on the macroeconomic perspective and quantitative studies. In Section 4, we address studies related to the effects of sanctions on Russia, reviewing first those that evaluate the macroeconomic effects of the sanctions imposed on Russia in 2014 and then current sanctions research. Section 5 concludes.

2. Brief background on sanctions research

Research interest in sanctions has grown in past decades as sanctions have become a more commonly used tool of economic statecraft and data collection related to sanctions has increased. Sanctions research in economic and political sciences ranges from extensive historical case-study analyses of multiple countries to detailed quantitative empirical evaluation of sanction effects on specific countries.

2.1 General features of sanctions

The most common sanctions measures involve international trade. These include embargoes of exports and import bans. They may extend to financial sanctions such as freezing assets, restricting financial transactions or limiting investment in the target country. Measures can even include travel restrictions or withholding of foreign aid (Jentleson, 2022).

Sanctions can be comprehensive, banning practically all economic transactions with the target country, or they can focus only on selected sectors. In recent years, humanitarian reasons have driven the rise of targeted or "smart" sanctions, i.e. regimes that avoid causing extensive problems to the general population. Targeted sanctions focus on key parts or actors of the targeted economy, e.g. the financial sector or business elites.

Sanctions are used to achieve various aims, including limiting military capabilities, forcing changes in aggressive or threatening foreign policy or domestic policy change like protection of human rights or regime change (Hufbauer et al., 2007; Jentleson, 2022). Sanctions can also be used

to discourage the target country or a third country from further actions or as a symbolic action to show disapproval of e.g. violations of international law or human rights.

2.2 Sanctions databases

Sanction studies initially relied solely on case studies of individual countries. Experiences of specific countries are still an important topic in the sanctions literature, but several extensive cross-country databases on sanctions have been compiled over recent decades. These bodies of information have enabled more rigorous econometric analysis of the effects of sanctions.

The databases vary in their scope and coverage. Most have a global coverage both for the sanctioning and target economies. The sole exception is the EUSANCT database which focuses only on sanctions imposed by the EU, US and UN. The databases typically contain information on various types of sanctions imposed, sanction goals and the success of sanctions in reaching those goals. TIES and EUSANCT databases include threatened sanctions, even if they were never implemented. There are obviously many complications in constructing such databases and evaluation of aims and success of sanctions is unavoidably to some extent subjective. The general features of the most commonly used databases are compared in Table 1.

	No. of sanctions episodes	Temporal coverage
HSE	174	1914–2000
EUSANCT	325	1989–2015
TIES	1,413	1945–2005
GSDB	1,101	1950–2019

 Table 1. Popular sanctions databases

Note: HSE refers to Hufbauer, Schott & Elliot (2007). EUSANCT is the dataset presented in Weber & Schneider (2021). TIES is the Threat and Imposition of Economic Sanctions dataset discussed in Morgan et al. (2014). GSDB refers to the Global Sanctions Database set forth in Felbermayr et al. (2020a). Source: Hufbauer & Jung (2020).

3. Efficacy of sanctions

The literature on effectiveness of sanctions can be divided into two strands. The first strand focuses on economic effects of sanctions. The second strand looks at the political outcomes of sanctions. Although separate, they are obviously related. While the main aim of sanctions is to alter the policies of the target country instead of causing maximal economic costs, general economic losses can be important in achieving the ultimate political objectives of the sanctions regime. Even substantial economic costs in themselves are, however, no guarantee of policy compliance of the sanctions target.

3.1 Economic effects of sanctions

Most recent studies on macroeconomic effects of sanctions focus on changes in GDP. GDP effects are often considered a relatively simple and comprehensive measure of costs induced by sanctions. On the other hand, GDP may be too aggregate an indicator to capture the effects of sanctions. This is particularly the case for smart sanctions, as they are specifically designed to surgically target a part

of the economy. We present also results on the effects of sanctions on trade flows and foreign financial flows, particularly FDI.

