Nationalities Papers (2024), 1–13
doi:10.1017/nps.2024.75

SPECIAL ISSUE ARTICLE

The War in Ukraine: The Deterrent Effect of Weaponized Interdependence

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Abstract

This article examines Putin's expectations prior to Russia's full-scale invasion of Ukraine and seeks to answer the following question: Why did Russia invade Ukraine regardless of the West's threats of severe economic penalties raising the cost of an attack? I argue that the confidence in Vladimir Putin to invade Ukraine, despite his awareness that the stakes could go well beyond the borders of Ukraine and increase the cost of war for the Kremlin, was based on Putin's calculations that the West would be reluctant to change or substantially displace established rich-get-richer economic structures and would not apply high costs on the Kremlin for military aggression against Ukraine in case of a successful blitzkrieg campaign. By utilizing an extended deterrence game analysis, the article demonstrates how Russia, Ukraine, and the West interacted in decision-making, taking into account the reactions and choices of the other players, and adds to the current body of knowledge by introducing an expanded approach to deterrence strategy based on economic interdependence and the scale of the anticipated conflict.

Keywords: Ukraine; war; weaponized interdependence; Russia; extended deterrence

Introduction

Putin launched the invasion of Ukraine despite his full awareness that the West promised to respond by imposing severe economic sanctions and substantially reinforcing the eastern flank of the North Atlantic Treaty Organization (NATO). The West had dragged its feet before imposing any costs on Russia in its previous military offensives in Georgia in 2008, or Ukraine in 2014. However, in stark contrast to the way the West handled previous Russian military aggressions, the transatlantic partners stood shoulder to shoulder, sending some of their most advanced anti-tank and anti-aircraft weapons systems to the Ukrainians. Putin's invasion raises a question about the Kremlin's strategy while preparing for the war with Ukraine.

This article examines Putin's calculations prior to this latest offensive and seeks to answer the following question: Why did Russia invade Ukraine regardless of the West's threats of severe economic penalties raising the cost of an attack?

A large body of scholarship on deterrence captures various conceptual distinctions of deterrence —general versus immediate (Quackenbush 2011), direct versus extended (Mazarr 2018), narrow versus broad (Mazarr 2018), denial versus punishment (Noll, Bojang, and Rietjens 2021), nuclear versus conventional (Wirtz 2018), classical versus perfect (Zagare and Kilgour 2000), unilateral versus mutual (Zagare 1987)—and agrees that effective deterrence requires the shaping of the perceptions of an adversary to see if the alternatives to aggression are more attractive than war. An

important development in deterrence theory has been to model deterrence situations by targeting strategic interactions of more than two actors in extended deterrence. The argument of extended deterrence states that a third party can successfully deter an aggressive state from attacking (Fearon 1994; Smith 1996). But the logic also works in reverse: an attacker can directly impact the third party's resolve to fight by increasing the costs of intervention if the aggressor's goals are modest enough (Werner 2000; Quackenbush 2011).

Another strand of the literature focuses on theories of economic interdependence and conflict. The argument is that trade and other forms of economic exchange promote peace by increasing economic opportunity costs (Weede 2004; Gartzke 2007). This argument has been debunked numerous times. For example, Albert Hirschman's (1945/1980) book claims that asymmetrical dependence of small powers on great powers can give the latter great leverage over the former. Other criticisms include reversed causality; it is peace that creates the conditions under which trade can develop (Blainey 1988). Overall, the findings suggest that trade tends to reduce the probability of war (Russet and Oneal 2001), but there are many instances when trade continues between warring parties (Barbieri and Levy 1999). Levy and Thompson (2010) suggest separating dyadic and systemic relations between the states and argue that economic interdependence may help to reduce the probability of war between the aggressor and the third party, but may also increase the probability of war between the aggressor and the target.

In this article, I combine the two perspectives outlined above and add the time frame component for war as an influencing factor in the decision-making process. I argue that economic interdependence between the aggressor and the third party can free up the aggressor to attack the target because of anticipation that the third party would choose to preserve economic gain over punishing the aggressor. However, this deterrent effect only opens a short window for the aggressor to reach its goals and keep the third party at bay without activating the counterforces reducing the economic dependency regardless of the high costs of doing so. More specifically, I argue that the confidence in Vladimir Putin to invade Ukraine, despite his awareness that the stakes could go well beyond the borders of Ukraine and increase the cost of war for the Kremlin, was based on Putin's calculations that the West would be reluctant to change or substantially displace established rich-get-richer economic structures and would not apply high costs on the Kremlin for military aggression against Ukraine in case of a successful blitzkrieg campaign.

