DIW Weekly Report

A policy bulletin from the German Institute for Economic Research

8 2024

Economy. Policy. Science.

DIW BERLIN

65 Report by Sonali Chowdhry, Julian Hinz, Joschka Wanner, and Katrin Kamin

Coalitions for sanctions heighten costs for Russia but burden of implementation should be shared among member countries

- Multilateral cooperation on sanctions significantly increases costs for Russia
- Coordinated approach reduces the burden for sanctioning countries
- Burden-sharing between countries with low and high costs could make coalition more stable

LEGAL AND EDITORIAL DETAILS

DIW BERLIN

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Volume 14 February 21, 2024

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Composition
Satz-Rechen-Zentrum Hartmann + Heenemann GmbH & Co. KG, Berlin

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ISSN 2568-7697

DIW Weekly Report 8 2024

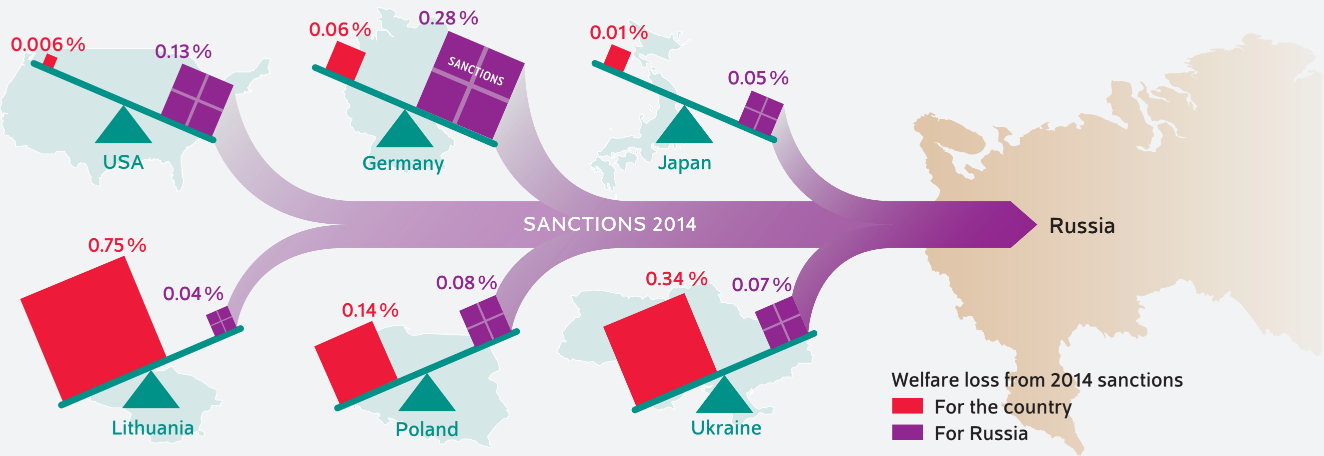
AT A GLANCE

Coalitions for sanctions heighten costs for Russia but burden of implementation should be shared among member countries

By Sonali Chowdhry, Julian Hinz, Joschka Wanner, and Katrin Kamin

- Multilateral cooperation amplified the force of sanctions levied against Russia in 2014 following its annexation of Crimea
- The EU was a pivotal player within the sanctioning coalition, accounting for 78 percent of the total welfare loss inflicted on Russia
- Baltic economies shouldered disproportionately high economic burdens from Russia sanctions
- Adjustment funds and other burden-sharing policies could reduce these asymmetries, thus enhancing the stability of sanction coalitions
- Coordinating sanctions with emerging economies would reduce opportunities for sanctions busting, further increasing costs for Russia

Larger economies exerted greater pressure via sanctions with lower domestic costs
Losses due to sanctions against Russia in 2014 in selected countries and for Russia in percent[1]



Source: Authors' calculations.

1 The welfare loss is measured as the decline in real domestic consumption.

FROM THE AUTHORS

"Cooperation with emerging economies such as China, Vietnam, or India would magnify economic pressure on Russia. More strategic engagement with them on the issue of sanctions evasion is needed."