3.1.1 Effect of sanctions on GDP

Many studies examine the effect of sanctions on the GDP of targeted countries in cross-country or case study set-ups. While all find that sanctions have a negative effect on GDP growth in the short term, the estimates vary in quantitative terms. The average effect on GDP growth per capita is estimated at 0.2–2 % annually. Hufbauer et al. (2007) evaluate the average GDP loss as a consequence of sanctions as 3 %. Neuenkirch & Neumeier (2015) find even a 5 % decline in GDP per capita growth for the most comprehensive sanctions regimes.

There is also considerable variation regarding the duration of the negative effect. Neuenkirch & Neumeier (2015) find that the effect of UN sanctions is quite persistent, leading on average to a decline of 25 % in the GDP per capita of the target country after 10 years compared to a situation without imposition of the sanctions. The results of Gutmann et al. (2021) indicate a 4 % drop in GDP per capita during the first two years of a sanction episode and no indication of recovery even during the first three years after the lifting of sanctions. Kwon et al. (2020) find no significant long-term effect from sanctions on GDP growth.

	Annual growth of GDP per capita	Long-term effect	Database
Neuenkirch & Neumeier (2015)	-2 to -5 %	-25 % after 10 years	TIES
Gutmann et al. (2021)	-2 % for first 2 years	No recovery	GSDB
Kwon et al. (2020)	-0.2 %	Not significant	GSDB
Hufbauer et al. (2007)	-3 % (GDP loss)	n.a.	HSE

Table 2. Estimated	effects of sanctions	on GDP growth
		on obi gionai

Recent case studies focus on the effect of sanctions on the Iranian economy (excluding Russia, which will be discussed later). Gharehgozli (2017) finds that the GDP of Iran declined by 17 % under sanctions during 2011–2014 compared to a situation without sanctions. Felbermayr et al. (2020b) estimate that GDP per capita of Iran would increase by 4 % if the sanctions against it were lifted. Chowdry et al. (2022) find that the current sanctions imposed on Iran have reduced the country's GDP by 1.5 %. They also present a scenario with a comprehensive global embargo on Iran that suggests such sanctions would cost Iran 13 % of its GDP.

3.1.2 Effect of sanctions on trade flows

Several studies examine the effect of sanctions on trade. Direct trade restrictions are often included in sanctions. Sanctions can hamper trade via complications in payments and transport and increased uncertainty. Most studies find that sanctions have a strong negative effect on bilateral trade, but the effect depends to a large extent on the severity of the sanctions regime.

The most extensive trade restrictions have been found to reduce bilateral trade by 80–90 % (Caruso, 2003; Dai et al., 2021; Felbermayr et al., 2020b). More limited restrictions are found to reduce bilateral trade by 14–32 % (Afesorgbor, 2019; Felbermayr et al., 2020b). In the case of US sanctions, Caruso (2003) finds no statistically significant effect on bilateral trade from more narrow sanctions. Gutmann et al. (2021) examine the effect of sanctions on total trade (sum of exports and

imports per capita) of targeted countries. They find the peak effect after nine years with trade of sanctioned countries 18 % lower than in countries that only faced a threat of sanctions. For the specific case of Iran, Felbermayr et al. (2020b) estimate that the sanctions led to a 55 % decline in Iran's trade.

The results on trade also point to persistence of the negative effects of sanctions. Guttman et al. (2021) find that the negative effects are much stronger in cases where sanctions are applied for over eleven years. For such long-duration episodes, the trade volume of sanctioned countries declines as much as 58 % compared to countries only under threat of sanctions. Dai et al. (2021) also find that on average, the longer sanctions are in place, the greater their adverse effect on trade flows. Even after the lifting of sanctions, trade recovers only gradually. It may take seven or eight years before the effect of sanctions is completely eliminated.

Some studies examine additional viewpoints related to sanction effects. The results of Afesorgbor (2019) suggest that the threat of sanctions (rather than imposition) leads to an increase in bilateral trade. He relates this to a stockpiling motive in anticipation of loss of supplies and argues that a threat before the actual imposition of sanctions can undermine the effectiveness of sanctions. Felbermayr et al. (2020b) find little evidence of trade creation after Iran sanctions; only bilateral trade between the UAE and Iran showed an increase. In contrast, Caruso (2003) suggests that more narrow US sanctions simply increased the trade of the targeted countries with other G7 countries (which he interprets as sanction busting).

