ECONSTOR
Make Your Publications Visible.

A Service of

ZBW Leibniz-Informationszentrum Wirtschaft
Leibniz Information Centre for Economics

Crozet, Matthieu; Hinz, Julian; Šváb, Patrik

Working Paper

Trade sanctions: Evidence from Russia

Kiel Working Paper, No. 2325

Provided in Cooperation with:
Kiel Institute for the World Economy – Leibniz Center for Research on Global Economic Challenges

Suggested Citation: Crozet, Matthieu; Hinz, Julian; Šváb, Patrik (2026) : Trade sanctions: Evidence from Russia, Kiel Working Paper, No. 2325, Kiel Institute for the World Economy (IfW Kiel), Kiel

This Version is available at:
https://hdl.handle.net/10419/342567

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

WWW.ECONSTOR.EU

Mitglied der Leibniz-Gemeinschaft

KIEL Institut

Matthieu Crozet, Julian Hinz, Patrik Šváb

July 2026

Trade Sanctions: Evidence from Russia

Kiel Working Paper

No.2325, ISSN 1862-1155
Kiel Institute for the World Economy

Abstract

Matthieu Crozet, Julian Hinz, Patrik Šváb

Trade sanctions are restrictive measures that limit commercial exchange between countries to achieve political objectives. Their economics can be studied at two levels—the aggregate effects on trade and welfare, and the adjustment of individual firms—with the sanctions imposed on the Russian Federation in 2014 and 2022 as central case studies for both. At the macro level, a multi-country, multi-sector general-equilibrium trade model with input–output linkages is calibrated to quantify welfare effects under alternative coalition and intensity scenarios. Relative to 2014, the 2022 measures imposed substantially larger costs on Russia (about −2.6% of real income) while the average cost for EU/UK senders remained modest (around −0.1%), with larger losses concentrated in highly exposed small economies. Coalitions amplify pressure on the target at limited additional cost for most senders. Hypothetical extensions bound the potential of sanctions through global participation or embargoes. At the micro level, French customs data (monthly firm–product–destination flows, 2021–2023) and a triple-difference design reveal that exports to Russia fell by roughly three quarters after February 2022. The adjustment is dominated by the extensive margin, with smaller but significant intensive-margin declines among continuing firms. Targeted products contracted far more than non-targeted ones, with dual-use goods most severely affected. Financial channels that propagate losses beyond listed goods, the limits of "smart" sanctions when governments shield strategic firms, and political responses—including rally-around-the-flag effects in the targeted country—complete the picture.

Keywords: economic sanctions, trade sanctions, international trade, embargo; export controls; Russia, extensive margin, welfare
JELs: F13, F14, F51

Authors

Matthieu Crozet
Université Paris-Saclay & CEPII
www.universite-paris-saclay.fr/

Julian Hinz
Bielefeld University &
Kiel Institute for the World Economy
julian.hinz@kielinstitut.de
www.ifw-kiel.de

Patrik Šváb
Prague University of Economics
and Business
www.vse.cz

The responsibility for the contents of this publication rests with the authors, not the Institute. Since working papers are of a preliminary nature, it may be useful to contact the author of a particular issue about results or caveats before referring to, or quoting, a paper. Any comments should be sent directly to the authors.

1 Introduction

Economic sanctions likely have a history as old as war itself, but they have evolved significantly over time. From their origins as simple tools accompanying armed conflict (e.g., city sieges, blockades), sanctions have gradually become an independent "economic weapon" since the end of the First World War. This evolution and the increasing reliance on sanctions mirror the history of globalization.[1]

The Global Sanctions Database (Syropoulos et al., 2024), or GSDB, compiles all international economic sanctions imposed between 1950 and 2022. The authors of the database define sanctions as "restrictive political measures undertaken by one or more countries to limit their relations with a target country in order to persuade it to change its policies or address potential violations of international norms and conventions." These measures span a wide range of interventions:

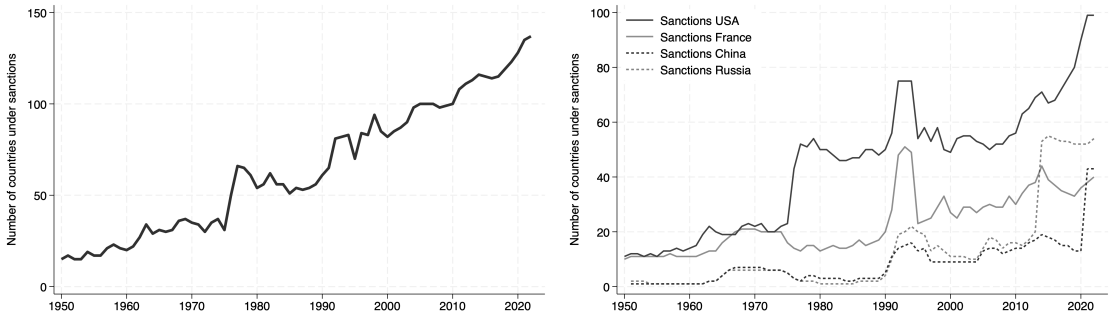
- Trade sanctions: Export and/or import restrictions, ranging from discretionary restrictions to bans and embargoes.
- Financial sanctions: Freezing financial assets or investments (productive, real estate, or movable assets), restrictions on new international investments, cessation of public development aid, limitations on payment mechanisms (e.g., restrictions on the use of the US dollar or exclusion of banks from the SWIFT system, such as Iranian banks in 2012 or Russian banks in 2022).
- Travel restrictions: Stricter visa issuance policies towards individuals or groups of people, or specific travel authorizations for targeted countries.
- Arms embargoes: Cessation of military cooperation, limitations on the delivery of weapons, munitions, or dual-use goods, constraints on financing or industrial cooperation with companies in the defense sector.