— Sonali Chowdhry —

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Audio Interview with Sonali Chowdhry
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Coalitions for sanctions heighten costs for Russia but burden of implementation should be shared among member countries

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ABSTRACT

Countries increasingly form alliances to collectively impose sanctions. However, the resulting impact of such coordination remains unclear. Analyzing the 2014 wave of sanctions against Russia over 400,000 simulations with a quantitative trade model, this report demonstrates that multilateral cooperation through coalitions simultaneously reduced domestic welfare losses incurred from sanctions and intensified welfare losses imposed on Russia. Results also reveal significant disparities within the coalition, with Russia sanctions placing relatively high economic costs on Baltic nations that can be mitigated through a burden-sharing program. Hypothetical cooperation by emerging economies like China is also shown to substantially raise the force of sanctions against Russia.

The use of sanctions to pursue geopolitical objectives has been rapidly rising since the 1970s, but most strikingly in the last decade. Sanctions, as a form of economic statecraft, are often considered to be strategic substitutes for military intervention and, thereby, a form of engaging in "war by other means."[1] However, the economic cost and coercive force—thus the geopolitical leverage—of this instrument relies upon global trade networks. This Weekly Report sheds light on the above issues, highlighting the crucial role played by coalitions, i.e., alliances of countries that jointly implement sanctions.[2]

This Weekly Report also coincides with the second anniversary of the start of Russia's invasion of Ukraine and with increasing "sanctions fatigue" in Germany. Despite implementing its twelfth sanctions package in December 2023, the European Union (EU) is seeing growing skepticism about the effectiveness of these measures.[3] In broader public discussions, this skepticism centers on the concern that sanctions harm the imposing countries more than the targeted country; thus, Germany is harmed more than Russia with these sanctions. This study examines such claims, specifically assessing the distribution of economic costs from sanctions levied against Russia in 2014, following its occupation of Crimea.

Further, this analysis extends to the broader debate about the economic resilience of Germany and the EU amid increasing geopolitical tensions. In this regard, results discussed in this report highlight the critical importance of forging robust coalitions, not only within the EU but also with Western allies, as a strategic response to these challenges.

1 Robert Blackwill and Jennifer M. Harris, *War by Other Means: Geoeconomics and Statecraft* (Harvard University Press: 2016).

2 This Weekly Report is based on the authors' latest paper: Sonali Chowdhry et al., "Brothers in arms: The value of coalitions in sanctions regimes," *Economic Policy: Special Issue on Geoeconomics* (forthcoming) and DIW Discussion Paper No. 2021 (available online).

3 Maria Demertzis, "The limits of the effectiveness of EU sanctions against Russia," Bruegel Blog (blog), Bruegel, November 14, 2023 (available online; accessed on January 31, 2024. This applies to all other online sources in this report unless specified otherwise).

DOI: https://doi.org/10.18723/diw_dwr:2024-8-1

Box

Method and Data

In terms of methodology, the first step is to estimate the change in trade costs induced by the 2014 Russia sanctions using a structural gravity model—a standard approach in international economics. These costs are bilateral (i.e., exporter-importer specific), vary across sectors and capture barriers to trade flows.

For this exercise, we utilize data covering bilateral trade flows between 2000 and 2019 from several standard sources, covering goods sectors (*Base pour l'Analyse du Commerce International*, BACI), services sectors (OECD-WTO Balanced Trade in Services), oil (Oil Information Statistics of the International Energy Agency, IEA), and natural gas (IEA Natural Gas Information Statistics).

This data is then used to identify the impact of changes in trade costs on trade flows using a quantitative trade model. This model is a mathematical representation of the global economy that includes extensive input-output linkages between countries and sectors, thus mirroring a world with global value chains.[1] The model is enriched with additional data from across 65 sectors and 140 economies drawn from Global Trade Analysis Project (GTAP).[2] Simulations with this model allow us to compute the impact of sanctions-induced changes in trade costs on trade flows and aggregate welfare (defined as domestic real consumption) in Russia as well as for the sanctioning states and third-party countries.