3.1.3 Effect of sanctions on FDI

Foreign direct investment is another channel through which sanctions can affect the target economy. Sanctions can contain direct restrictions on FDI, as well as have an indirect negative effect on FDI due to increased uncertainty or complications in international financial transactions.

The general conclusion from the literature is that sanctions reduce FDI to the target country, but again there is much variation across quantitative estimates. Gutmann et al. (2021) find that FDI to sanctioned countries declines by 39 % in the first year after the imposition of sanctions and that the negative effect persists for years. Mirkina (2018) suggests that imposition of sanctions led to a decline of FDI net inflow in target countries by 16 % over the short run and 11 % over 10 years.

Focusing on US sanctions, Lektzian & Biglaiser (2013) show that while they substantially reduce US FDI to target countries, FDI from rest of the world increases. They argue that this undermines the effectiveness of US sanctions. Besedes et al. (2017) present similar findings for the effects of sanctions on German financial flows. Their results suggest that German capital flows with the sanctioned country decrease on average by about 50 %. They find evidence of possible circumvention of sanctions if applied only by the EU, but not for sanctions applied by of a larger coalition of countries.

3.2 Do sanctions achieve their policy goals?

The ultimate goal of sanctions is to change certain policies of the target countries (Morgan et al., 2023). Beyond the complexities of evaluating the success of sanctions, there is the further caveat that such evaluations are inevitably subjective to some extent (Jentleson, 2022). Moreover, the ultimate goals of sanctions may not be clearly stated and may involve multiple agendas. It is also extremely difficult to evaluate the counterfactual, i.e. how the situation would have evolved without sanctions. The literature on sanction efficacy varies from descriptive analysis of historical episodes (Jentleson, 2022; Mulder, 2022) to econometric analysis based on the sanctions databases described above.

All sanctions databases include variables depicting the successfulness of sanctions. While the methodologies vary to some extent across datasets, they obviously ultimately rely on the subjective

assessments of the researchers constructing the database. The evaluation of sanction outcomes typically includes various outcomes like total success, partial success and negotiation settlement (implying that the sanction target wins concessions).

The average success rate (including total or partial success) for all sanctions across all time periods varies in the range of 27–38 % in the main databases (Table 3). This variation partly reflects differences in dataset coverage. Additionally, there is considerable heterogeneity in outcomes across various dimensions.

The highest success ratio is recorded in the EUSANCT database, which focuses on EU sanctions and covers only recent decades. Weber & Schneider (2022) find no clear-cut time-trend in the efficacy of sanctions based on the EUSANCT data. For the TIES dataset, Morgan et al. (2014) note that the effectiveness of sanctions appears to increase in the latter part of their observation period as multilateral sanctions become more common. The average success rate for multilateral sanctions in TIES database is 51 % compared to 31 % for unilateral sanctions.

Felbermayr et al. (2020a) find an increase in the share of sanctions considered successful and a corresponding decline in the share of sanctions considered failed over time, with the average rate reaching about 60 % in 1980–2000. They note, however, that the shares of both successful and failed sanctions have declined in recent decades as the majority of sanctions in the database are still in place.

	Total success ratio	No. of episodes	Temporal coverage
HSE	34 %	174	1914–2000
EUSANCT	51 %	325	1989–2015
TIES	27–38 %	1,413	1945–2005
GSDB	34 %	1,045	1950–2016

Table 3. Success ratios of sanctions in various databases

There is also variation in the success rate of sanctions by targeted outcome. The databases are not directly comparable as the targeted outcomes are classified slightly differently. The success rate (including partial or complete success) of sanctions aiming at a target related to military activities ranges between 21-56 %, with higher success rates in databases that focus on later time periods.