This research adds to the current body of knowledge by introducing an expanded approach to deterrence strategy. It proposes the utilization of economic interdependence and the assessment of the potential conflict's magnitude as key factors in enhancing deterrence efforts. The war in Ukraine provides a great demonstration of how an aggressor could plan a short-term offensive regardless of the awareness that the long-term war would result in high costs in both economic and political spheres. Understanding the aggressor's beliefs, preconceptions, and ability to deter a third party is important because it suggests the limits of economic interdependence to the effectiveness of deterrence.

The remainder of the study is organized as follows. In section one, I develop a theory building from the past literature. Section two utilizes an extended deterrence game analysis to examine how Russia, Ukraine, and the West interacted in decision-making, taking into account the reactions and choices of the other players. Section three covers the nature of economic interdependence between Russia and the West, and uncovers the weaknesses of each party that could be weaponized by the aggressor state. Section four focuses on the deterrent effect of economic interdependence by examining the West's reactions to Russia's offensive politics for the past two decades. I conclude by discussing how my findings enhance general knowledge in the areas of international affairs, global economic networks, and security studies.

Theory

The theory is built on the principles of extended deterrence. Consider a scenario involving three states: a potential attacker, a potential target, and a potential third-party defender. The attacker

https://doi.org/10.1017/nps.2024.75 Published online by Cambridge University Press

must decide whether or not to launch an attack on the target, while the target needs to decide whether to resist or not. The third-party defender has to determine whether to provide assistance if the target is attacked. The decision of the aggressor is influenced by both the resolve and the capability of the third-party defender to come to the target's aid. If the threat of the third party to intervene is credible enough, the attacker will be deterred. If the aggressor incorrectly estimates the third party's credibility, the war becomes multilateral because the third party follows on its threat to retaliate (Fearon 1995; Smith 1996). According to Gartner and Siverson (1996), potential aggressors tend to lose multilateral wars if they make "mistakes" by incorrectly anticipating the determination of the third party to intervene on behalf of the target and only engage in the conflicts in which they predict a high probability of success.

In this instance, not only do expectations about the third party's actions influence the attacker, but the attacker's actions influence the third party. According to Werner (2000), if the third party's willingness to intervene is not unconditional, then the aggressor has the ability to manipulate the level of threat to weaken the third party's motivation to prevent an aggressive state from attacking a target, even when the third party expresses concern. In other words, the attacker can "neutralize" the third party from getting involved in the conflict on behalf of the target.

I show how economic interdependence provides an explanation of how an attacker can keep an interested third party at bay using economic ties. Farrell and Newman (2021) offer an insight that interdependence is not just a constraining effect on the likelihood of war, but can push actors to use trade and finance as coercive tools to get their way without war. According to their logic, once established, economic network structures are hard to challenge because of the potential costs of changing or substantially displacing existing network structures. As a result, interdependence generates power imbalances among states creating the potential to weaponize networks to exploit the vulnerabilities of disadvantaged states. According to this logic, by establishing economic dependency, an aggressor can forestall the involvement of the third party in the conflict by making it more costly for the third party to displace the established economic structures than intervening on behalf of the target state.

I also add another component—the scale of the anticipated conflict between an attacker and the target when the third party is being deterred from intervening on behalf of the target with economic dependency on the aggressor state. Following Hirschman's (1978) argument, a country whose trade or investment is dominated will, at some point, try to loosen its dependence by cutting or diversifying its ties. This implies that the deterrent effect created by economic interdependence is not indefinite. Because of the tendency of the third party to reduce the existing economic asymmetry triggered by economic or political considerations, the deterrent effect is only effective for a short bilateral conflict because, otherwise, the third party will start activating the counterforces, reducing the economic dependency and increasing the likelihood to intervene on behalf of the target. This happens because of the costs the third party starts incurring politically and economically by being tied to an aggressor state. Also, the third party receives an opportunity to widen the room for maneuvering due to a disparity of attention that favors the third party, allowing it to transform an asymmetric relation into a relation of reduced asymmetry.

I explore just such a possibility in the next section by devising a game theoretic model that enables me to explore the conditions under which the attacker is able to undermine the third party's resolve and the conditions under which deterrence fails because an attacker fails to preserve the costs forestalling the third party's resolve to intervene on behalf of the target.

Russia's Calculations in the Extended Deterrence Game

The game explores a general pattern across a whole set of cases to examine the war in Ukraine. The players are attacker *A*, target *T*, and a third-party defender *D*. I focus solely on the strategic interaction between an attacker and the third-party defender. In this game, *A* chooses whether to attack and the third party *D* chooses whether to intervene on behalf of the target *T*. This is because

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the expectation is that the immediate target, *T*, always fights back if attacked. Pre-war polls in Ukraine showed that 57.5%[1] of Ukrainians were ready to offer armed resistance or expressed a readiness to resist by participating in civil resistance to defend their country against a Russian invasion. Also, five days before Russia launched the war against Ukraine, Ukrainian president Volodymyr Zelenskiy stated that Ukraine's resolve was to defend itself, with or without Western partners ("Zelenskiy Says" 2022). Since the target's decision does not change, this player is not an integral part of the game calculation (see Figure 1).