To ensure the robustness of results, a method known as the Bayesian bootstrap procedure is adopted. This involves repeated sampling of the data before each simulation. Doing so generates a distribution of costs from sanctions and enables us to understand the range of possible outcomes under different hypothetical scenarios. With this approach, more than 400,000 simulations are computed across various scenarios of Russia sanctions.

1 Lorenzo Caliendo und Fernando Parro (2015): Estimates of the Trade and Welfare Effects of NAFTA, The Review of Economic Studies 82 (1), 1–44.

2 Angel Aguiar et al. (2019): The GTAP Data Base: Version 10. Journal of Global Economic Analysis 4 (1), 1–27.

Table

Welfare losses for Russia in different scenarios
Change in real domestic consumption in percent

	2014 coalition	Hypothetical global coalition
2014 sanctions	−1.44	−2.49
Hypothetical complete trade embargo	−8.81	−15.24

Note: Welfare losses are defined as declines in real domestic consumption. Welfare losses for Russia are calculated in four different scenarios, namely, (i) the 2014 coalition composition and measures; (ii) a "horizontal sanctions potential" as sanctions are expanded to a global coalition enforcing the 2014 set of measures; (iii) a "vertical sanctions potential" as sanctions are expanded by the 2014 coalition to a complete trade embargo; and (iv) the autarky scenario where a global coalition places a complete embargo on trade with Russia. Bootstrapped standard errors are reported in parentheses for scenarios (i) and (ii) as there is no uncertainty in trade costs for (iii) and (iv).

Source: Authors' calculations.

This study focuses on sanctions enacted against Russia in 2014 since this involved multiple countries adopting restrictive measures that were unprecedented in terms of their severity at the time of implementation.[4] Furthermore, focusing on this episode allows us to draw upon several years of *ex-ante* and *ex-post* data to evaluate the economic impact of sanctions (Box). Many of the findings also hold significance for the waves of sanctions against Russia enacted in response to the full-scale military invasion of Ukraine starting February 24, 2022.