	Disruption of military adventures	Military impairment	Contain military behavior	Solve territorial dispute	End war	Prevent war
HSE	21	31				
EUSANCT			55	56		
TIES			42	35		
GSDB					48	45

The literature provides a bit of guidance on the factors that may affect the success of sanctions (Bapat et al., 2013; Hufbauer et al., 2009; Morgan et al., 2023). The success rate is typically higher for sanctions regimes that seek narrow political goals than those that pursue such fundamental objectives as regime change. Unsurprisingly, more extensive sanctions in terms of instruments (trade, financial, etc.) and sender coalitions tend to be more effective. Higher economic costs are likely to lead also to political success, but not necessarily. Many studies find that sanctions are more likely to be successful if they were preceded by deep trade relations between the sender and target and if they

are implemented rapidly rather than gradually. Demena et al. (2021) argue that these findings are not necessarily robust, noting the uncertainties and complications related to sanction research.

Factors that increase the likelihood of failure of the sanctions include the size and strength of the target economy. Larger and more stable economies cope better with sanctions. Autocracies also tend to be more resilient towards sanctions than democracies. Autocratic leaders can better ignore the costs of defying sanctions and are more apt to turn to political repression. In addition, a key factor brought up in the literature is sanction-busting. If the target finds partners in circumventing the sanctions, the sanctions regime can be seriously undermined (Attia et al., 2020; Early, 2015; Hufbauer et al. 2009; Jentleson, 2022; Morgan et al., 2023).

Overall, most researchers share the view that when used as an isolated tool, sanctions rarely achieve the political targets they aim at (Felbermayr et al., 2021). Economic costs are often too low to persuade the governments in target countries to change their fundamental policies, the target countries can employ counter-strategies to mitigate sanction effects and sanction-busting undermines their efficacy (Pape, 1997; Early, 2015; Harrison, 2015; Jentleson, 2022). Most researchers also share the view that sanctions are an important ingredient in a wider policy mix for reaching final policy targets (Felbermayr et al., 2021; Hufbauer et al., 2007; Hufbauer & Jung, 2020).

4. Effects of sanctions on Russia

In spring 2014, Russia illegally annexed the Crimean peninsula and invaded areas in Eastern Ukraine. Following Russia's military actions, the EU, US and several other countries imposed a range of sanctions on Russia over several rounds.¹ The sanctions were initially quite narrowly targeted and designed to get Russia to comply with the Minsk agreements (Gould-Davies, 2018; Korhonen et al., 2018).

In macroeconomic terms, sectoral sanctions proved most important. Financial sanctions restricted the availability of long-term financing for several major Russian state-owned banks and corporations. Arms trade with Russia was banned and exports of dual-use goods restricted. In addition, restrictions were imposed on exports to Russia of many goods and services related to the oil & gas sector.

In February 2022, Russia launched a full-scale war against Ukraine. In response to Russia's military actions, the EU, US and UK rapidly imposed extensive sanctions on Russia, and many other countries joined subsequently. The key goals of the sanctions included limiting Russia's possibilities to continue financing the war and restricting technological capacities of Russia's military-industrial complex. From the macroeconomic perspective, key sanctions included restrictions on Russia's financial sector and trade flows. In addition, hundreds of Russian individuals and entities were subject to heavy restrictive measures such as travel bans and asset freezes.

Financial sector sanctions severely limit the access of Russian government and many corporations to foreign financing, restrict Russia's possibilities to use its own currency reserves and complicate conducting international payments. Restrictions on imports from Russia have been gradually extended and now cover nearly all Russia's key export products, including crude oil and petroleum products, gold, coal and certain steel products. Restrictions on exports to Russia were gradually extended and focus on technological and chemical products.

¹ We focus here is only on sanctions imposed by wider coalitions that include the EU, US and UK. For example, the US imposed various unilateral sanctions on Russia after the initial sanctions related to Russia's military aggression in Ukraine, in response to the Salisbury Novichok nerve agent attack and election interference attempts in 2018. These sanctions typically focused on specific Russian individuals or entities.

4.1 Sanctions imposed on Russia in 2014

Several studies examine the impacts on various segments of the Russian economy from sanctions imposed on Russia in 2014. In the case of Russia, it is particularly difficult to disentangle the effects of the sanctions on many economic variables from other factors, especially the oil price (Korhonen, 2019). In the latter part of 2014, global oil prices collapsed. Russia's short-term economic development is typically highly correlated with oil price movements.