It should be noted that the GSDB records only *imposed* sanctions, not threats of sanctions that did not result in imposition. As Morgan et al. (2009) emphasize, this distinction matters: the threat of sanctions is itself a coercive tool, and episodes in which the target concedes to threats are systematically excluded from datasets of imposed sanctions (for data covering both threats and impositions, see Morgan et al., 2014; Weber and Schneider, 2022). This selection problem is well understood in the theoretical literature. Eaton and Engers (1992) model sanctions as the equilibrium outcome of a coercion game in which threats play a central role. Drezner (2003) argues that the "hidden hand" of economic coercion means that the most successful sanctions are those that are never actually imposed, because the target yields to the threat. Thus, observed sanctions represent cases where coercion *failed* to deter, introducing a selection bias that should be kept in mind

[1] For a detailed history of the use of economic sanctions, see Mulder (2022).

Figure 1: Number of Target Countries Under Sanctions

(a) All Sanctions (number of target countries) **(b)** Number of Target Countries by Sender



Sources: Author calculations, Global Sanctions Database (Syropoulos et al., 2024).

when interpreting their estimated effects—though focusing on realized economic impacts, as this article does, sidesteps the worst of this identification problem. The GSDB also does not cover technology sanctions (increasingly important in the context of dual-use restrictions and semiconductor controls) or informal sanctions such as government-directed commercial disruptions that do not appear in official regulations (Lim and Ferguson, 2022). An instructive example of the latter is the "Dalai Lama effect" documented by Fuchs and Klann (2013): countries whose heads of state officially received the Dalai Lama saw their exports to China decline by around 8% in subsequent years—without any formal sanction ever being imposed.

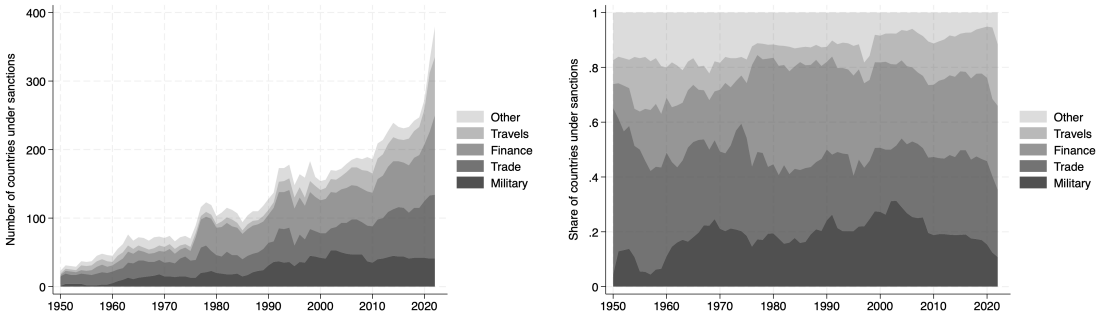
Two additional types of measures not explicitly captured in the GSDB merit attention:

- Diplomatic and cultural sanctions: Expulsion of diplomats, cancellation of meetings or invitations to public events, and cessation of cultural collaborations and exchanges. While these measures have limited short-term impacts on economic relations, they may temporarily disrupt economic cooperation activities, commercial transactions involving government entities, or lead to spontaneous boycotts (see Fuchs and Klann (2013) for an empirical analysis).
- Trade wars: Increases in tariffs or other formal trade restrictions. While these measures directly impact international economic relations, it is often difficult to distinguish trade protectionism aimed at influencing a targeted country's policies (and thus akin to sanctions) from measures with purely economic objectives falling under conventional trade policy (compare e.g. the second Trump administration's sudden threat of imposition of drastic tariffs against Colombia in January 2025 after the country disallowed the landing of two US military aircraft carrying return migrants).

Since the 1950s, the number of instances in which these measures were used has steadily increased, becoming a structural feature of international economic relations (see Figure

Figure 2: Types of Sanctions

(a) Number of Countries Sanctioned **(b)** Share of Total Sanctions



Sources: Author calculations, Global Sanctions Database (Syropoulos et al., 2024).

1a).[2] The evolution of sanctions parallels the process of global economic integration, with notable accelerations in the mid-1980s and the 2000s. This proliferation of sanctions is, if not a natural consequence, at least a predictable byproduct of globalization. More significant, however, is the number of countries under sanctions. Today, over 130 countries are targeted by at least one type of international sanction, representing two-thirds of the world's nations. This highlights the central role of sanctions in foreign policy and global governance. The increasing use of international sanctions has led researchers to develop a guide on the most effective types of sanctions. de Souza et al. (2024) model scenarios where specific sanctions, such as tariffs or embargoes, are the most cost-efficient, and Becko (2024) characterizes optimal sanctions as terms-of-trade manipulation in general equilibrium.

Unsurprisingly, sanctions remain the purview of major Western nations (see Figure 1b). Of the 137 countries targeted in 2022, 99 were sanctioned by the United States and 40 by the EU.[3] However, the field is expanding, with countries like Russia and China increasingly employing counter-sanctions, as seen in 2014 (Russia's response to sanctions over the annexation of Crimea) and 2021 (China's reaction to European sanctions over Xinjiang and Taiwan).

The nature of sanctions has also evolved to match the growing complexity of international economic and financial relations, becoming more precise, targeted, and difficult to circumvent. However, when categorized into broad types, no major shift is observable since the 1950s (Figure 2). A notable increase in financial sanctions occurred in the mid-1970s, coinciding with the end of the fixed exchange rate system and the rise of international financial flows.

[2]This growth must be contextualized: during the Cold War, the segmentation of economies along bloc lines effectively served as de facto sanctions, obviating the need for formal measures.

[3]The count for France in Figure 1b exceeds that for the EU because the GSDB attributes every EU-level measure to each member state and additionally records genuinely unilateral national measures. France's unilateral sanctions are predominantly of the non-trade type—suspensions of development aid, military cooperation, or visas, most recently toward Mali, Niger, and Burkina Faso after the coups of 2021–2023.

This article reviews the burgeoning literature on the economics of trade sanctions and provides new empirical evidence on their effects, focusing on the Russian case. Recent complementary surveys include Morgan et al. (2023) on the economics of sanctions broadly and Mohr and Trebesch (2025) on the wider geoeconomics literature. We survey the literature by examining the impact of sanctions through two primary lenses: the aggregate, macro-level effects on trade and welfare, which can be quantified using general equilibrium models; and the granular, micro-level adjustments made by individual firms, which can be identified using customs data. We explore foundational topics such as trade diversion, counter-sanctions, and the role of international coalitions, which determine the broad economic pressure a sanctioning regime can exert. We then zoom into firm-level decisions at the extensive margin (staying in or exiting a market) and the intensive margin (adjusting the value of existing trade flows), which reveal the underlying mechanisms of how sanctions disrupt commerce.