The payoffs in the game are presented without uncertainties because Russia knew of the West's response to its decision to invade Ukraine. Being presented with Russia's demands to roll back from Eastern Europe, NATO faced an escalation dilemma in the form of a choice between credibly threatening Russia with painful consequences for jeopardizing NATO membership or compelling Russia to reverse its behavior of threatening Ukraine, with all the risks and costs of doing so. NATO's public declarations that it would be protecting its allies left Ukraine at Russia's mercy (Roth 2021). These declarations came out amidst the West's warnings of potential sanctions against Russia in case of military aggression against Ukraine (Garland 2022).

Sanctions, while a form of intervention, are generally viewed as a lower-cost, lower-risk course of action between diplomacy and war, and have been the defining feature of the West's response to many geopolitical challenges and countries, including North Korea, Iran, Venezuela, and many others. In addition, sanctions have been the go-to tool when the West wanted to "do something" about Russia, and most of the penalties over the past decade have been economically minor and ineffective at changing Russian policy (Fishman and Miller 2022). When it comes to sanctioning Russia, Putin was aware that, in the past, the West faced a recurring challenge: the most impactful sanctions would be economically costly to the West. The option for the West to completely ignore Russia's actions was an unlikely scenario as it would have demonstrated the lack of interest by the West in Russia's violation of international norms of behavior, potentially exposing the West to economic and political risks, and encouraging Russia to proceed with its plans without incurring any costs.

Since the aggressor and the third-party defender know each other's preferences, there are three outcomes of the game. One could observe the status quo with the payoff *(0;0)* for *A* and *D*, where the first component reflects *A*'s payoff and the second reflects *D*'s payoff. The status quo scenario was

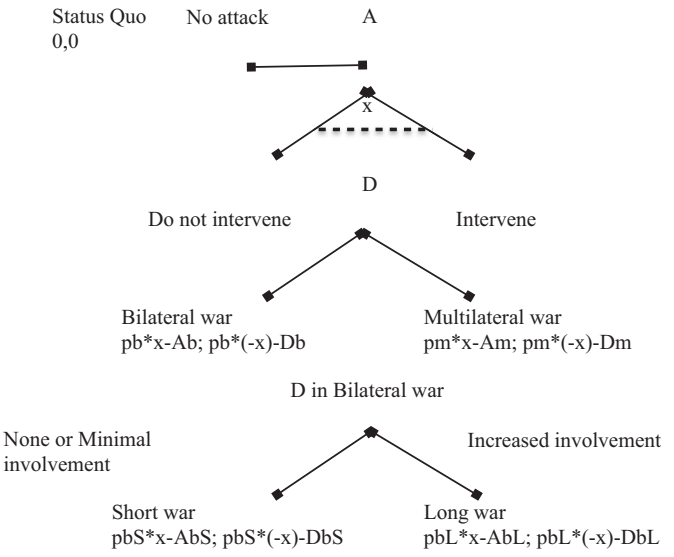

Figure 1. Illustrative Extended Deterrence Game

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unacceptable for the Russian government. If Russia had chosen the outcome of not invading Ukraine, in its perception, it would have lost political influence over Ukraine. According to Putin, "true sovereignty of Ukraine is possible only in partnership with Russia" (Putin 2021).

The remaining two scenarios are bilateral war: (1) if *A* chooses to attack and *D* chooses not to physically intervene but imposes sanctions, and (2) multilateral war if *A* attacks and *D* physically intervenes on behalf of the target. If the war remains bilateral, the players' expected payoffs are *(pb*x-Ab; pb*(-x)-Db)*, where *pb* represents the attacker's probability of victory in a bilateral war, *x* denotes the magnitude of the proposed change, *Ab* and *Db* represent the costs for fighting a bilateral war for *A* and *D* respectively. If the war becomes multilateral, the payoffs are *(pm*x-Am; pm*(-x)-Dm)*, where *pm* represents the attacker's probability of victory in a multilateral war, *Am* and *Dm* are the costs for fighting a multilateral war for *A* and *D* respectively.

The *A*'s utility increases with x, while *D*'s utility decreases with *x*. The players' expected payoffs show that the type of war might impact their decisions. The probability of *A*'s victory is greater in bilateral than in multilateral war: *pb>pm*. The costs of war for both the attacker and the third party are greater in a multilateral war than in a bilateral war: *Am>Ab; Dm>Db*. The consequences to an attacker from the third party ensure that he always prefers to fight a bilateral war. The third party bears *the* costs of *Dm* in multilateral war. The greater the costs, the greater the desire to avoid those costs if possible. In the case of the war in Ukraine, NATO's public declarations that it would not physically intervene on behalf of Ukraine decreased the probability of the multilateral war scenario.