4.1.1 Effects on Russia's GDP

Many studies focus on the effects of sanctions on Russia's GDP. After sanctions were imposed in 2014, Russian GDP declined 2 % in 2015. GDP then returned to growth, but growth was much lower than in the years preceding sanctions. In 2011–2013, Russia's GDP grew by 3.4 % on average. In 2016–2019, the average growth was only 1.8 %.

All studies suggest that sanctions had a negative effect on Russia's GDP growth, but the contribution of the oil price decline was more substantial. The estimated effects range from marginal to 1.5 % per year (Table 5). Gurvich & Prilepsky (2015) focus on the financial channel and evaluate that sanctions reduced Russia's annual GDP growth by 0.5-0.6 percentage points in 2014–2017. The IMF (2019) estimates that sanctions reduced Russia's annual GDP growth by 0.2 percentage points on average in 2014–2018.

The results of Pestova & Mamonov (2019) imply that the sanctions shaved about 1.5 % off of Russian GDP in 2014–2015, i.e. about 0.8 % per year. Barseghyan (2019) finds that sanctions cut Russia's GDP per capita by 5 % in 2014–2017, i.e. about 1.5 % per year on average. Kholodilin & Netshunajev (2019) conclude that sanctions had only a small negative effect on Russian economic growth in 2014–2017. Chowdry et al. (2022) calculate that sanctions led to a loss of 1.7 % of GDP compared to a baseline without any sanctions.

	Decline in annual GDP growth, %-points	Period
Barseghyan (2019)	1.5	2014–2017
Pestova & Mamonov (2019)	0.8	2014–2015
Gurvich & Prilepsky (2015)	0.5-0.6	2014–2017
IMF (2019)	0.2	2014–2018
Kholodilin & Netshunajev (2019)	Marginal effect	2014–2017
Chowdry et al. (2022)	1.7 % (drop in level)	permanent loss

Table 5. Estimates of the effects on Russia's GDP growth from sanctions imposed on Russia in 2014

4.1.2 Effects on Russia's trade flows

Only a few studies examine the effects of sanctions on Russia's foreign trade. The restrictions imposed on trade with Russia by Western countries were quite limited in 2014. They consisted of export restrictions focusing on arms, certain dual-use goods and oil & gas production technology.²

 $^{^{2}}$ Russia imposed its own restrictions in August 2014, banning imports of many food products from Western countries. Several studies on deal with the effects of these restrictions, but here we focus solely on the sanctions imposed by Western countries on Russia.

Crozet & Hinz (2020) examine the effects of sanctions imposed by Western countries and Russia combined. They find that these sanctions led to a decline of 14 % in the total exports to Russia by sanctioning countries. In value terms, the decline in exports of non-sanctioned goods was much larger. In their view, this reflects increased political risks and complications in trade finance. The decline in Russian imports of non-sanctioned goods from sanctioning countries was not offset by imports from non-sanctioning countries. Chowdry et al. (2022) find that sanctions led to a reduction of about 30 % in Russia's aggregate imports.

Belin & Hanousek (2021) examine the effect of export restrictions on oil & gas technology to Russia. They find that imports of these goods to Russia declined in 2014–2017, but the development was not statistically significantly different between sanctioning and non-sanctioning countries. From this they conclude that sanctions had no substantial effect on the exports of these products to Russia from the sanctioning countries. In their view, this reflects the fact that exports of sanctioned goods could continue as long as the contracts were made before the sanctions entered into force.

4.1.3 Effects on other economic variables

Several studies focus on the effects of sanctions on select economic variables in Russia. Mamonov & Pestova (2021) present a more disaggregated analysis on the effects of financial sanctions imposed on Russia in 2014 and 2017. Their results suggest that financial sanctions led to a decline of 2–5 % in Russia's industrial output, consumption and investment in 2014–2015. The effects were generally more moderate and more uncertain during 2017–2018, ranging between 0.6 % and 6 %. Investment was hardest hit by financial sanctions.

