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Why Sanctions Against Russia Work

Since the annexation of Crimea in 2014, Russia has been under an EU sanctions regime. While these sanctions have not prevented Putin from ordering an invasion of Ukraine in February 2022, in the overall picture, they have significantly weakened Russia's ability to wage war. This paper demonstrates the effectiveness of the sanctions and argues that the EU should maintain and tighten sanctions, thus further weakening the military and economic power of the Putin regime.

In the public debate on the usefulness and effectiveness of sanctions, the reality of non-ending war is often used as a blanket argument for the ineffectiveness of the existing sanctions. However, the effect of sanctions on political behaviour by autocrats is only a narrow target definition. Instead, sanctions also signal the unity of the sanctioning parties and exert their effectiveness by weakening the economic, financial and military capacities of the adversary.

According to the EU Council of Ministers, the European sanctions against Russia are designed to “weaken Russia's economic base, depriving it of critical technologies and markets and significantly curtailing its ability to wage war” (Council of the EU, 2022). Thus, the assessment of the effectiveness of sanctions should be made along these explicit objectives. However, due to the successive expansion to more than 500 sanctions, the overall analysis is not entirely straightforward.

Effects of sanctions on the Russian economy

The International Monetary Fund (2022) expects the Russian economy to contract by 6%. However, ever since the beginning of the war, access to reliable data on the Russian economy has been severely limited, and only embellished and highly

selected economic data has been published (Sonnenfeld et al., 2022). Furthermore, a variety of factors determine economic development, and it is not easy to attribute effects solely to sanctions. Consequently, the analysis must be built upon more unconventional data sources, such as high-frequency consumer data, data from Russian trading partners or data mining of shipping data. Based on such data, a group of researchers from Yale University's Chief Executive Leadership Institute paints a picture of Russia's economic situation that differs fundamentally from the Kremlin's official narrative (Sonnenfeld et al., 2022). According to this study, the sanctions significantly weaken Russia.

The Yale study finds that over 1000 Western companies have left Russia since the beginning of the invasion, reversing about 30 years of foreign investment. These companies represent with their revenues and investments about 40% of the Russian GDP and about one million jobs (Sonnenfeld et al., 2022), which does not necessarily mean that the Russian GDP shrunk by such a volume. Other domestic companies can step into the gap, but the withdrawal of companies must have a significant impact on Russia's productivity. In the long term, this withdrawal means that innovative force is missing. Likewise, a brain drain accompanies the company exodus. More than 500,000 Russians have already left the country, about 50% of whom have a high level of education or worked as skilled workers in the tech industry, for example (Sonnenfeld et al., 2022). Again, the effects of sanctions are not directly measurable, but the effects of sanctions on domestic quality of life are certainly a factor in the emigration decision.

The ineffectiveness of the sanctions on the Russian economy has often been emphasised with reference to the exchange rate of the rouble. The rouble fluctuated greatly over the course of the various sanction packages. In particular, sanctions that targeted state foreign exchange reserves and excluded major Russian banks from international credit markets led to a sharp depreciation of the rouble. However, the rouble gradually recovered and appreciated to its pre-war level within a few weeks (Figure 1). This development has often been used

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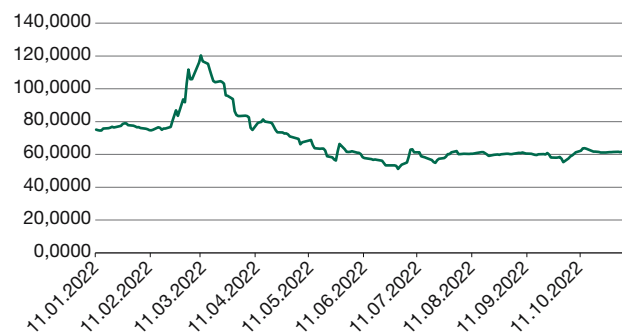
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Figure 1
Russian rouble to US dollar exchange rate



Source: Bank of Russia.

as a basis for criticising the effectiveness of sanctions. However, Itshoki and Mukhin (2022) show that the effectiveness of sanctions cannot be derived from exchange rate depreciation because there is no simple linear relationship between exchange rate and welfare. Thus, it is a correct observation that import sanctions lead to currency appreciation, while export sanctions and sanctions against foreign exchange reserves lead to depreciation. Despite the different effects on the exchange rate, the different types of sanctions have similar effects on welfare and distribution (Itshoki and Mukhin, 2022). Thus, unlike the indicators mentioned above, the fluctuating exchange rate is not a strong argument against the efficiency of sanctions.

The individual sanction measures were closely coordinated and harmonised between the sanctioning partners. This close cooperation among several countries has two advantages over unilateral, uncoordinated sanctions: first, a sanctions coalition increases the force of sanctions and substantially increases the welfare losses to the sanctioned state. Second, the welfare losses for the individual sanctioning states are reduced (Chowdhry et al., 2022). Thus, the scope and cohesiveness of sanctions are certainly a strong driver of the Russian recession and result in lower costs to the individual sanctioning states.