Instead, knowing that the West would impose sanctions, the Russian government made the decision to invade Ukraine. Expert predictions varied, based on calculating the risks for Russia. Many viewed full-scale invasion as unlikely as Russia didn't have enough force to conquer and control all of Ukraine, while the benefits of such an endeavor would be damaged by its costs. Putin, however, viewed the costs differently, by banking on Kyiv to fall quickly. Numerous interviews with Russian captives, which had been circulating on Ukrainian social media, provide evidence of the assumption in Moscow that the "special military operation" in Ukraine would be fast and successful. The videos suggest that Russian soldiers were given food and fuel supplies for only two or three days (Harding 2022). The Ukrainian army found (in Irpin, a suburb of Kyiv) warehouses with Russian parade uniforms suggesting that the invading army planned to organize a large parade in Kyiv to celebrate their victory in Ukraine.

Putin's resolve to invade Ukraine based on the expectations of a fast military campaign has an interesting implication: the impact of the scale of the bilateral conflict on the third party's resolve to provide more support or intervene on behalf of the target. The length of the conflict is in the eye of the beholder and not some absolute quality. The costs for a short bilateral war are smaller than for a long bilateral war with the respective expected payoffs *(pbS*x-AbS; pbS*(-x)-DbS)* and *(pbL*x-AbL; pbL*(-x)-DbL)*. In these utilities, *pb* represents the attacker's probability of victory in a bilateral war; *x* denotes the magnitude of the proposed change, *AbS, AbL*, and *DbS; and DbL* represents the costs for fighting a bilateral war for *A* and *D* respectively in a short and in a long bilateral war.

The third party strengthens its support for the target if its expected utility for the stronger support exceeds its expected utility for the initial reaction to the conflict between the aggressor and the target: *pbL*(-x)-DbL>pbS*(-x)-DbS*. Rearranging terms imply that *D* strengthens its support for the target if *x>DbL-DbS/pbS-pbL*. If the stakes of the short bilateral war are low enough, then the costs of stronger support to the target outweigh the third party's desire to influence the outcome.

The attacker knows that if he chooses to attack, his maximum expected utility from the war is *pb*x-Ab*. An aggressor chooses to attack the target only if *pb*x-Ab*>0, but the attacker will also prefer *pbS*x-AbS* over *pbL*x-AbL* and may not be prepared to endure *pbL*x-AbL*, even if it is smaller than the cost of a multilateral war: *pm*x-Am*. We can observe just such a scenario in Ukraine. Ukraine managed to avoid a fast defeat and the West made the decision to provide financial and military support to Ukraine. The Kremlin miscalculated. Putin, however, was not alone in his misjudgment of the Ukrainian resolve to fight for their land. In March 2022, top US

https://doi.org/10.1017/nps.2024.75 Published online by Cambridge University Press

intelligence officials admitted that they also underestimated Ukraine's ability to defend itself against Russia's invasion (Merchant 2022).

Russia's hopes for a fast campaign appeared unfounded, as its military aggression in Donbas and the annexation of Crimea in 2014 had galvanized public support for Ukraine's Western leanings. In September 2021, 81% of Ukrainians said they had a negative view of Putin, according to the Ukrainian news site RBC-Ukraine (Kulakevich 2022).

The model not only predicts a bilateral war but also suggests that, under conditions of complete information, an aggressor not only tries to avoid a multilateral war but prefers a short bilateral war over a long bilateral war. An attacker can prevent both physical intervention and stronger support for the target by the third party by limiting the stakes of the war, undermining the third party's resolve. The greater the third party's costs, the greater the threat the attacker can pose before the defender becomes resolved enough to either intervene or increase its support to the target. The third party's willingness to intervene or increase its support is determined in part by the nature of the crisis—short or long—between the attacker and the target. By manipulating the nature of the crisis, the aggressor can deter the third-party defender.

Putin's calculations to engage in a full-scale invasion of Ukraine demonstrate the need to merge the literature on global markets and international security. The common rhetoric on globalization, suggesting greater economic exchange, thereby reducing the potential for conflict, has been challenged by Russia's interest in manipulating the power asymmetries of interdependence by Putin's plan to push the West into the role of a neutral observer of Russia's efforts to complete the takeover of Ukraine in a short war.

Nature of Economic Interdependence Between Russia and the West

I conceptualize economic interdependence as the mutual dependence of the participants in an economic system, whose trading relationship of the goods they cannot produce efficiently for themselves would be costly to rupture. Economic dependence within networks between Russia and the West appears more pronounced in some sectors than in others, depending on the countries' needs, opening opportunities for the advantaged states to weaponize existing relationships in their interests. While European countries were heavily dependent on Russia's oil, gas, and raw materials, the US was heavily relying on Russia's uranium. Russia's "weak" spot appeared to be high-technology goods.