Sanctions against Russia did not fully exploit their potential in 2014

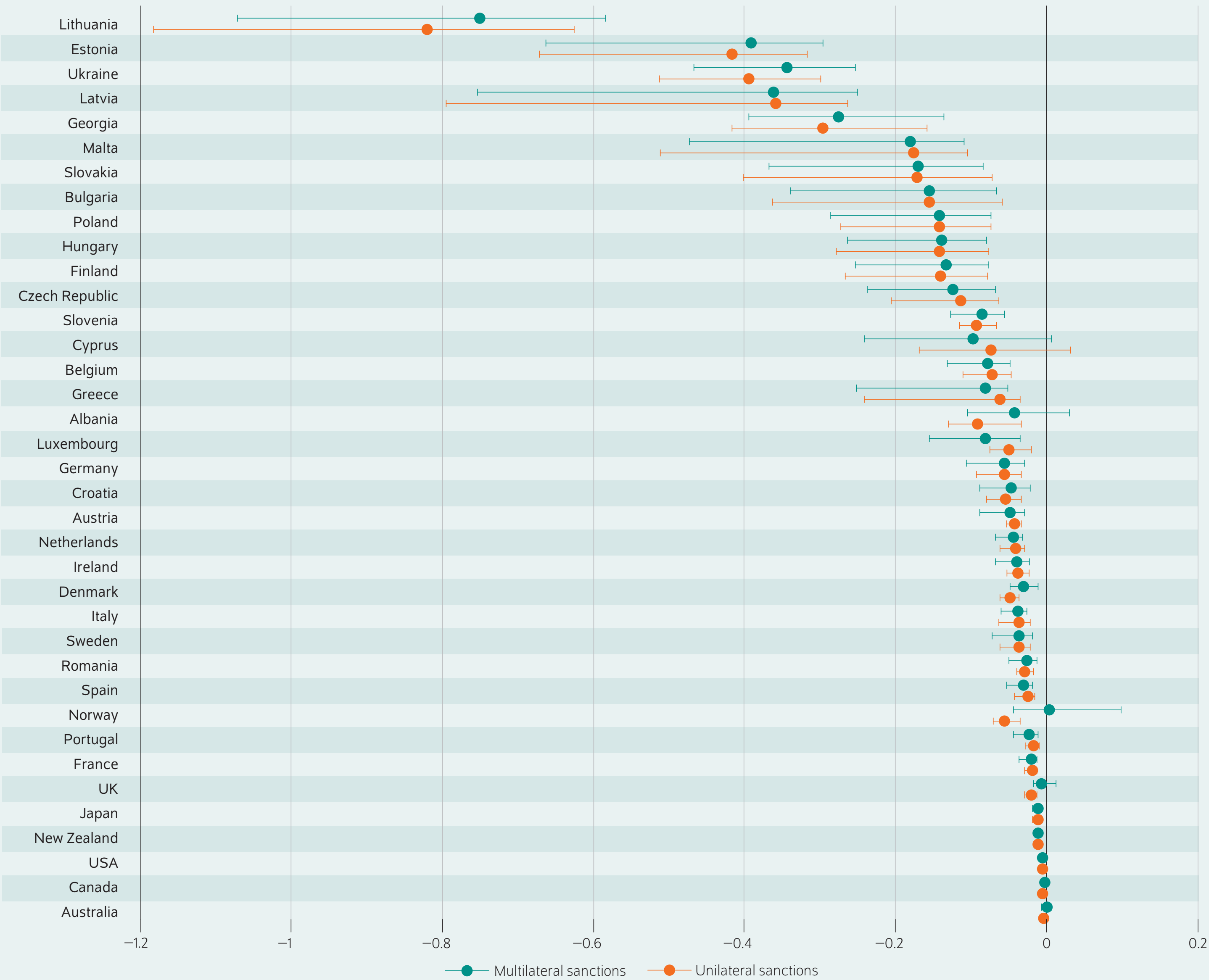
The analysis begins by examining Russia's aggregate welfare loss (measured in terms of change of real domestic consumption) due to the sanctions implemented in 2014 following its occupation of Crimea. This serves as our benchmark scenario. In this scenario, Russia's aggregate welfare or real domestic consumption is reduced by 1.44 percent, compared to a hypothetical situation with no sanctions. To explore the full potential of sanctions against Russia, this benchmark is compared with outcomes from three additional scenarios, each involving either an intensification of sanctions measures with the existing coalition ("vertical potential") or an expansion in the size of the coalition ("horizontal potential").

First, a scenario is simulated wherein the 2014 coalition enforces a complete trade embargo on Russia, representing the "vertical" potential of the sanctions regime. The findings are significant: Under a full embargo, Russia's welfare loss could increase more than sixfold compared to the benchmark (Table). This notable difference is due to several factors. For example, in 2014, Russia's natural gas sector was largely exempt from direct sanctions and oil sanctions were specifically targeted at future production capacity rather than existing projects. Furthermore, exemptions were made in certain sectors for humanitarian reasons. Together, these

4 The set of sanctioning countries included Ukraine, all 27 members of the EU, Norway, United Kingdom, the USA, Canada, Georgia, Albania, Montenegro, Australia, New Zealand, and Japan.

Figure 1

Welfare loss across coalition members as a result of the 2014 Russia sanctions
Change in real domestic consumption in percent



Notes: The vertical lines to the right and left of the points represent a 95 percent confidence interval. These were determined using 1,000 bootstrap replications of the simulations.

Source: Authors' calculations.

The burden of implementing sanctions fell disproportionately on smaller economies like the Baltic countries, Ukraine, and Georgia.

factors contributed towards a low fulfilment of sanctions' vertical potential. However, the current sanctions regime against Russia in 2024 is expected to more closely align with this vertical potential given the imposition of stricter measures, like the exclusion from the SWIFT payments system and restrictions on trade in oil and gas.

Next, to evaluate the "horizontal" potential of sanctions, a scenario is simulated wherein the 2014 sanctions are enforced by a hypothetical global coalition. This increases Russia's welfare loss by an additional 1.05 percentage points relative to the benchmark case. This suggests that the actual 2014 coalition, despite its limited size, achieved over half of the coercive power of a hypothetical global coalition enforcing similar measures.