The sanctions imposed on the Russian Federation in 2014 and 2022 serve as a central case study for both levels of analysis. The 2014 sanctions, which followed Russia's annexation of Crimea, were relatively targeted and met with specific counter-sanctions from Russia, notably an embargo on agricultural products. In contrast, the measures enacted after the full-scale invasion of Ukraine in February 2022 were far broader, involving an unprecedented coalition of countries and targeting key Russian financial institutions, strategic industries, and dual-use technologies. We leverage this two-stage episode first to conduct a macro-level simulation of the global welfare effects using a quantitative trade model. We then provide a new micro-level analysis of the impact on French exporters, using firm-level customs data to disentangle the effects of the conflict and the sanctions themselves. Finally, we cover two auxiliary questions regarding trade sanctions: the practical and theoretical limits of designing "smart" sanctions that avoid collateral damage, and the ultimate impact of economic pressure through trade sanctions on political stability and public opinion in the targeted regime.

2 Macro-level Impact of Trade Sanctions

Before turning to the evidence, a terminological note is in order. Throughout this section, "macro" refers to analyses based on aggregate trade data and general-equilibrium models—that is, economy-wide rather than firm-level—not to macroeconomics in the traditional sense of business-cycle or monetary analysis. This aggregate-trade perspective complements a growing body of work in international macroeconomics proper that studies the transmission of sanctions through financial markets, exchange rates, and capital flows (see, e.g., Itskhoki and Ribakova, 2024), as well as recent cross-sectional macro analyses of trade dependencies and their weaponization in a historical context (Bernstein et al., 2025). It is also worth noting that trade sanctions can limit not only the flow of goods but also the

spread of technology, an increasingly important channel as dual-use and semiconductor controls have become central to modern sanctions regimes.

Among the intermediate objectives of sanctions, disrupting international trade flows is prominent. This is either because the sanctions directly target trade (see Figure 2) or because restrictions on financial flows and travel affect cross-border business activities.[4]

For sanctions to be effective, they must weaken the targeted economy without being excessively costly for the sanctioning country (compare also Chowdhry et al., 2024, discussed below). While the interruption of imports from the targeted country might often be celebrated, the reduction in export flows is often seen as an unavoidable cost of imposing sanctions. This distinction between the apparent positive effects (halting imports) and the costs (halting exports) bears the hallmarks of a mercantilist narrative and warrants discussion from the perspective of the sanctioning country.

It is true that the interruption of exports represents a cost for the sanctioning country, the decline in sales to the targeted country reflects real losses in activity and income (see e.g. Crozet and Hinz, 2020). However, tying national welfare to maximizing exports and minimizing imports reflects a mercantilist view of international trade, which does not hold up to thorough analysis. In fact, it is difficult to distinguish between the blows dealt to the targeted country and those self-inflicted by the sanctioning country. The decline in exports cannot simply be regarded as an unfortunate consequence or a necessary price to pay. Instead, it is also a deliberate aim of sanctions. This is particularly evident when trade restrictions involve strategic goods (e.g., the blocking of dual use or outright military goods, like French Mistral-class ships to Russia in 2014, represents both a cost to the French economy and a goal of the sanctions). On the flipside, restrictions to imports may also have the potential for serious disruptions, as was evident in the debate on decoupling from Russian gas in 2022 (see e.g. Bachmann et al., 2024). More fundamentally, international trade theory reminds us that the benefits of trade are derived as much (if not more) from imports as from exports. By reducing its exports, the sanctioning country deprives the targeted country of imports, thereby imposing a certain economic cost.

It is important to note that, in a globalized world, the costs of sanctions are not limited to the sanctioning and sanctioned countries. Two distinct mechanisms are at work. First, sanctions can have *extraterritorial* reach: the sanctioning country leverages its position in global economic networks—for example, dominance of the U.S. dollar in international payments or control over key financial infrastructure—to penalize firms in *non-sanctioning*

[4]Besides the common trade sanctions tools listed above, Lim and Ferguson (2022) define "informal sanctions" as a government-directed disruption of international commerce that does not appear in official laws, yet which seeks to impose costs on key firms or industries. Their three main instruments include "strategic regulation", "informal blacklisting", and "boycott fomentation". They were used, for instance, on behalf of China against South Korea because of the terminal high-altitude area defense (THAAD) missile system deployment between 2016 and 2017.

countries that transact with the target. U.S. secondary sanctions under statutes such as CAATSA exemplify this approach, effectively compelling third-country compliance through the threat of exclusion from the U.S. financial system. Farrell and Newman (2019) conceptualize this as "weaponized interdependence," showing how chokepoints in global economic networks grant hub states coercive leverage far beyond their bilateral trade relationships. Clayton et al. (2026) formalize this logic in a framework of geoeconomic power in which a hegemon coordinates threats across trade and financial relationships. The network structure of trade also matters for empirical work: bilateral sanction effects are identified relative to all other trade relationships—the familiar multilateral-resistance problem of the gravity literature. Second, and distinct from deliberate extraterritorial enforcement, sanctions generate *third-country effects* through general-equilibrium spillovers: when major trade flows are disrupted, prices and quantities adjust worldwide. Kwon et al. (2024) identify such effects of sanctions. Their analysis of the U.S. embargo on Cuba shows that its impact on other countries varies. Nearby economic allies increased trade with Cuba after the sanctions were imposed. Ghironi et al. (2024) refer to this phenomenon as "third-country effects." By developing and calibrating a model for Western sanctions against Russia in 2022, they conclude that welfare losses tend to be greater for sanctioning countries and smaller for sanctioned ones if third countries do not participate. Meanwhile, third countries (such as China, India, and Türkiye in this case) benefit from staying out of the sanctions (see e.g. Corsetti et al., 2025). As sanctions increase over time and more third countries become involved, research on their impact is likely to grow.