Before Russia's full-scale invasion of Ukraine, Russia's economy was greatly intertwined with the Western economies especially, with Europe and the US together supplying 48.9% of Russian total imports[2] in 2021. Europe was Russia's main supplier of foreign goods, accounting for 43% of Russian total imports, significantly more than China which represented 25%.

Russia's trade profile is one in which Russia exports minerals, oil, and gas, and imports manufacturing products. In 2021, exports of mineral fuels, oils, and distillation products represented 43% of Russian total exports, and 52% of these exports went to Europe. Besides energy exports, Russia was one of the biggest exporters of raw materials to Europe, having a monopoly of supply in certain countries. For example, in 2021, being the seventh-largest exporter of gold, the world's 7th most traded product, accounting for 4.39% of the world's supply, it exported 80% of gold to the UK. In 2021, Russia also accounted for 10% of the world's supply of nickel, which is used to make stainless steel and vehicle batteries, and exported 92.4% of it to Finland.[3] Such a lack of diversification underscores the dilemma certain Western governments faced in seeking to punish Russia without hurting their own access to key commodities. For example, until December 2022, an oligarch chief executive of Nornickel, a Russian nickel and palladium mining and smelting company, Vladimir Potanin, also a former Russian deputy prime minister under Boris Yeltsin, was included only in the British sanctions list. Even after the United States imposed personal sanctions on Potanin on December 15, 2022, his companies Nornickel and Interros, with large stakes in mining, metals, energy, finance, retail, real estate, and other sectors, have not been

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sanctioned or affected by the personal sanctions against their owner. It was only in April 2024 that the U.S. Department of the Treasury, in coordination with the United Kingdom, prohibited the importation of aluminum, copper, and nickel from the Russian Federation produced on or after April 13, 2024.

In terms of imports, the Russian economy relied heavily on European and US companies for many imported products. In 2021, the largest share of Russia's imports (43%) came from Europe, 25% came from China, and 5.88% from the United States. Some of the most important product categories were medicines, vehicle parts, IT components, machinery parts like valves and pipes, and iron and steel. Russia has been highly reliant on imports of high-tech goods. Biotechnology and life science products were the largest categories of high-tech imports to Russia and the EU accounting for roughly 60% of these imports in 2019. The EU also exported 68% of nuclear technology to Russia and the US accounted for over 60% of aerospace technology (Marcus, Poitiers, Grzegorczyk, and Weil 2022). Heavy dependence on Western high technology explains the financial and technological sanctions the West imposed on Russia shortly after President Vladimir Putin launched a full-scale war in Ukraine. The sanctions target Russia's access to advanced technology. While many Western tech companies suspended all dealings with Russia, many supply channels to Russia have remained available through third-country suppliers. The investigations show that at least $2.6 billion of Western computer components and other electronics flowed into Russia between April and November 2022 (Stecklow, Gauthier-Villars, and Tamman, 2022).

EU's Energy Dependency on Russia

In 2021, Russia was the largest natural gas-exporting country in the world and the second-largest crude oil and condensates-exporting country after Saudi Arabia. Even though the EU has worked on a common energy policy to strengthen its energy security and the internal energy market ever since the gas disruptions that hit some eastern EU countries in the winters of 2006 and 2009, when Russia cut off gas supplies to Europe while clashing over gas prices with Ukraine, the war in Ukraine exposed the EU's heavy energy dependency on Russia. Energy represented 62% of EU total imports from Russia. Such influence over energy exports has given the Kremlin an ability to disrupt global oil and gas markets, and a reason to believe he, Putin, could avoid harsh punishment if he decided to invade Ukraine or undertake major efforts to destabilize the Ukrainian government.

In 2021, the EU imported 27% of oil and 46% of coal from Russia; just over 4% of Russia's oil exports went to the United States. Shortly after Russia invaded Ukraine, in March 2022, the US banned imports of Russian oil and gas into the US, trying to deprive Moscow of revenue after it invaded Ukraine. The move was matched by a UK phase-out of Russian oil imports; however, the EU managed to agree on a gradual reduction of Russia's oil imports, but only in June 2022. The EU's sixth package of sanctions included a partial embargo on Russian oil. The sanctions banned seaborne imports of Russian crude oil on December 5, 2022, and petroleum product imports on February 5, 2023.

The EU was even more dependent on Russia's gas, making up as much as 40% of the region's natural gas supplies and prompting fears about what might happen if Moscow cut off some or all of that supply. In 2021, almost one-fifth of Russia's total gas exports (19%) went to Germany alone, making it the top individual recipient for the year. Next was Turkey at 11%, then Italy at 10%. Germany and France were increasingly criticized in June 2022 for being too reluctant to cut ties with Russia, even going as far as suggesting the two were trying to appease Russian President Vladimir Putin (Noyan 2022; Kottasova 2022). However, determined to reduce gas dependence on Russia, in late July 2020, the EU members managed to approve a draft European law designed to voluntarily reduce 15% of gas use between August 2022 and March 2023, with some countries receiving exemptions to avoid rationing.