The final scenario represents an autarky case, which entails the most severe sanctions regime against Russia. This features a global coalition implementing a complete trade embargo against Russia. In this scenario, the welfare loss for Russia could escalate to 15.24 percent, representing the upper limit of the punitive power achievable through trade sanctions.

Sanctions cooperation lowered domestic costs and increased costs imposed on Russia

In the next step of analysis, the contributions of individual members from the 2014 coalition in upholding the sanctions regime against Russia are assessed. This evaluation is based on two key factors: (i) the welfare loss each member incurs domestically; and (ii) the welfare loss each member imposes on Russia. Then, the value of coordinating sanctions is ascertained by contrasting members' contributions in two distinct scenarios: one where sanctions are applied unilaterally and another where they are implemented multilaterally.

The first key finding from these simulations is that coalitions lower the domestic costs of implementing sanctions. The (partial) sanctions against Russia raised trade costs for both agri-food and manufacturing industries for coalition members. However, when sanctions are implemented multilaterally rather than unilaterally the average domestic welfare loss incurred by coalition members reduces by 4.5 percent.

The second key finding highlights the enhanced punitive power of cooperative sanctions. When sanctions are applied jointly, Russia's welfare loss escalates by about 12 percent, primarily due to reduced opportunities for trade diversion and sanctions circumvention. In this context, the EU stands out as a pivotal player within the coalition, whose sanctions account for 78 percent of the total welfare loss inflicted on Russia.

Burden of 2014 sanctions higher for Eastern European economies

The previous simulations on members' contributions also reveal notable asymmetries within the sanction coalition against Russia. Notably, the burden of implementing sanctions falls disproportionately on smaller economies like Lithuania, Estonia, Ukraine, Latvia, and Georgia (Figure 1). These nations, sharing geographic proximity and historical ties with Russia, as well as hosting significant Russian-speaking populations, face higher costs in enforcing these sanctions. This indicates a critical geographical and sociocultural dimension in the distribution of the sanctions' burden.

Similarly, the capacity to inflict welfare losses on Russia also varies widely among coalition members. Larger economies by GDP, such as Germany, the USA, the Netherlands, Poland, and Italy are identified as exerting the most substantial punitive impact on Russia (Figure 2). When comparing the ratio of welfare cost borne at home vis-à-vis welfare loss imposed on the target, the USA stands out as the most effective sanctioning member, closely followed by Japan and Germany. Some members, like Estonia and Latvia, fall at the other end of the spectrum. These nations incur relatively high welfare costs for implementing sanctions that only translate into marginal welfare losses for Russia.

Overall, these simulations illustrate a complex landscape of sanction enforcement within the coalition, marked by an uneven distribution of costs and varying degrees of effectiveness.

Burden sharing through transfers can equalize welfare loss from sanctions

In earlier simulations, it was observed that sanctions impose uneven domestic welfare costs on coalition members. Recognizing this imbalance, the next scenario focuses on the potential for burden sharing within the coalition. Given the increasing frequency and severity of sanctions, requests for burden sharing are not new: countries have previously made this recommendation to the United Nations. By addressing the asymmetric impact of sanctions across different countries, burden-sharing policies could not only mitigate adverse effects of sanctions on implementing countries but also enhance the stability of sanction coalitions and encourage participation from additional countries.

Here, we investigate an adjustment fund as potential burden-sharing mechanism. This fund is operationalized through fiscal transfers between coalition members, such that all countries experience identical domestic welfare losses from implementing sanctions.

The simulations indicate that this mechanism would result in several countries receiving transfers to offset their higher relative costs from Russia sanctions. In shares of real gross domestic product (GDP), Baltic countries like Lithuania (0.65 percent), Estonia (0.38 percent), and Latvia (0.31 percent) would be among the primary recipients of these transfers. Conversely, larger economies like the USA, Japan, the United Kingdom (UK), and Canada, which are less impacted by the sanctions, would be the main contributors to this fund.