Diversion and Circumvention

Globalization has complex effects on international conflicts and the consequences of sanctions (see Martin et al. (2008) for a detailed theoretical and empirical analysis). On the one hand, the broad integration of most countries into international trade has increased economic interdependencies, raising the economic costs of conflicts and enhancing the effectiveness of sanctions. However, globalization does not make perpetual peace inevitable, as envisioned by Kant (or Montesquieu's concept of "gentle commerce"). The proliferation of trade partners also increases the ability of countries to compensate for the interruption of bilateral trade relations by diverting them to other countries.

Accounting for these diversion effects is essential in impact analysis. The ability to quickly reroute trade flows is a factor in the economic independence of countries and their resilience to sanctions. It is important to clearly define what is meant by "diversion" and distinguish it from "circumvention," where regulatory constraints are intentionally bypassed by routing goods through a third country or relabeling them. Recent episodes demonstrate these circumvention mechanisms in action. Haidar (2017), for example, shows how Iranian companies — particularly larger ones — mitigated the effects of sanctions by redirecting exports to hub countries—most prominently the United Arab

Emirates—which simultaneously saw their exports increase. Chupilkin et al. (2024, 2025a) show that in 2022, Russian firms swiftly reorganized their supplier networks. While imports of sanctioned goods from Western countries plummeted, imports of the same products originating from sanctioned economies or bearing Western brands but transshipped through neutral countries increased by 100–200%. Similarly, Chupilkin et al. (2026), using aggregate data, reveal that former Soviet republics played a complicit role in channeling exports of goods targeted by sanctions against Russia since 2022, corroborating numerous anecdotes reported in European media. Aytun et al. (2025) report similar findings for Turkish firms re-rerouting exports to Russia via Caucasus countries in response to an embargo of Turkish agricultural produce *by Russia* following political tensions in 2015. For goods with direct military use the pattern is starker still: Russia-friendly third countries were about 20 percentage points more likely to export military goods to Russia after the 2022 invasion (Scheckenhofer et al., 2025), and the corresponding EU export bans could in part be dodged through narrow product definitions, transit loopholes, and rerouting via Türkiye, China, Hong Kong, and the UAE (Scheckenhofer et al., 2026). Neglecting these effects would naturally lead to an overestimation of sanctions' impacts.

Simple trade diversion, understood as the reorganization of trade networks, is far less problematic. From a general equilibrium perspective, these mechanisms are natural and fully contribute to assessing sanctions' effectiveness. Unless sanctions target highly specific and irreplaceable products, trade barriers will inevitably lead to new connections to varying degrees. Faced with the unavailability of their usual suppliers, consumers and businesses in the targeted country must find alternatives — turning to local production, other exporting countries, or substitute products. However, these diversions come at a cost. Resorting to less competitive suppliers imposes economic losses on the targeted country. This was clearly evident during Europe's 2022 energy crisis: EU countries compensated for the (partial) cessation of Russian gas, coal, and oil supplies, but at significantly higher procurement costs. Another example is Russia's 2014 embargo on agricultural products from Western countries. Using detailed Russian consumer price data, Hinz and Monastyrenko (2022) assessed the consequences of this import halt. The need to rely on other suppliers (local or non-embargoed countries) increased the prices of affected goods by 7.7–15% in the short term and by 2.6–8% in the longer term. Ultimately, the Russian embargo raised the consumer price index by 0.33% and reduced household welfare by nearly 2%. Circumventing sanctions is similarly costly. For the 2022 sanctions episode, Chupilkin et al. (2024) shows that bypassing direct Western imports via intermediaries in neutral countries led to import price increases of 15–55% on average.

Macroeconomic estimates of sanctions' impacts are primarily based on measuring the consequences of trade flow reorganization. Welfare losses attributable to sanctions stem from both reduced export revenues (due to reorientation towards less competitive markets) and higher consumer prices resulting from replacing competitive imports with less efficient

suppliers.