In addition to economic dependence emphasizing the importance of trade, in many instances, Putin was able to cultivate dependency focused on the penetration of the target governments

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(Caporaso 1978). Many leading Western politicians aligned with Russia, contributing to the divisions of Western countries and forging a unified front with Putin. For example, former German chancellor Gerhard Schroeder, advocated for strategic cooperation between Europe and Russia while he was in office from 1998 to 2005. He later joined Russian oil company Rosneft as chairman in 2017 and, in August 2022, criticized the war in Ukraine but refused to condemn Putin, whom he still calls a close personal friend. Other senior European politicians promoting a soft position toward Russia while in office include former French Prime Minister François Fillon and former Austrian foreign minister Karin Kneissl. Both joined the boards of Russian state-owned oil companies after leaving office.

The US and the EU's Uranium Dependence on Russia

Russia's war against Ukraine exposed a lesser-known link between Russia and the United States and Russia and the EU: nuclear fuel supply. One notable export was left off the sanctions list until August 2024: uranium. Ninety-five percent of the uranium that fueled US power plants was imported, and Russia was the third-largest supplier.[4] In 2022, Russia supplied the US's nuclear industry with 12% of its uranium. Europe reported getting almost 20% of its uranium from Russia in 2022.[5] The US law banning the imports of Russian uranium still allows some waivers for utilities that otherwise would be forced to shut down their reactors without them. All waivers are scheduled to end on or before January 1, 2028.

Besides producing 5.9% of the global uranium supply in 2020, Russia accounted for nearly 40% of global conversion services and has the world's largest uranium enrichment complex, accounting for almost half (46%) of the global capacity.[6] The vast majority of the 440 reactors around the world require enriched uranium fuel, including all reactors in the US. Russia is also currently the world's only viable commercial supplier of high-assay, low-enriched uranium (HALEU), the necessary fuel for many advanced nuclear power reactors rapidly emerging in the US and the rest of the world. The high level of Russian-enriched uranium in US nuclear fuel has a unique history, which explains how the United States got to where it is today in terms of diminished domestic capabilities. In 1993, Russia and the US signed an agreement to eliminate excess highly enriched uranium (HEU) from dismantled Russian nuclear weapons. From 1993 to 2013, as part of the "Megatons to Megawatts" program, Russian HEU provided about half of the enriched uranium used in US power reactors. The two sides agreed that the resulting low-enriched uranium (LEU) would be used as fuel by nuclear power plants in the United States.

The United States is not alone: some of the EU countries—Bulgaria, the Czech Republic, Finland, Hungary, and Slovakia—have old Soviet-built reactors operating on their territory, all entirely reliant on fuel supplied by Russian state-owned Rosatom company. In 2020, EU utilities imported 20% of their natural uranium and 26% of their enrichment services from Russia. Sanctioning Rosatom's Paris-based subsidiary is an especially sensitive question for the French President Emmanuel Macron. France has a large nuclear power sector and collaborates closely with Rosatom (Moens, Weise, Hernandez, and Kijewski 2022).

Combined, annual US and EU uranium imports earn Russia $1 billion per year. This is small in comparison to Russia's earnings of about $200 billion per year from oil and natural gas exports. But ending US and EU imports of nuclear services from Russia would make them less subject to its blackmail over energy.

Even though immediate market access to conversion and enrichment services is insufficient for the EU actors, Russia's invasion of Ukraine has forced the EU to work towards phasing out its dependence on Russia for nuclear fuel. In May 2022, the European Commission launched the REPowerEU plan, which was designed to get rid of the Kremlin's moves to blackmail Europe using energy. It includes the commitments within the EU to secure alternative sources of uranium and increase the enrichment capacities in Europe, and with the EU's global partners.

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Before the war in Ukraine began, the US government had already been taking steps to reduce Russian involvement in US nuclear fuel markets. In 2020, in the most recent amendment to "the Russian suspension agreement," originally signed on October 16, 1992, the US Department of Commerce and the Russian state nuclear corporation Rosatom agreed to lower the number of Russian uranium products allowed for export into the US market, and to limit the percentage of US enrichment demand met by Russia to 15% starting in 2028. The Energy Act of 2020 established the Advanced Nuclear Fuel Availability Program in the US Department of Energy (DOE) is also intended to stimulate the domestic development of a commercial HALEU supply chain, particularly uranium enrichment capacity. The war in Ukraine has reinforced the imperative of funding and moving forward with the DOE HALEU program due to the high political risks of relying on the Russian HALEU supply.