Import sanctions

Import sanctions cause production losses due to a lack of materials, inputs and technology. According to the data of Russia's main trading partners, Russian imports have decreased by up to 50% in the first half of 2022. Thereby, the sanctions do not only affect sanctioning countries (-60% in exports) but also non-sanctioning countries (-40% of exports; see Chorzempa, 2022). Many countries are reluctant to undermine sanctions and suffer the consequences in the far more important Western markets. These choices can be attributed to the

existing asymmetrical dependencies between Russia and its trading partners: while Russia imports a lot from a few trading partners, it is only one purchaser among many for these countries.

The crucial question for Russia is whether it will be able to substitute for the lack of imports from the sanctioning countries in the medium term. Apart from China and India, all other countries in the top ten ranking of the largest economies subscribed to the sanctions. China and India are thus the natural trading partners for Russia. Despite a few examples to the contrary, such as Turkey, Russian attempts to substitute for import shortfalls have largely failed in the first months after the war began, as can be seen in the examples of China and India. Chinese exports to Russia fell by an average of almost 15% from March to June 2022 compared to the respective months of the previous year (General Administration of Customs People's Republic of China, 2022). India has also seen a massive decline in exports to Russia, with a 22.7% drop in the first half of the year compared to the same period in 2021 (Indian Ministry of Commerce and Industry, 2022).

However, it remains questionable whether this trend will persist in the medium term. Since July, Chinese exports to Russia have been rising sharply again compared to the same month of the previous year (for example, +26.48% in August 2022 compared to August 2021). In India, too, export reductions are becoming smaller and smaller compared to the respective months of the previous year. However, until now, Indian exports remain smaller than the previous year's exports (-4.76% in August 2022 compared to August 2021). Nonetheless, doubts persist about whether rising Chinese and Indian imports can substantially replace critical technologies from sanctioning countries. Thus, by weakening Russia's economic base and, in particular, preventing access to critical technologies, the sanctions are impactful. The concrete industrial consequences of the sanctions and their consequences for Russia's war-fighting capability can be observed particularly well in the vehicle and weapons industries.

Effects of import sanctions on Russia's military capabilities

The combination of strict sanctions in the technology sector as well as the withdrawal of Western high-tech companies also has a concrete impact on the Russian armed forces. Russia is currently unable to replace the losses of military material with newly produced weapon systems. On a more structural level, the sanctions implemented back in 2014 have weakened the Russian armed forces.

Without the sanctions packages imposed in 2014, the course of the war against Ukraine would have played out differently. This can be illustrated by three examples: Russia was to receive four French Mistral-class helicopter-carrying

attack ships after a contract was signed in 2011 (RFI, 2011). This deal was cancelled in 2014. With these helicopter carriers, defending the port of Odesa would have become much more difficult for the Ukrainian armed forces. Western export restrictions on technology have significantly slowed the development and production of the 4+ generation Sukhoi Su-57 stealth fighters. According to pre-2014 plans, by 2022 the Russian Air Force intended to have more than 60 of these fighter jets, which are far superior to any Ukrainian aircraft (Sputnik News, 2010). However, sanctions delayed production so much that at the beginning of the invasion of Ukraine, Moscow had only five serial-produced Sukhoi Su-57, which could not even be deployed for combat missions. And the Sukhoi Su-57 still fares better than the long-planned, fifth-generation PAK DA bomber, which has not been completed to date, despite the original pre-2014 plans to have it flying by the late 2010s (Lavrov et al., 2020).

Since February 2022, sanctions against military and dual-use products have been significantly tightened. And despite repeated claims to be self-sufficient, the Russian defence industry remains heavily dependent on parts and components imported from the West. The T-72 tanks use French-made Thales thermal cameras and Japanese optics, but these are no longer available (Disclose, 2022); the production of several modern air defence weapons (9K37 Buk, 9K22 Tunguzka) had to be stopped due to the lack of German-made electronics (Vincent, 2022); and the production of H-101 cruise missiles has also suffered as Taiwanese, Dutch, US and Swiss components are no longer available (Byrne et al., 2022). Russia's most advanced satellite-guided 300-mm Tornado missiles use US-made gyroscopes, and there are further examples. Although inventories were immense, Russia has few modern cruise missiles left and can produce new ones only in very limited numbers. Moscow's capabilities to conduct precision strikes have thus been severely weakened through the sanctions.

The withdrawal of many Western high-tech companies has thus delivered a major, so far unrepairable blow to the Russian defence industry. Hence, since February 2022 Russia has only been able to rely on those Western-made parts and components that it stockpiled in advance, but these stocks are limited or depleted. Import substitutes cannot fully replace pre-2022 shipments of Western high-tech products. For example, vehicle production, including military vehicle production, has suffered greatly. The renowned truck manufacturer KAMAZ had to stop the production of all its modern military-use platforms because the Bosch fuel injectors produced in Germany are no longer available (TopWar, 2022). This affects the wheeled platforms of several Russian weapons, such as the Pantsir air defence system, as well as heavy military trailers, supply trucks and many special vehicles.