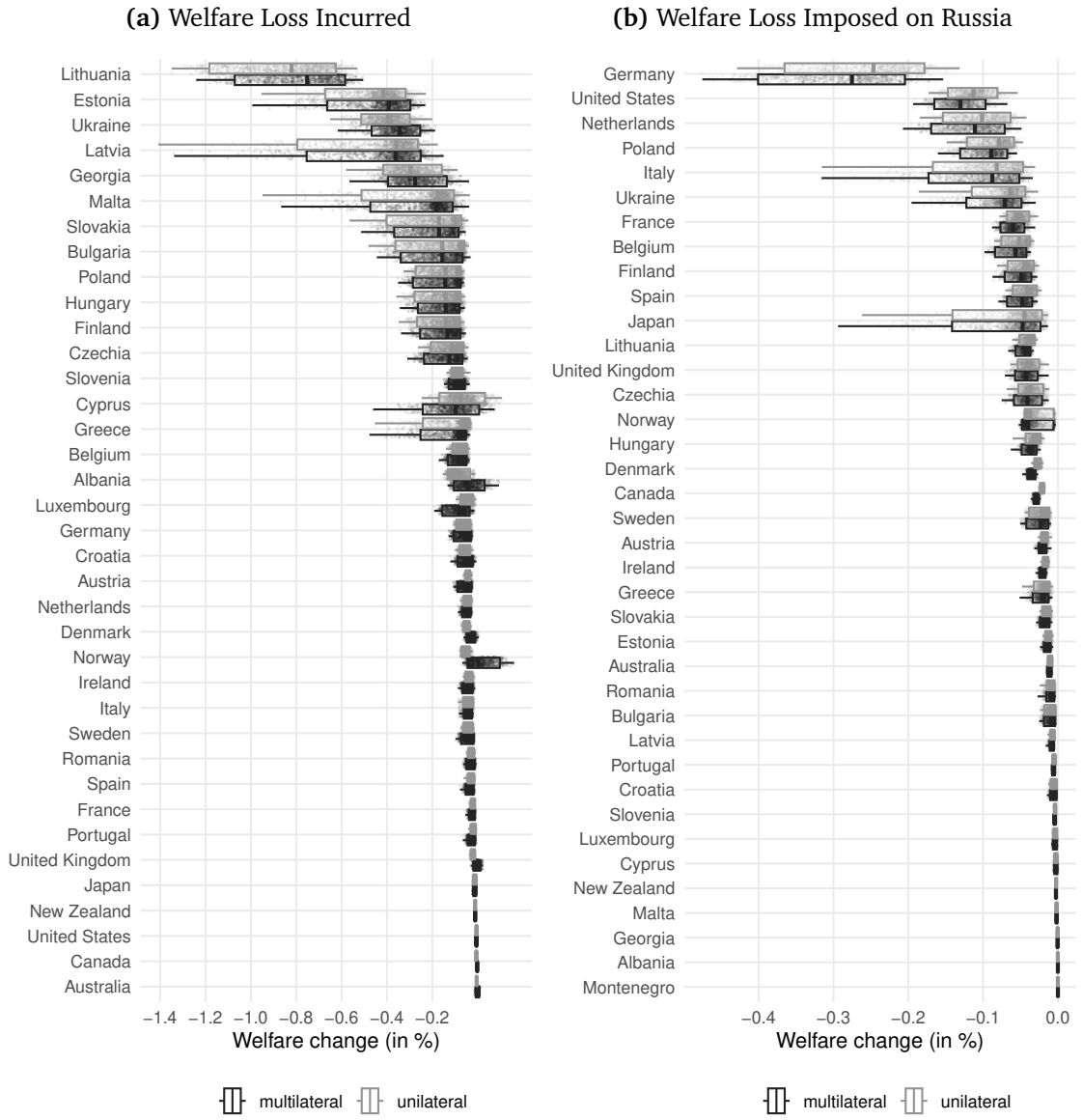
Counter-Sanctions and Retaliation

As countries targeted by sanctions increasingly employ reciprocal sanctions, also denoted as "counter-sanctions", authors investigate whether these might have equally damaging, or potentially even more harmful, impact than the initial sanctions. In 2014, the US, EU, Canada, Japan, Ukraine, and other countries imposed economic sanctions on the Russian Federation due to its annexation of Crimea. In response, the Russian Federation imposed counter-sanctions and introduced import bans on a wide range of agricultural products. The impact of these sanctions and counter-sanctions are examined by Nguyen and Do (2021). According to their results, sanctions led to a significant decline in Russia's exports, especially in oil products, and counter-sanctions also substantially reduced its imports. There was a 25% decline in the Russian aggregate export values and a 26% decrease in its imports from sanctioning countries. The results are not homogeneous among product categories, with a reduction of about 37% of Russia's export value of oil products, while the effects on non-oil categories were insignificant. On the other hand, the counter-sanctions caused a decline in the import value of agro and non-agro products by 55% and 21%, respectively. Overall, these non-tariff barriers were harmful to both sanctioning and sanctioned economies.

Moreover, Bělín and Hanousek (2021) conclude that the Russian sanctions imposed on European and American food imports after 2014 resulted in about an 8 times stronger decline in trade flows than those imposed by the EU and the US on exports of extraction equipment. This is due to the fact that the costs of imposing trade restrictions are higher for the sender countries, the Western coalition designing its sanctions in such a way as to minimize costs to domestic interest groups, allowing exporters to honour pre-existing contracts. The consequences of the Russian agricultural import ban in 2014 are also investigated by Fedoseeva and Herrmann (2019), who focus on the German export market. According to their study, the ban is just one of a list of factors that have reduced exports. Other significant contributors include political imbalances, the depreciating ruble, and falling oil prices. Thus, lifting the ban alone is unlikely to restore trade with Russia to pre-sanction levels.

Chowdhry et al. (2024) provides an example of a general equilibrium model calibration aimed at assessing the welfare losses experienced by Russia and the countries in the Western coalition. Figure 3 presents the results for the case of the 2014 sanctions against Russia. The study employs a quantitative general equilibrium trade model similar to that of Caliendo and Parro (2015). The panel on the left displays the welfare losses incurred by each member of the coalition sanctioning Russia. The heterogeneity is substantial. Small countries (due to their structural openness to trade and hence greater sensitivity to

Figure 3: Costs of Sanctions on Russia (2014) – Source: Chowdhry et al. (2024)



trade disruptions) and/or those geographically close to Russia bear relatively high costs: the welfare loss for the Baltic states is estimated between -0.8% and -0.2%. Conversely, countries with limited trade exposure to Russia suffer negligible losses.

The right panel illustrates the welfare cost borne by Russia, attributable to each coalition member. Here, economies with significant weight in Russia's exports and/or imports naturally have the greatest impact (e.g., Germany, the United States, and Poland). This clearly highlights the role of size asymmetries in the dynamics of sanctions. Sanctions are more effective (in the sense that the cost imposed is greater than the cost incurred) when imposed by a major trading power (which constitutes a large share of the target country's trade) on a smaller country (which accounts for a small share of the sanctioning country's

trade).

The figures also underscore the importance of coalitions. Two scenarios are tested. The "unilateral" scenario shows the costs (imposed and incurred) if each country decides to sanction Russia independently, without others' involvement. The "multilateral" scenario illustrates the welfare consequences when each country opts to join an already-formed coalition of sanctions. It becomes evident that unilateral sanctions are costlier for the sanctioning country and less effective (with smaller costs imposed on Russia). The logic is straightforward: if a country like Poland sanctions Russia alone, the latter can relatively easily redirect its trade, both imports and exports, to other European countries. However, if Poland joins the European coalition, Russia must seek alternative suppliers and markets further afield, leading to greater price increases (due to higher import costs) and larger wage reductions (due to decreased perceived demand and the need for greater competitiveness).

3 Case Study: Macro-level Impact of the Sanctions against Russia in 2014 and 2022

In 2014, following the annexation of Crimea and the conflict in Eastern Ukraine, the US, EU, and partners imposed sanctions on the Russian Federation. Russia responded with agricultural counter-sanctions. In February 2022, the full-scale invasion of Ukraine triggered a broader and more coordinated package of trade and financial measures, including, early on, the exclusion of seven Russian banks from the SWIFT system (March 2022). As discussed above, third countries such as China, India, and Türkiye largely remained outside the coalition, shaping both circumvention incentives and third-country effects.