Cultivation of Putin's Sense of Impunity

For two decades, by being aware of mutual dependence in the economic system with the West and realizing that it would be costly for the West to rupture the established relationship in various economic sectors, the Russian Government managed to violate human rights and international laws without incurring major costs from the West. The so-called "special operation in Ukraine," in Putin's handbook, was supposed to be yet another activity expanding Russia's sphere of influence while the West would have been preoccupied with its interests in preserving rich-get-richer economic structures. Such Putin calculations, however, did not account for the firm desire of the Ukrainians to fight for their country.

Putin could observe the lack of the West's response to his actions right before he came to power in 2000. In 1999, he ordered the complete destruction of the Chechen capital of Grozny, killing tens of thousands of civilians. That was the Second Chechen War when Moscow sent forces to put down armed and political movements in Chechnya aimed at seceding from Russia. In 2003, the United Nations called Grozny "the most destroyed city on earth." In response, the Clinton administration focused on cementing its relationship with the new Russian President Putin, the prime architect of the abusive campaign in Chechnya. Secretary of State Madeline Albright traveled to Moscow and criticized Russia's conduct in Chechnya, but said there was no point in considering economic sanctions against Russia (Traynor 2000).

Many poisonings by the Kremlin during Putin's 21-year reign have been either ignored by the West or received with muted response, even though many of such cases made international headlines. An early example was the 2004 attack on the Ukrainian presidential candidate Viktor Yushchenko. Then came the 2006 polonium killing of Russian defector Alexander Litvinenko in the heart of London. The Russian opposition leader Boris Nemtsov was killed not far from the Kremlin in February 2015. Yet, only the 2018 operation in Salisbury against former Russian double agent Sergei Skripal and the 2020 poisoning of a leading political activist Alexei Navalny were followed by a limited Western response. European countries and the United States expelled Russian diplomats after each attack. The White House blocked international financial institutions such as the World Bank from lending to governments subject to US sanctions for using chemical or nuclear weapons. The response showed how reluctant Western nations were to escalate tensions with Russia (Dettmer 2021).

It took years of international campaigning after the death of Sergei Magnitsky in 2009, a tax advisor responsible for exposing corruption and misconduct by Russian government officials, to pass the original Magnitsky Act in 2012 that allowed Washington to impose targeted sanctions on individuals in Russia accused of human rights violations. In 2015, the United States adopted the Global Magnitsky Act that extended the same penalties to alleged rights abusers in other countries.

The Russian intervention in Georgia in 2008 not only demonstrated the lengths Moscow was prepared to go to in order to prevent countries that it considers to be within its sphere of influence but also highlighted the lack of interest in the West to impose high costs on Russia. Russia occupied

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20 percent of Georgian territory and got away with it. The international reaction to Russia's military campaign in Georgia, which lasted a few days, was muted with Moscow suffering few negative consequences (Bowker 2011). The ceasefire agreement brokered by French President Nicolas Sarkozy was in favor of Moscow as it was meant to open the way for subsequent negotiations toward a political settlement on South Ossetia, where Russia initiated the war against Georgia. The subsequent EU report about the five-day war (incorrectly) blamed Georgia for firing the first shots (Barry 2009). Days after the ceasefire in Georgia, the Bush administration rejected Tbilisi's request for anti-tank and air defense weapons. The US under the new Obama administration was soon calling for a reset in relations with the Kremlin.

Six years after the Russo-Georgian War, in 2014, Russia embarked on a more comprehensive military campaign against Ukraine. Russian involvement was deliberately ambiguous, such as the use of troops in unmarked military uniforms, in order to confuse and forestall any international response. As with the previous Russia's behavior, the West continued their reactions with reserve. Initially, sanctions against Russia did not impact Russia directly and primarily targeted its dealings with Crimea after it had annexed the former Ukrainian territory. These sanctions targeted individuals and entities involved in the annexation, as well as anyone wishing to do business in or with Crimea. After Russia continued to intervene in Eastern Ukraine, ending up shooting down Malaysian Airlines Flight 17 (MH17) and killing 283 passengers and 15 crew, both the US and the EU started targeting state-owned banks, imposed an arms embargo, restricted sales of sensitive technology, and the export of equipment for Russia's oil industry. Although these sanctions imposed costs on Russia, they did not force it to retreat from its positions.

Russia's direct involvement in war crimes in Syria in 2015 for the indiscriminate bombing of civilian areas, again went unpunished. While the US enacted the Caesar sanctions[7] in 2019, no sanctions against Russia specifically materialized, and the efficacy of the sanctions against Syrian regime officials has been questioned (Armbruster 2022).

