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Article

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Do Resource Sanctions Work?

KEY MESSAGES

- **Damage created by an export embargo on exhaustible resources is typically much smaller than the foregone revenues**
- **Sanctions prompt the sanctioned country to extract resources later**
- **With competitive resource markets, sanctions create no costs—to any of the countries**
- **With non-price takers, the sanctioned country and worldwide consumers suffer losses**
- **With insecure property rights, sanctions hurt the autocrat most if his or her job security is low, but his international financial assets are safe**

THE LOGIC OF SANCTIONS

As the signs mounted that Russia was preparing to invade Ukraine, a group of countries tried to dissuade it by wielding the threat of sanctions. The general logic was much like that for fighting crime: the threatened consequences of a criminal act are intended to deter the possible perpetrator from committing the crime. If the consequences are sufficiently drastic, this can prevent crime. The effectiveness of sanctions is related to the threatened cost they impose on the perpetrator. Thus, in a situation where a possible perpetrator commits a crime despite the threats of punishment, sanctions have lost their initial purpose: deterrence.

This is, however, not the end of the story. Sanctions can serve a purpose even in the face of a military incursion that has already begun. In this case, the purpose is to influence the duration and intensity of the conflict and the range of possible negotiated solutions to end the conflict. This may explain why, while we write this, the European Union is currently forging the tenth sanctions package against Russia. Ongoing fighting has costs for the conflicting parties, and sanctions can affect the cost of the ongoing conflict. The perspective that sanctions will be lifted once the conflict ends makes an early end of the conflict more attractive.

A few further aspects have been uncovered in the theory of international relations. These start with the puzzle of why the parties do not strike a deal that ends the violence. If a violent conflict continues, this imposes costs on the fighting parties, which might be higher for one side than for the other. However, as long as the sum of costs is negative on balance, bargaining and early conflict resolution lead to a peace dividend that can be shared among the conflict parties.

Differences in the cost of continued violence make one party more "patient" than the other party, and own patience is an advantage in negotiations. However, differences in patience do not remove the puzzle of enduring conflict. It only suggests that the more patient conflicting party should attain a larger share in the peace dividend. Sanctions that impose higher ongoing costs on the opponent than on one's party would be advantageous and give the own party a larger share in the peace dividend. However, in line with Ronald Coase's (1960) fundamental insights, immediate conflict resolution should result. The real puzzle is that the conflict endures.

Economists and political scientists have invoked a number of reasons why costly conflict might endure. These include asymmetric information about each other among the fighting parties (Powell 2004). Fighting itself is a means to learn about the coordinates that determine the conflicting party's bargaining position, including the adversary's resourcefulness and resolve, assessment of possible outcomes, and political constraints such as audience costs. In the course of the enduring conflict, the two parties might learn about each other, and this might make a successful bargaining outcome more feasible.

The second major obstacle to successful negotiations is the problem of credibility (Powell 2006). Peace treaties are helpful only if they lead to a security architecture that makes them self-enforcing. This problem is significant, particularly in an international context of "Realpolitik," where there is no ultimate enforcer of peace contracts. Credible sanctioning threats might play a role in this context and help enforce a peaceful order. A vital aspect in this is the cost imposed on the sanctioned adversary in comparison to the cost imposed on the sanctioning party. In what follows, let us look at this cost aspect for a particular set of sanctions prominent in the Russia-Ukraine conflict.

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THE COST FLOW OF OIL AND GAS SANCTIONS

In the Russia-Ukraine conflict, the threat of sanctions has failed. Western countries announced they were willing to impose harsh sanctions in case of an invasion. When the invasion occurred nonetheless, they were willing to incur high costs to end the war and force Russia to withdraw from Ukraine. The sanctions were intended to target the leadership in Moscow, not the Russian population. In addition, they should cost the West as little as possible. However, when there was no sign of Russia giving in, politicians and the public entertained harsher measures, such as a halt to all gas and oil deliveries from Russia. Even though such a move could significantly impact the population in Western countries, from energy shortages to rapidly rising prices, most of the population seemed open to such measures. According to a poll conducted shortly after the Russian invasion, 55 percent of Germans favored halting all oil imports from Russia.[1]

The German government has been somewhat hesitant to agree to an oil and gas embargo, quite in line with the theoretical considerations outlined below.

OIL EXPORT SANCTIONS ARE JUST AN ASSET SWAP

There needs to be more clarity about what consequences an oil and gas embargo will have for the economy and society. It is unclear whether stopping all gas and oil deliveries from Russia would even affect the Russian government and the oligarchs associated with it. In a recent research paper (Konrad and Thum 2023), we have investigated under which conditions sanctions on the export of depletable resources can harm the sanctioned resource owner.