3.1 Methodology

This section provides a quantification of the trade sanctions against Russia imposed in 2022, along with a comparison to the sanctions of 2014, using a quantitative model. The method replicates the approach by Chowdhry et al. (2024), relying on a general equilibrium multi-country, multi-sector trade model with input-output linkages inspired by Caliendo and Parro (2015). In the model, technologies are Ricardian, markets are competitive, and sectors are linked through input–output networks, so shocks propagate along supply chains. The model is solved in changes ("hat algebra"), which avoids recovering hard-to-observe levels and makes large counterfactual exercises tractable. Sanctions enter as bilateral, sector- and direction-specific increases in trade costs. Calibration draws on WIOD for IO coefficients, consumption shares, tariffs, and global services/energy trade. BACI is used for goods trade shares and balances. Uncertainty is quantified with a Bayesian bootstrap.

We draw common weights across sectors so the correlated trade-network structure is preserved, re-estimate the gravity shocks under those weights, and feed each draw through the general-equilibrium model. This yields confidence bands for both the sanction-induced trade-cost changes and the simulated outcomes (here, welfare for targets and senders).[5].

The following scenarios are considered:

- Scenario 1 examines the 2014 sanctions and counter-sanctions against Russia.
- Scenario 2 evaluates the impact of the 2022 sanctions against Russia.
- Scenario 3 simulates the consequences of extending the 2022 coalition to all other countries worldwide (including China). While highly improbable, this hypothesis gauges the current coalition's coercive power.
- Scenario 4 simulates the effects of the U.S. withdrawing from the coalition. This scenario is more plausible, potentially reflecting a shift in U.S. policy under a more isolationist administration or one less invested in European affairs. Crucially, it highlights the U.S. contribution to putting pressure on Russia.
- Scenario 5 simulates the impact of intensifying sanctions to a complete trade embargo (total blockade).
- Scenario 6 considers a total embargo imposed only by the EU, with other coalition countries maintaining sanctions at current levels.
- Scenario 7 represents the most extreme case: a global embargo on Russia, effectively placing the country in complete autarky.

3.2 Results

Figures 4a and 4b show the welfare impact of the sanctions in 2014 and 2022 on sanctioning countries. Welfare changes are measured as percentages of real national income reductions, with negative values indicating welfare losses.

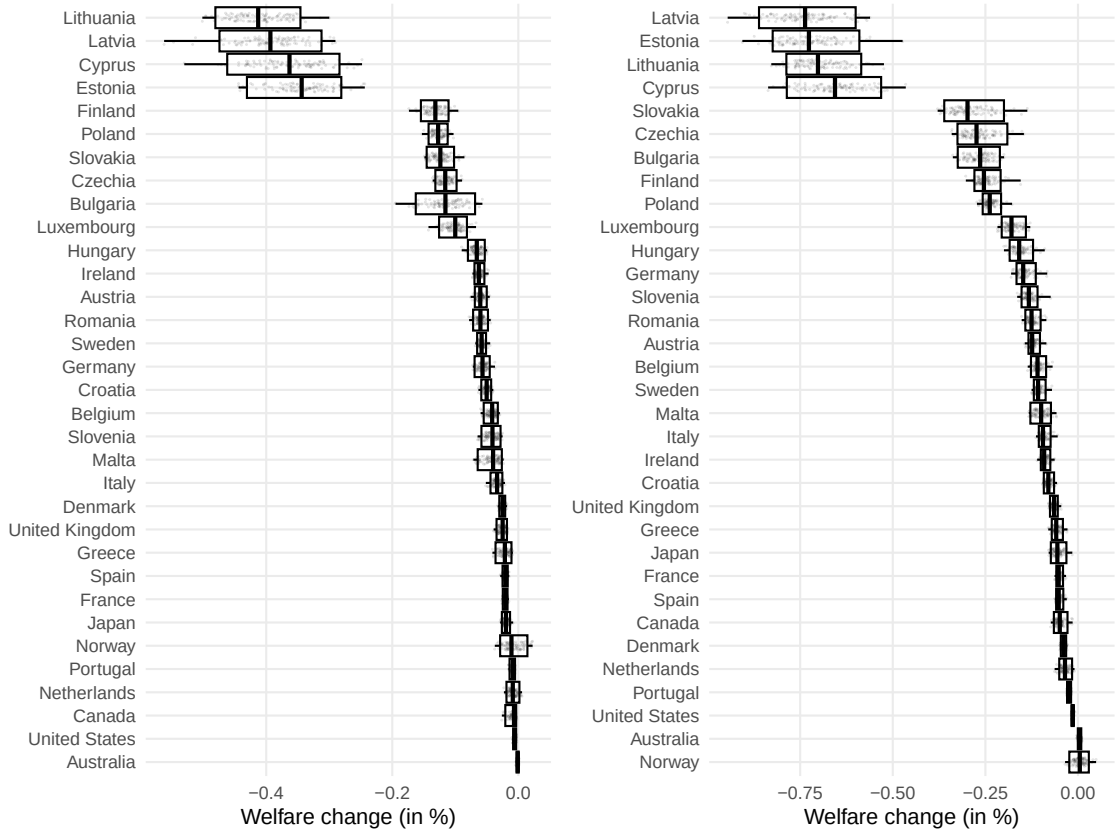
In the 2014 sanctions scenario (4a), the countries most affected in terms of welfare costs are Lithuania, Latvia, Cyprus, and Estonia—countries with historically close economic ties to Russia. For these countries, welfare reductions approach -0.4%.[6] Conversely, countries far away from Russia and less economically involved in the region — like Australia, the United States, and Canada — show almost negligible and statistically insignificant welfare variations. For France, the welfare loss attributed to sanctions is estimated at -0.02%.

In the 2022 sanctions scenario (4b), the most affected countries again include Latvia,

[5] See Chowdhry et al. (2024) for a complete technical description.

[6] A 0.4% change is economically significant. During the 2010s, the Baltic states recorded annual growth rates of about 3%. Losing roughly half a percentage point represents about one-sixth of annual growth.

Figure 4: Impact Estimates of Russian Sanctions in 2014 and 2022



(a) Scenario 1: Benchmark 2014 **(b)** Scenario 2: Benchmark 2022

Note: The corresponding welfare loss for Russia is -1.06% (Scenario 1) and -2.62% (Scenario 2); see Table 1.