The pattern continued when Western countries imposed mostly symbolic sanctions against Russia over its interference in the 2016 and 2020 US presidential elections and a huge cyberattack against about 18,000 people who work for companies and the US government, among other transgressions. The sanctions following the 2016 meddling were introduced in 2018 and targeted fifteen members of a Russian military intelligence service and four entities involved in the alleged election interference. The 2021 sanctions barred US financial institutions from buying Rouble bonds, targeted six Russian cybersecurity companies deemed to be involved in the SolarWinds hack, as well as 32 individuals and entities deemed to be involved in efforts to influence the outcome of the 2020 US presidential election, which were then considered the toughest US sanctions at that point (Roth and Borger 2021).

Reserved reactions from the West to Russia's violations of human rights and international law for over two decades suggest that Putin's expectations that he could get away with another, even larger, aggression against Ukraine with low costs, especially counting on blitzkrieg, were not unfounded. No Western reaction could be observed in Russia's preparations to use Belarus as a launchpad for Russia's assault on Ukraine. At the beginning of February 2022, Russia held its largest military exercise since the Cold War with Belarus, when 30,000 Russian troops, elite special forces units, Su-35 fighter jets, and S-400 missile systems were stationed in Belarus close to the Ukrainian border. Russian soldiers did not leave the territory of Belarus after large-scale joint drills were completed. The reaction of the US and NATO countries regarding the timing and the position of the military exercise was limited to the expression of concerns. Moreover, three weeks ahead of the invasion of Ukraine by Russia, the media widely reported US expectations that Ukraine was expected to fall within 72 hours following a full-scale Russian invasion (Heinrich and Sabes 2022).

Even shortly after the full-scale invasion of Ukraine, the economic response to Russia's invasion and military support of Ukraine was gradual and slow. For example, Germany suspended the certification of Nord Stream 2[8] and forced the energy companies involved in it to accept big financial losses on the project after Russia's decision to formally recognize two pro-Russian,

https://doi.org/10.1017/nps.2024.75 Published online by Cambridge University Press

breakaway regions in eastern Ukraine, which served as the precursor for the full-scale invasion. As Russia maintained its assault on Ukraine, the West continued to gradually escalate its responses, coordinating a number of increasingly impactful sanctions designed to strangle the Russian economy. To date, the EU has imposed eleven packages of sanctions since the beginning of Russia's war against Ukraine.

The West is largely united in supporting Ukraine militarily. But, as with sanctions, it has been gradually increasing the quantity and quality of the equipment. For example, the only military aid Germany initially promised to send Ukraine was a shipment of 5,000 helmets. In spring 2022, Germany was criticized for weapons delays, and the first heavy weapons from Germany arrived in Ukraine in late June 2022. After receiving longer-range artillery, like the American-made High Mobility Artillery Rocket System or HIMARS, Ukraine has been able to slow Russia's advance.

Having sustained heavy losses of troops and equipment in its failed assault on Ukraine's capital, Kyiv, Russia appears to have scaled back its objectives to change the regime in Ukraine on the grounds of "de-Nazification" to consolidating its position in the eastern Donbas region and maintaining a land corridor connecting Russia to Crimea.

Conclusion

Russia's invasion of Ukraine in February 2022 shocked much of the world. It has taken thousands of lives and caused a lot of spillover effects, including food shortages in Africa, the greatest humanitarian and energy crises in Europe, and many others. This new reality not only reflects the current state of affairs, it also recognizes how we got here.

Energy interdependence between the West and Russia, which had been developing for decades, demonstrated a great endurance potential but also exposed Western vulnerability that could be exploited by the Kremlin. By relying on established networks, and realizing the difficulty for economic actors to change or substantially displace them, the Russian Government has relied on these interdependence networks as a shield to avoid large costs for violating human rights and international norms. Such a strategy effectively deterred the West from deeper involvement in the abuses of international norms by Russia.

This observation adds an additional layer to the debate between economic interdependence and international security. Theoretically, this study shows that, besides shaping power relations, established networks can also allow an advantaged state to isolate its adversaries from unwanted actions while pursuing its interests with a party outside the network without undermining the features of the preexisting system. This study, at the same time, suggested important limits to the effectiveness of deterrence through economic interdependence. The success of the aggressor's strategy depends on the scale of the planned conflict. While aggressors may deter third-party defenders in short wars, the costs of longer wars make the third party willing to engage and provide substantive support to the target.

Russia's invasion of Ukraine has seized the attention of the world and raised the costs for rival powers and adversaries to remain in existing, previously enduring, network structures. At least in the long run, diversification within network structures should limit the coercive capacity of the Russian government to manipulate economic structures in its interests and force it to pay a high price for painting the town red.

Disclosure. None.

Notes

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Cite this article: Kulakevich, Tatsiana. 2024. "The War in Ukraine: The Deterrent Effect of Weaponized Interdependence". *Nationalities Papers*: 1–13, doi:10.1017/nps.2024.75