Ineffective export sanction: Energy

Discussions about possible sanctions against Russia's energy exports have dominated European discourse from day one of the invasion, and quite rightly so. Russia's main sources of income are commodity exports, especially in the energy sector, which account for up to 60% of Russian state revenues. Fossil fuel exports were the backbone of Soviet power and remain central to Putin's power today. Belton (2020) has shown how these hard currency revenues were also systematically used by Putin to increase Moscow's political influence in the West.

The EU energy sanctions adopted so far have not significantly reduced Russia's revenues. Instead, the EU alone has paid almost €100 billion for Russian fossil fuels since the start of the invasion (Center for Research on Energy and Clean Air, 2022). The core problem is that sanctions were discussed for a long time, but actual restrictions on energy imports from Russia came very late or are still pending. On the one hand, this has allowed Russia to find new customers. On the other hand, exports to Europe continued. The ongoing sanctions discussion against the world's most important gas exporter and second most important oil exporter has also driven up world market prices. Thus, although export volumes of Russian fossil fuels have decreased overall by 18% compared to the period February-March 2022, revenues have remained stable due to very high world market prices (Myllyvirta et al., 2022).

The coal embargo has worked insofar as Russia has not been able to find new customers to compensate for the drop in EU demand. In financial terms, however, coal plays a rather minor role in Russia's revenues (Myllyvirta et al., 2022), while oil and gas are more decisive. Compared to 2021, Russia was actually able to increase its oil exports by acquiring new customers – especially in China and India (Guetta-Jeanrenaud et al., 2022). Increased Russian energy exports boosted the value of total exports in the first half of 2022 by nearly 50% in China (General Administration of Customs People's Republic of China, 2022) and 228% in India (Indian Ministry of Commerce and Industry, 2022). The EU's Russian oil embargo only came into force in December 2022.

Russia is finding it harder to find new customers for its gas because the pipeline infrastructure is heavily oriented to the West and cannot be easily reorganised. Furthermore, the EU and particularly Germany were strictly against import restrictions in the first six months of the war. In the meantime, Russia has massively reduced its gas exports to Europe. Nevertheless, Putin continues to make good money from the remaining exports, as the shortage of the global gas supply, and the gas shortage in Europe in particular, has driven prices up enormously.

Instead of discussing energy sanctions for more than six months without implementing them, punitive tariffs on Russian energy imports would have been an effective way to quickly reduce Putin's revenue while not putting global energy security at risk (Wolff et al., 2022). The reason the tariff option has been rejected so far is because of two false assumptions: first, that it would raise prices for consumers more than other measures. However, it is doubtful that tariffs would have raised prices for consumers more than they rose in recent months anyway due to uncertainty and Putin's supply cuts. The second false assumption is that Putin would not accept tariffs and instead would stop oil and gas flows immediately. Oil is more fungible than gas, but Russia is responsible for only 12% of global oil exports. And although oil exports from Russia to Asia increased after the invasion began, it was only at an enormous discount of US \$35 per barrel (Sonnenfeld et al., 2022). Russia has relatively high production costs and the discount is therefore quite painful. Moreover, gas exports require fixed pipelines, and the infrastructure for exports from Russia to Asia is to a large extent lacking (Sonnenfeld et al., 2022). So in the short to medium term, gas exports to Europe are quite inelastic, giving the EU market power to ensure that tariffs are largely paid by Russia and not passed on to EU consumers, as shown by Hausmann et al. (2022).

Overall, the energy sanctions are ineffective because the long discussion about their introduction allowed Russia to continue exporting unvarying volumes to Europe at increased prices while finding new customers for oil. Meanwhile, as expected, Putin is turning the tables and sanctioning Europe by significantly cutting its gas exports. In the medium to long term, a green turnaround is needed to terminate global demand for fossil fuels and thus dry up the main source of income for many autocracies.

Conclusions

Already today, the EU is achieving a large part of its self-imposed goals with its sanctions. The Russian domestic economy has suffered massive damage and the sanctions have had an impact on the military capabilities of the Russian armed forces. Nevertheless, the EU has missed the chance to use the right instruments to dry up Putin's main source of income.

Sanctions against energy exports are fundamentally right but poorly designed in their current form. The good news is that this can be fixed. With punitive tariffs on Russian fossil fuel exports, the EU has the opportunity to further tighten its sanctions and inflict further damage on Russian financing of the war, even though Russia has now reduced gas exports and is thus sanctioning Western Europe. Overall, sanctions can be an effective tool in dealing with military conflicts. The EU should maintain and tighten them with partners to continue supporting Ukraine.

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