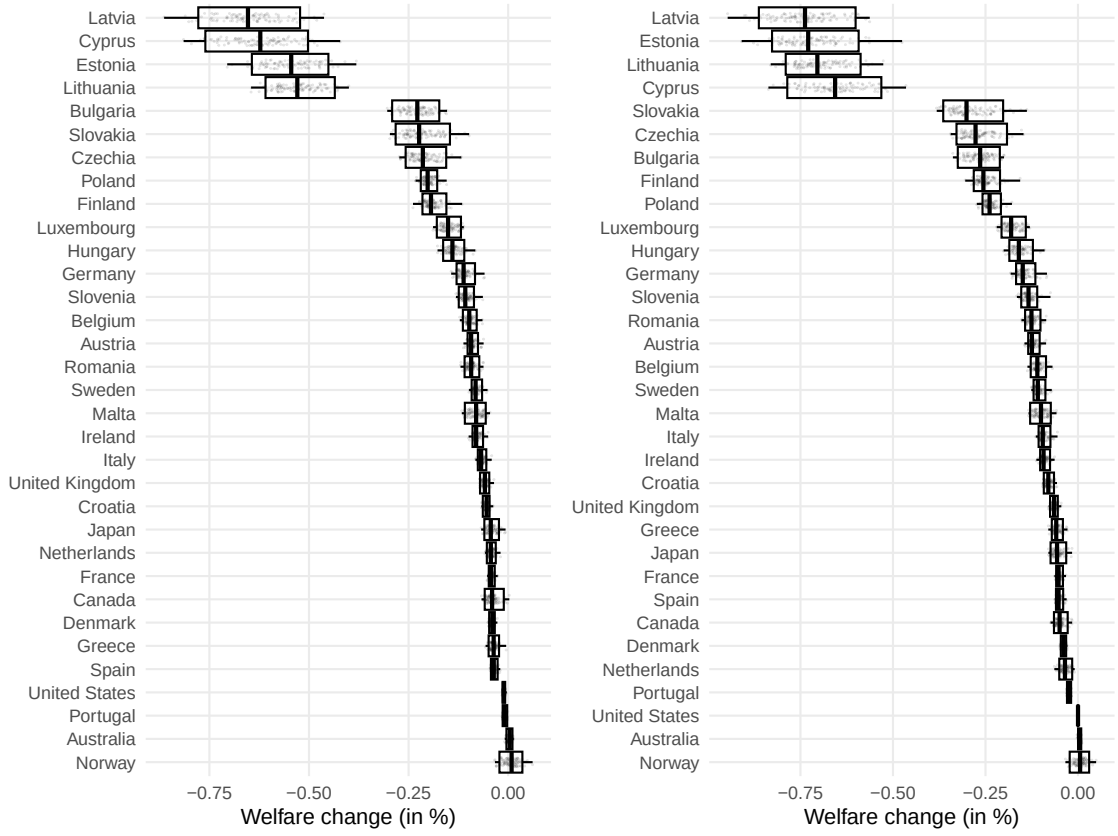
Estonia, Lithuania, and Cyprus, but the losses are now nearly twice as large: around -0.75% of real income. For the least affected countries (the U.S., Australia, and Norway, which benefited from rising energy prices), the associated costs remain economically and statistically insignificant. France's cost has increased significantly compared to 2014, yet remains modest at -0.05%. The United Kingdom's estimated loss is -0.065%, and Germany—highly dependent on exports—bears a noticeably higher cost of -0.148% (up from -0.057% in 2014). On average (weighted by GDP), the EU's total welfare cost is around -0.1% (compared to -0.047% in 2014).

These welfare losses for European countries, while small fractions of real income, are a sizable—and easily overlooked—component of Western support for Ukraine. The Kiel Institute for the World Economy's Ukraine Support Tracker records aid allocations since February 2022: by April 2026, EU countries and institutions had allocated USD 207 billion, the United Kingdom USD 24 billion, and the United States USD 132 billion—with new U.S. aid having largely dried up since early 2025. The cost of sanctions comes on top of these direct contributions. If, as estimated, the EU and UK suffered a loss equivalent to 0.1% of real GDP, this amounts to roughly USD 41 billion over the first two years of the war alone.

Any accounting of the Western war effort that ignores the self-inflicted cost of sanctions hence understates Europe's contribution considerably.

The impact on Western countries pales in comparison to the economic shock imposed on Russia. In the 2014 baseline scenario, sanctions cost Russia approximately 1.05% of welfare. In 2022, this figure increased significantly to 2.6%. This is about 26 times higher, as a percentage of national income, than what EU countries endured. Considering differences in economic size, the absolute cost for Russia compared to Europe is smaller. The 2.6% reduction in 2021 real income corresponds to over USD 40 billion—double the amount borne by the European coalition, though it is close to the total cost borne by the entire Western coalition.

Figure 5: Hypothetical Coalition Scenarios



(a) Scenario 3: Global Coalition **(b)** Scenario 4: Coalition Without the U.S.

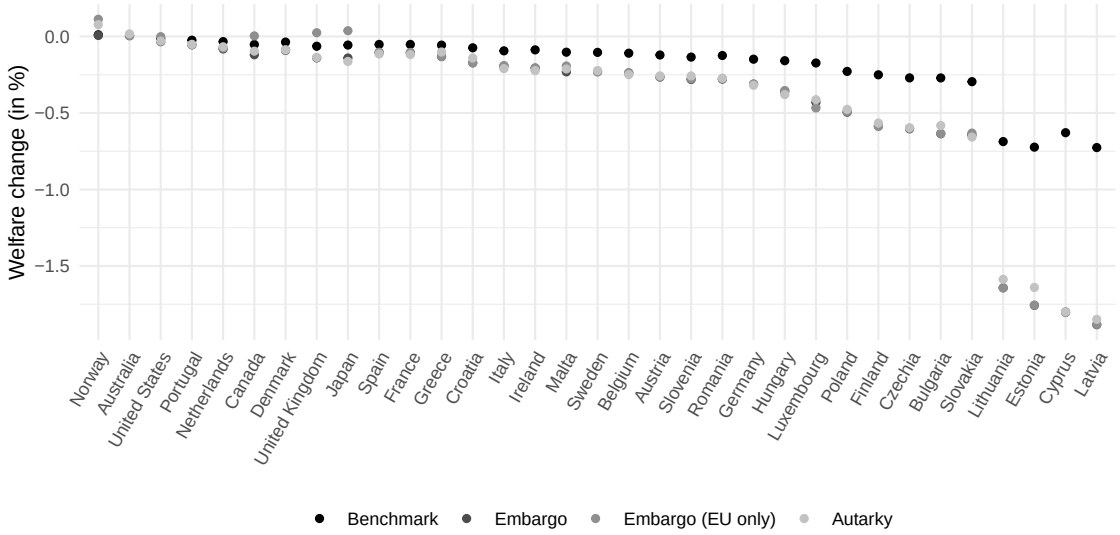
Note: The corresponding welfare loss for Russia is -7.23% (Scenario 3) and -2.51% (Scenario 4); for China—which joins the global coalition under Scenario 3—it is -0.03%. See Table 1.