In the debate, the focus is on Russian revenues from the sale of resources to the West. The somewhat simplistic argument is that Russia will suffer losses to the extent of these revenues if it is no longer allowed to export resources to the West. An embargo, however, does not make these resources vanish. Russia can still sell some resources to countries that do not join the sanctions. Then, only the resource flows are diverted. Russian oil now flows to countries that previously sourced oil from the Middle East. For example, Russia has replaced Iraq as the most significant oil supplier for India. Hence, Russia's damage is not equal to the foregone revenues from sales to Europe; instead, Russia's sanction costs are the hassle of creating new transport routes and the discount on Urals crude oil.[2]

Even in the case that Russian oil exports are effectively limited in quantity, the ruling elite in Russia need not suffer any real economic damage, because even if the sanctions last several years, the oil will not have disappeared. Instead of being sold in the present, the oil will be sold in the future. The economic theory of exhaustible resources shows that in competitive markets with clearly defined property rights, it makes no difference to the present value of profits of single resource owners when they sell their oil. This insight goes back to the famous seminal paper by Harold Hotelling (1931). The basic idea is that from the perspective of a resource owner, extraction is merely an asset swap. Instead of holding wealth in the form of oil in the ground, some of the oil is extracted and sold; the revenues are invested in financial assets. In a market equilibrium, the (marginal) resource owner can be indifferent about whether to extract an additional barrel of oil today and earn the interest on the financial investment, or keep the barrel in the ground for longer. Accordingly, the Russian government would not care whether it sells its oil today or in ten years. In competitive markets, the temporary loss of market access for an oil-exporting country imposes exactly no cost to any of the countries. Additional exports from other countries will exactly offset the reduced oil exports from Russia. If resource sanctions are entirely neutral, should we care at all whether such sanctions are implemented? Yes, because neutrality crucially depends on competitive markets, where the sanctioned country is not a dominant exporter, and on secure property rights for natural resources and financial assets. We will discuss the consequences of imperfect competition and incomplete property rights.

MARKET POWER CONSIDERATIONS

The resource markets are certainly not as perfect as in Hotelling's model. Interestingly, market power per se makes no difference in a world without sanctions. For instance, under isoelastic demand, a resource monopolist will follow precisely the same extraction path as a competitive oil industry and, therefore, generate the same price path (Stiglitz 1976). The equivalence of competitive and imperfect markets also holds for a duopoly with two equally large resource owners, e.g., Russia and the MENA countries. Will sanctions on one resource owner be neutral as in the competitive case? No, because a sanction on Russia will effectively increase the other, non-sanctioned country's market power. The sanction forces Russia to delay oil extraction. The non-sanctioned oil exporter compensates for part of this negative supply shock but not all of it. The resource owner finds it optimal to keep the supply slightly lower to exploit its current market power. This drives up prices now and lowers them in the future. Hence, sanctions on Russia in a market with two big resource exporters benefit the other resource exporter. It harms the consumer countries, as they must pay more for their oil imports (in present value terms). Finally, the sanction creates economic

[1] https://www.tagesspiegel.de/politik/mehrheit-der-deutschen-fur-importstopp-von-gas-und-ol-aus-russland-6596143.html.

[2] In December 2022, the discount amounted to $12-$15 per barrel versus a monthly average of Brent crude oil (https://www.reuters.com/business/energy/russian-oil-sold-india-below-price-cap-buyers-market-2022-12-14/).

damage for Russia. However, the economic damage is again not equivalent to current foregone sales as often claimed in the political debate. The damage is just the lower present value of revenues because of the depressed price in the future.

POLITICAL INSTABILITY

An even more critical aspect is the incomplete property rights of Russia's resource owners. Resource economics has pointed to the role of political instability in a government's incentive to exploit its country's natural resources. Autocratic country leaders benefit from the extraction resource flow only as long as their time in office lasts. The threat of losing office incentivizes them to speed up extraction (Long 1975). As a countervailing effect, weak property rights could slow down exploration and investment in capital for drilling and extracting. The results by Bohn and Deacon (2000) on the comparative strength of these two effects are somewhat inconclusive. Merrill and Orlando (2020) find that oil at risk accelerates exploitation.

In the Russian context, a regime change that puts Vladimir Putin out of office is an event with positive, albeit unknown, probability. However, expert assessments and betting markets for this event exist,[3] with probability estimates fluctuating from a few single-digit percentage points to above 20 percent. Applying Long's (1975) logic, the Russian president prefers to extract resources today to extracting them years later. An export sanction forces the autocrat to switch to extracting later, i.e., to the less preferred alternative. Hence, the sanctions impose some burden.