Furthermore, the analysis shows that to equalize the domestic welfare losses from sanctions imposed in 2014, an adjustment fund of approximately 4.9 billion USD would have been required. Such a fund could significantly contribute to the long-term resilience of sanctions coalitions by reducing economic disparities among member states. Looking ahead to 2024, the implementation of a burden-sharing mechanism could incentivize countries to continue their support of sanctions against Russia.

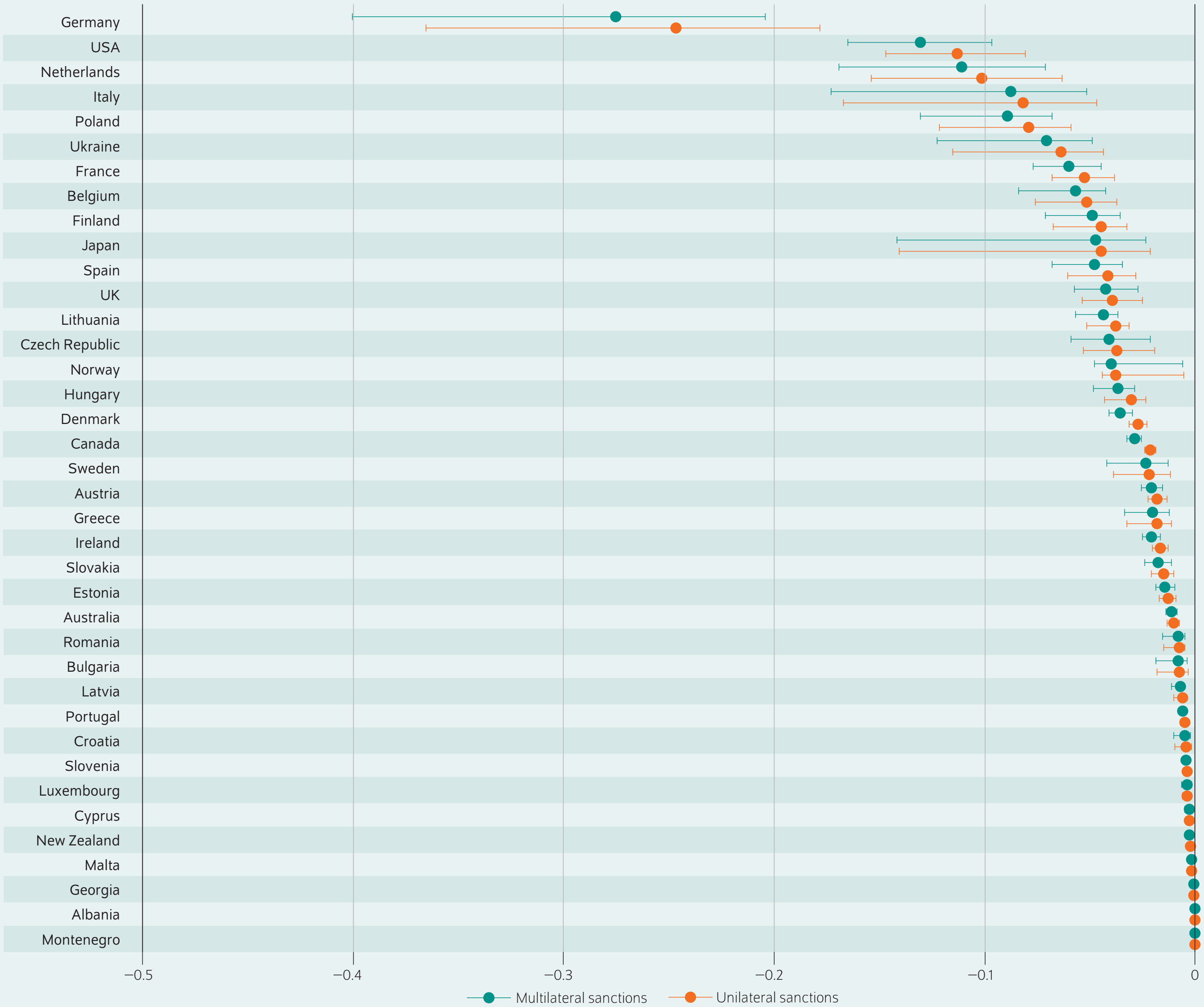
Several emerging economies are key to further increasing the force of sanctions