Regarding financial markets, Mamonov & Pestova (2021) find that financial sanctions led to a decline of 17-20 % in Russia's corporate sector foreign debt in 2014–2015. The results of Mamonov et al. (2021) suggest that sanctioned Russian banks reduced their foreign borrowing and assets. Sanctioned banks also faced deposit withdrawals amounting to 2-10 % of their total assets after falling under sanctions. Government support was needed to prevent bank failures. In contrast, Dreger et al. (2016) argue that sanctions had only a minor impact on the ruble's exchange rate in 1Q14–1Q15.

Considering firm-level effects, Ahn & Ludema (2019) find that sanctions had a large and statistically significant impact on targeted Russian companies. Compared to a non-targeted peer company, a targeted company on average lost roughly a quarter of its operating revenue, over half of its asset value and about a third of its employees after being added to a targeted sanctions list. They also find that the Russian government sought to mitigate the effects for companies considered strategic by providing substantial support measures.

Nigmatulina (2022) argues that government support in the medium-term more than compensated for the initial negative shock and that strategic firms received even more capital inputs than other companies. This support increased resource misallocation in the Russian economy, leading to a decline in total factor productivity at the level of the total economy by 0.3 %. The results of Hyunh et al. (2022) suggest that the sanctions imposed in 2014 have not affected Russian energy companies, while for other companies, sanctions have led to a reduction in return on assets, capital expenditure and R&D intensity that has crippled their growth outlooks.

4.2 Sanctions imposed on Russia in 2022

Although the latest sanctions imposed after the Ukraine invasion in February 2022 have only been in place a short time, several studies on the effects of the current sanctions have appeared. It is challenging to distinguish between effects caused by war and sanctions, but there are basically two

types of literature. The first wave of papers focused mainly on ex-ante simulations of the potential effects of sanctions. In recent months, ex-post evaluations have appeared as data have become available.

4.2.1 Ex-ante simulations on the effects of sanctions

Ex-ante simulation studies focus largely on the effects of trade restrictions and generally conclude that trade restrictions have a negative impact on Russian economy. Quantitative estimates of this impact, however, vary widely. The negative effects increase as the sanctioning coalition and sectoral coverage of sanctions becomes more extensive.

Most ex-ante simulation studies examine the effects of the imposition of restrictions on Russia's total imports or exports. Although the modeling frameworks used in these studies rely mostly on aggregate-level sectoral data, trade restrictions are typically applied to very specifically determined products and their effect is difficult to gauge from sector-level data.

A key exception is Hausmann et al. (2022), who focus on restrictions on goods exports to Russia. Their results suggest that the restrictions on exports to Russia imposed by the EU and US in spring 2022 would cause a 0.5 % decline in Russian GDP. In addition, the results of Simola (2022) imply that sanctions (including goods and services) imposed in spring 2022 on Russian exports would lead to a short-term loss (i.e. before adaptation) of about 1 % of Russian GDP and the restrictions on Russian imports to about 4 % of GDP. The simple framework used by Simola (2022), however, does not permit evaluation of dynamic effects.

In most studies, the sole distinction is between the energy and non-energy sector. While practically all studies underline the importance of restrictions on Russian energy exports, the estimates of their impact vary wildly. Focusing only on the energy sector, Evenett & Muendler (2022) estimate that an import ban on Russian oil & gas by the EU and G7 countries leads to a loss of 0.6 % in Russian GDP. Felbermayr et al. (2023) put the loss at 6.6 %, and the results of Chepelyev et al. (2022) suggest the loss could be as much as 10–12 % of Russian GDP. The largest effects are more related to short-term developments without major trade diversion, whereas the more moderate effects refer to the longer term and assume a substantial role for alternative export markets.

Several studies provide estimates on the effects of a total embargo on trade with Russia by the current sanctioning coalition. The results range from 1.5 % to 11.3 % averaging at about 7 % (Table 6).³ The results are typically not directly comparable due to differences in underlying assumptions. In some studies, the effect of trade restrictions is complemented with effects from withdrawal of FDI or foreign companies from Russia. This channel is found to amplify the negative effect, and the estimates on its magnitude vary considerably. Mahlstein et al. (2022), for example, argue that the loss of FDI is the main channel leading to GDP loss. Du & Wang claim their findings suggest an important, but more moderate, role for foreign investment.