As Konrad et al. (1994) explained, however, political uncertainty is only one type of uncertainty that can affect the speed of extraction the autocrat finds desirable. Equally important is whether the autocrat can safely stash away the sales revenues for the times after he or she has lost office. Decades ago, offshore financial centers provided this safety. Overthrown dictators could trust that their offshore savings accounts were safe and could use these savings for a good life after losing political power. The recent loss of the safety of offshore savings changes the autocrat's arbitrage calculus. It makes an asset swap towards offshore savings less attractive and reduces their incentives to speed up resource extraction. If, in the extreme case, the autocrat automatically loses their offshore financial assets together with losing power at home, the differential benefit of early extraction vanishes. Suppose the probability of losing offshore financial assets and political power is positive but still smaller than that of losing political power only. In that case, the autocrat's incentive of early extraction persists. The Russian President and the Russian oligarchs are probably uncertain whether they will still have control over Russian natural resources. Over time, many oligarchs have fallen from grace, and Putin's rope networks will not last forever. Therefore, the Russian elite has significant incentives to extract and sell as much oil as possible as quickly as possible if they can bring the sales profits to safety.

The sanctions are costly for the Russian elite because they must postpone resource extraction to a future when they may no longer benefit from the proceeds. In this case, the sanctions do not affect world market prices for oil. The other exporter countries simply compensate the exports of the sanctioned country. Hence, there is no damage to the consumer countries. Since the Hotelling path of oil prices does not change, the other exporter countries' resource rents are unaffected by the sanctions, the only party impacted being the Russian resource owners. The damage from the export sanctions is considerable if the probability of remaining in power is low and the financial havens are safe.

Instead of an export sanction, a shift in Russian oil flows into the future can also be achieved via hindering access to financial safe havens. The West does not have to stop oil exports at all. It is enough to deprive the oligarchs of the safe havens to which they shift their profits. If the Russian oligarchs can no longer safely invest their funds in Western banks, their incentive to sell quickly as many resources as possible on the world market will also dwindle.

However, combining the resource sanctions with restrictions on access to financial safe havens is not advisable. Attacking the financial safe havens for oligarchs makes immediate resource extraction less attractive, thereby reducing the economic impact of export sanctions. Here, the insight from the Hotelling model is that inflicting economic damage on Russia requires focusing on one instrument only. If an export sanction is imposed, the financial assets should be left untouched to maximize the damage of the sanctions. Conversely, if the policy aims at financial safe havens, then sanctions are unnecessary and useless. The latter policy has the advantage of reducing the Russian oligarchs' wealth from the oil still in the ground at the same time as targeting the wealth accumulated from previous extraction.

FRICTIONS IN THE SHORT RUN

The Hotelling argument and the considerations on incomplete property rights abstract from features of the energy resource markets in the short run. Due to frictions in the means of transport of such energy resources and well as in the way extraction rates can be adjusted in the short run, a halt in oil supplies may have adjustment costs. These can be very high for both Russia and the West.

Nevertheless, the Hotelling argument and the considerations on incomplete property rights distin-

[3] The community prediction over time, for instance, for a Russian coup or regime change by 2024 can be found at https://www.metaculus.com/questions/10246/russian-coup-or-regime-change-by-2024/.

guish export embargoes on fossil energy resources from embargoes on produced goods. Applying the Hotelling logic reveals that the design of effective sanctions crucially depends on the structure of the resource market (in particular, on market power) and the security differential between political power and the safety of offshore savings. This reduces the attractiveness of embargoes on energy resources, compared to other means to increase Russia's cost flow from the ongoing war.

POLICY CONCLUSIONS

The threat of sanctions has failed in its primary purpose, as it did not deter Russia from invading Ukraine. Nevertheless, the sanctions still have a function. They can increase pressure to end the conflict and favorably influence a negotiated outcome. To do so, the costs of sanctions must last throughout the conflict phase and end when the conflict ends. Furthermore, sanctions should primarily harm the sanctioned conflict party during the continuation of the conflict. This applies less to energy export embargoes than to many other sanctions. Indeed, falling sales revenues today are not a good gauge of the effectiveness of resource export embargoes, since oil not sold today does not vanish and can be sold in the future. A substantial sanctioning effect will result if—in the absence of sanctions—the ruling elite in Russia wants to extract energy resources as quickly as possible and safely invest the proceeds abroad. Paradoxically, if this safe opportunity to invest the proceeds offshore ceases, it can also reduce the effectiveness of export sanctions on natural resources.

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