Previous discussions highlight how sanctions coalitions increase the welfare losses for Russia. Yet, these losses vary depending on the specific countries within the coalition. As a last step, we examine how adding third party (so-called

Figure 2

Welfare loss inflicted on Russia by sanctioning country

Change in real domestic consumption in Russia in percent



Notes: The vertical lines to the right and left of the points represent a 95 percent confidence interval. These were determined using 1,000 bootstrap replications of the simulations.

Source: Authors' calculations.

Germany, the USA, the Netherlands, Poland, and Italy exerted the greatest punitive effect on Russia in 2014.

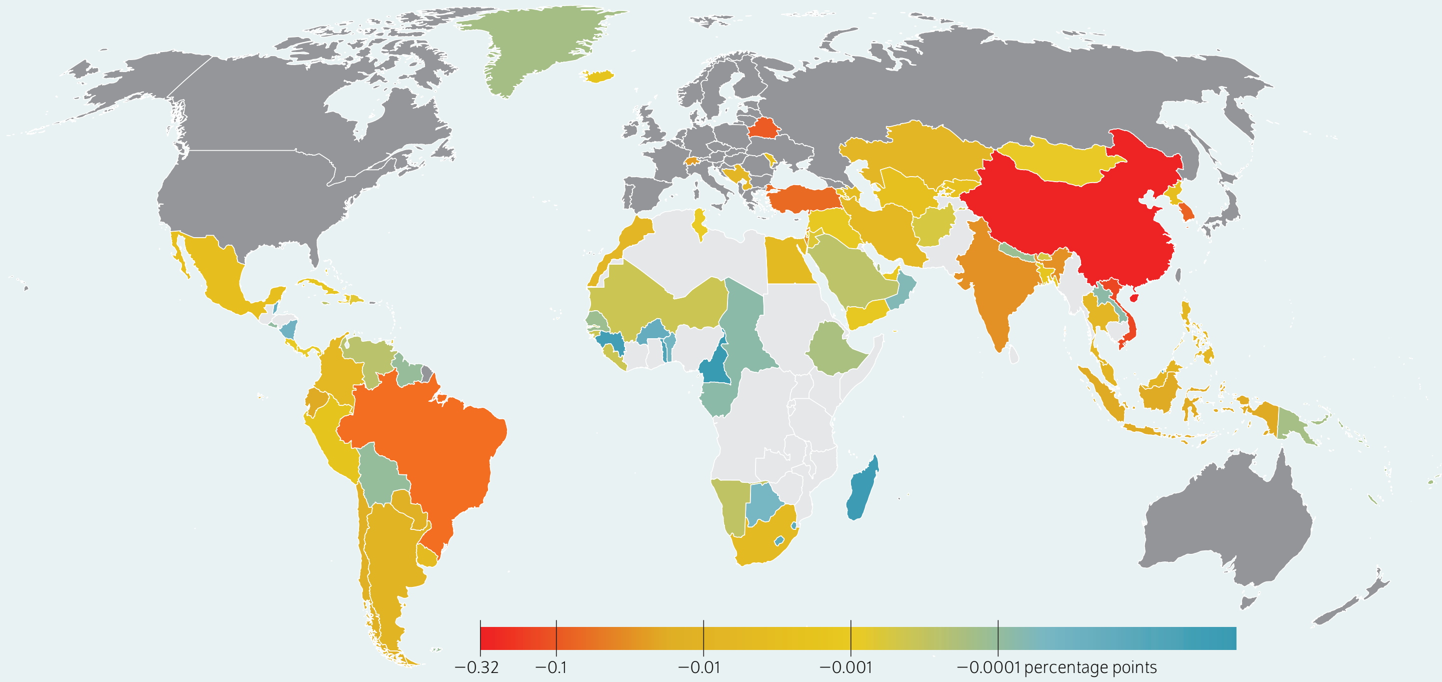
"neutral") states to the sanctions regime amplifies this punitive effect. This involves constructing a series of counterfactuals, where the coalition is incrementally expanded by including one additional country that did not impose sanctions against Russia in 2014. From this, a prioritized list of nations is developed, identifying potential candidates for strengthening the sanctions regimes against Russia if the current coalition opts to intensify its measures.