A few studies also present extreme scenarios depicting a Russia totally cut off from global trade (Chowdry et al., 2022; Du & Wang, 2022; Simola, 2022; Tripier et al., 2022). They illustrate the importance of a wide coalition of sanctioning countries. If the coalition of sanctioning countries widened to cover all countries, the negative effects on Russian GDP would be twice or even three times higher than with the current coalition. Much of this shift reflects the key role of China plays as a potential provider of alternative market for Russian exports and imports.

³ The dependent variable is not always strictly speaking GDP, so the results are not always perfectly comparable. For simplicity, here we just refer to GDP.

	Comprehensive trade embargo by current coalition	Comprehensive trade embargo and withdrawal of FDI by current coalition	Comprehensive global trade embargo
Tripier et al. (2022)	11.3 %		33 %
Felbermayr et al. (2023)	9.7 %		n.a.
Borin et al. (2022)	6.5 %		n.a.
Du & Wang (2022)	6.3 %	8.5 %	9.6 % (excl. China)
Chowdry et al. (2022)	5.1 %		14.6 %
Mahlstein et al. (2022)	1.5 %	14.8 %	n.a.

Table 6. Simulation results from imposing a trade embargo on Russia

Taking a different methodological approach determining the effect of sanctions on Russian GDP, Pestova et al. (2022) employ a VAR model. They assess the severity of sanctions by the sovereign international bond spread. Their model predicts a 12.5–16.5 % decline per annum in Russian GDP with such a country spread shock that was seen during the first month of the war. The magnitude of the effect reflects the fact that the financial market situation in Russia was quite acute immediately after Russia's invasion, but aggressive restrictions and support measures imposed by the Central Bank of Russia gradually stabilized the market situation. Preventing a full-blown financial crisis also mitigated the negative effects on Russian GDP.

4.2.2 Analysis of outcomes

After a year of war in Ukraine, we now have preliminary data for evaluating the effects of the war and sanctions on the Russian economy. While it is obviously difficult to tease out individual factors at such an early point, we can address the preliminary data and review studies that present analysis on Russian economic developments.

Preliminary national accounts data suggest that Russian GDP declined by 2.1 % in 2022. The most severe drop was seen in 2Q22 when GDP declined by 5 % from the previous quarter. The March Consensus Forecast expects the bottom to be reached sometime this year with a consecutive decline of slightly smaller magnitude. Thus, the total decline of the Russian GDP in 2022–2023 is now expected to be about 3.5 %. For comparison, the latest Consensus Forecast released before the war was expecting 5 % growth in Russian GDP in 2022–2023. This suggests a rough estimate for the loss of Russia's GDP of about 9 %.

Putting these numbers in perspective, we saw in Section 2 that in large cross-country samples the effect of all sanctions typically varied between 0.2-2 % of annual GDP growth for at least the two first years under sanctions. For the most extensive sanctions, the figure reached 5 %. In the case study of Iran, the total medium-term GDP loss caused by sanctions was put at 17 %.

In Section 3, we saw estimations that sanctions imposed on Russia in 2014 caused a decline of 0.2-1.5 % in the annual GDP growth of Russia with a total GDP loss of 1-5 % over the medium term. The negative effect on Russian economy was amplified by a substantial drop in oil prices. In Section 4.1, we saw that the immediate effect of sanctions amounted to a roughly 5 % loss of GDP. Simulations of a total trade embargo on Russia by the current coalition of sanctioning countries suggested a loss of 1.5-11 % decline in Russian GDP, with the losses averaging about 7 %.

Thus, it appears that the effects of current sanctions on the Russian economy are not small from either an international or historical perspective. Moreover, these effects have occurred amidst rising prices for oil and other commodities. This is hardly a surprise: the sanctions imposed on Russia are

more extensive than in many other sanction episodes. Moreover, the effects of sanctions in most analyses are expected to build gradually, eroding Russia's long-term growth potential in particular (Aleksashenko, 2022; Demertzis et al., 2022; Portela & Kluge, 2022).