This exercise reveals that the top potential coalition partners to increase the welfare loss for Russia are China, Vietnam, Belarus, Turkey, Brazil, and South Korea (Figure 3).[5] Coordinating sanctions with these countries would substantially reduce opportunities for sanctions-busting by Russia

5 In addition to these countries, Switzerland, India, and Israel are also seen to exert substantial welfare loss on Russia from participating in the coalition.

Figure 3

Hypothetical coalition partners and their contribution to the punitive impact of sanctions against Russia
In percentage points



Notes: The map displays the additional welfare loss incurred by Russia from each new country joining the 2014 sanctions coalition. Countries that sanctioned Russia in 2014 are depicted in dark grey, whereas countries in light grey correspond to those whose membership in the coalition causes Russian welfare loss to marginally reduce.

Source: Authors' calculations.

If China had joined the sanctions coalition in 2014, Russia's welfare loss could have increased by around 22 percent.

and increase the deterrence potential of the sanctions regime. Interpreted differently, these results also indicate the implicit cost of non-cooperation by these countries in the 2014 Russia sanctions regime.

The role of China is especially critical. Simulations show that China's participation could heighten Russia's welfare loss by approximately 22 percent, while China itself would experience a negligible welfare loss (-0.02 percent). Furthermore, the involvement of China appears to slightly reduce the welfare losses experienced by other coalition members. This implies that China's entry into the sanctions coalition could dramatically bolster the coalition's coercive power against Russia.

While these simulations point to the significant impact China could have, it is politically unlikely that China will join a sanctions coalition against Russia. Given this, coalition members must find alternative ways to strategically engage with China and other developing countries to limit Russia's opportunities for circumventing sanctions. An important step in this direction is the EU's establishment of a new International Special Envoy position in 2022, which is dedicated to facilitating high-level dialogues with third countries on sanctions enforcement.

Conclusion: Deeper coordination and stricter enforcement required

This report highlights the value of multilateral cooperation in imposing sanctions. In the case of 2014 sanctions against Russia, such cooperation reduced welfare losses of the sanctioning states while increasing the welfare losses of the sanctioned state. Yet, there is a notable opportunity for deeper coordination at the detailed product level. For example, fewer than 50 percent of the products sanctioned by the USA or the EU against Russia are jointly restricted by both.[6] Thus, enhancing the overlap in sanctioned products can significantly curtail Russia's ability to circumvent these measures.

Another critical aspect of the 2014 sanctions was the uneven economic burden shouldered by Eastern European countries. This can have significant political ramifications for the EU and its ability to maintain a unified front against Russia. Since Russia's aggression towards Ukraine could persist over the medium- to long-term, the EU must engage more proactively in structured dialogue on potential burden-sharing

6 Ricardo Hausmann et al., "On the design of effective sanctions: The case of bans on exports to Russia," CID Faculty Working Paper, no. 417 (2022) (available online).

mechanisms. This will help reinforce solidarity in the face of new geopolitical challenges.

Finally, the results highlight that cooperation with emerging economies like China, Brazil, and Vietnam can ramp up economic pressure on Russia by reducing opportunities for sanctions evasion. A noteworthy development in this context is the EU's introduction of an anti-circumvention tool in its 11th sanctions package, adopted in June 2023. This instrument permits the EU to control its exports of sanctioned goods and technologies to third countries that are likely to re-export to Russia. However, such a tool must be complemented by more stringent and enforceable guidelines for EU businesses on sanctions compliance.

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JEL: F13, F14, F17, F51

Keywords: Sanctions, Alliances, Global value chains