Of course, Russia is a relatively large economy with solid public finances and an autocratic governance system. Both of these features tend to limit the effectiveness of sanctions. Russia has also relied heavily on public sector measures to limit the effects of sanctions. The central bank has imposed strict capital controls and the government continues to pump money into the economy. Some key sanctions have been implemented with transition periods (this applies particularly to import restrictions on crude oil and petroleum products). While this might have been crucial to mitigate the effects on domestic markets and third countries, it delayed the effects of the sanctions. As argued in a recent Free Russia Foundation report (2023) and in line with the findings in previous literature discussed in Section 1, this delay also potentially weakened the efficacy of these sanctions.

Important factors affecting the effects of sanctions are trade diversion and sanctions-busting. Although the coalition of countries that have imposed sanctions on Russia is large, most emerging economies have not joined the coalition. This has provided Russia with some diversion potential, especially for exports (Babina et al., 2023; Simola, 2022b). As noted in Sections 2 and 4, there is plenty of evidence in the literature that underscores the importance of wider coalitions in increasing the effects of sanctions.

Regarding imports, there is less evidence of trade diversion. Several analyses suggest that Russian imports have substantially declined and Russia has been unable to replace all imports lost from sanctioning countries (Borio et al., 2022; Darvas & Martins, 2022; Simola, 2022b). This applies particularly to sanctioned products (Chupilkin et al., 2023; Simola, 2023). Nevertheless, there is also evidence suggesting that sanction evasion may have undermined the efficiency of sanctions for some products (Borio et al., 2022; Chupilkin et al., 2023; FRF, 2023).

It should be kept in mind that the preliminary aim of the sanctions has not been to cause a maximal drop in Russian GDP, but to restrict Russia's financial and technological capabilities to wage war. Several analyses provide evidence that the sanctions have severely limited Russia's access to foreign financing and impaired availability of technological products for Russia's industry (Borio et al., 2022; Demertzis et al. 2022; Simola, 2022b). While sanctions alone have not stopped Russia from continuing the war and will not do so in the near future, they remain an important tool in restricting Russia's ability to make war.

5. Concluding remarks

Russia's invasion in Ukraine led to imposition of unprecedented economic sanctions on Russia by a wide coalition of countries. Despite sanctions, the Russian economy has not collapsed and Russia has continued to make war in Ukraine for over a year. Russia's willingness to pursue its war of attrition has invoked debate on the effectiveness of sanctions. This brief sought to put this discussion in a broader international and historical perspective in the light of relevant economic research on sanctions.

A key goal of the sanctions regime imposed on Russia is not causing maximal decline in Russian GDP, but rather limiting the country's financial and technological capabilities to continue making war. Sanctions measures are designed for the targeted goals and thus many were initially formulated quite narrowly (although they have been broadened gradually).

Most of the research on sanction effects has traditionally focused on GDP, a simple aggregate measure, as higher overall economic costs tend to support the achievement of the ultimate political

goals. A preliminary data analysis suggests that the general economic effects of the war and sanctions on Russia are neither unprecedented nor insubstantial relative to previous sanction episodes. Russia's GDP has already declined substantially compared to expectations before Russia's invasion even with prevailing high commodity prices.

The literature suggests that the overall economic effects of sanctions can have been diluted to some extent by various factors. Russia is a relatively large economy with an autocratic political regime that is more equipped to cope with sanctions, at least over the short term. It is worth noting that several key sanctions only entered into force after fairly long transition periods. Russia has also been able to mitigate the effects by diverting some of its export trade to new markets as emerging economies have not joined the sanctioning coalition against Russia.

The literature also provides evidence that the sanctions have affected more strongly those parts of the Russian economy most important from the perspective of the key aims of the sanctions. Russia has largely lost access to foreign financing and investment. Russian imports have contracted substantially. While there is evidence pointing to a certain amount of sanction-busting with regard to imports, at least so far, the volumes have been limited.

Sanctions alone are unlikely to force Russia to stop its invasion of Ukraine, but they are an important tool in putting pressure on Russia to end its invasion and limit its financial and technological capabilities for making war. The literature also suggests that the sanctions will cast a long shadow on Russia's economic destiny.

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