Figures 5a and 5b present results from two hypothetical scenarios (3 and 4). On the left, the impact of 2022 sanctions applied by a global coalition is shown. While this is highly unlikely, it evaluates the power of circumvention mechanisms. Excluding Russia, the European countries most affected remain Latvia, Estonia, Lithuania, and Cyprus. The magnitude of shocks is also very similar to Scenario 2, with only minor variations. The

main difference is seen in Russia. Multiplying bilateral relationships under sanctions and limiting Russia's ability to turn to substitute suppliers triples the welfare loss to -7.23%. Extending the coalition does not equitably distribute the economic burden of sanctions but instead amplifies efforts and increases pressure on Russia.

Scenario 4—the U.S. leaving the coalition—has since partially materialized. Following the change of administration in January 2025, new U.S. aid to Ukraine largely stopped, enforcement of the oil price cap was suspended, and for months no new designations were issued, even though existing sanctions remained formally in place and were in October 2025 even extended to Rosneft and Lukoil. The simulation gauges the trade-sanctions dimension of a full withdrawal: the costs borne by European countries would remain nearly the same, and the blow to Russia would be largely unaffected—from -2.6% in the baseline scenario to -2.51%. On the sanctions front, then, the U.S. contribution is modest. Its weight lies in military aid and intelligence support.

Figure 6: Alternative Scenarios



Note: Russia's welfare losses by scenario: -2.62% (Scenario 2, baseline), -5.05% (Scenario 5), -3.8% (Scenario 6), and -20.67% (Scenario 7); see Table 1. For China, the corresponding welfare change is $+0.03\%$ (Scenario 5) and -0.12% (Scenario 7).

Figure 6 shows results for Scenarios 5, 6, and 7, focusing on the intensity of trade restrictions rather than coalition size. As before, the economic costs of each sanctions package are shown as changes in average welfare (confidence intervals are omitted for simplicity). Different colors represent scenarios: black for the baseline (2022 sanctions), orange for a total embargo imposed by the current coalition, purple for an EU-only embargo, and green for a global embargo on Russia.

Tightening sanctions would increase the economic cost for coalition countries. The

difference is stark for the hardest-hit nations: Latvia, Estonia, Lithuania, and Cyprus, whose welfare losses approach or exceed -1.5% under extreme measures, compared to -0.7% in the current situation. Conversely, broadening the coalition (total autarky, green points) slightly eases their burden. At the opposite end, countries like Norway, Australia, the U.S., and Canada show minimal welfare changes. Norway might even benefit from a complete trade disruption with Russia.

Unsurprisingly, Russia itself remains by far the hardest hit in any hypothetical scenario. Under a total embargo by the current coalition, Russia would experience a 5.05% decline in real income. If only the EU implemented an embargo, the decline would still be 3.8%, while global autarky would impose a 20.67% loss of GDP. The economic costs of sanctions for Russia across scenarios are summarized in Table 1. The figure of 20.67%, representing the most extreme and least probable case, is worth discussing. While this equates to an immense economic crisis, it would not completely cripple the Russian economy. Like all large nations, Russia is structurally less exposed to trade shocks due to production diversity and transport costs. Nevertheless, this figure provides a benchmark for evaluating the intensity and effectiveness of current sanctions. With a 2.62% economic cost, existing sanctions achieve just over 10% of the maximum possible impact—a non-negligible outcome. Comparing Scenarios 2 and 5 is even more illuminating since intensifying sanctions is more feasible than expanding the coalition. Tightening trade restrictions to the maximum would double Russia's cost from -2.6% to -5.05%. This represents the remaining leverage available for threats to exert greater pressure on Russia.

The scenarios above model sanctions as bilateral trade-cost increases and hence abstract from an instrument that has moved to the center of the policy debate since 2022: the G7/EU price cap on Russian seaborne oil. Introduced in December 2022 at USD 60 per barrel and designed to keep Russian oil flowing while squeezing its price (Johnson et al., 2023), the cap was lowered to USD 47.60 in September 2025 and—under a mechanism holding it 15% below the market price of Urals crude—to USD 44.10 in early 2026. The empirical evidence on its bite is mixed. Customs-based estimates suggest that the cap and the accompanying EU embargo forced substantial discounts on Russian crude (Hilgenstock et al., 2026), while Kilian et al. (2026) attribute the bulk of the Urals discount to shipping costs and bargaining power rather than the cap itself. Circumvention has been substantial in any case: Russia assembled a "shadow fleet" of tankers operating outside Western insurance and shipping services—more than 600 vessels of which the EU had designated by mid-2026—moving a large share of its oil exports beyond the cap's reach (see Spiro et al., 2025, for an assessment of the oil sanctions). The episode illustrates a general lesson of this section: unilateral or partial measures leak, and their effectiveness rises with the breadth of the enforcing coalition.

Table 1: Summary of Welfare Effects by Sanction Scenarios

Scenario	Coalition	Sanction Intensity	Cost Imposed on Russia
Benchmark			
1	2014 Group	2014 Measures	1.06%
2	2022 Group	2022 Measures	2.62%
Counterfactual Scenarios - Coalition			
3	Global	2022 Measures	7.23%
4	Without U.S.	2022 Measures	2.51%
Counterfactual Scenarios - Embargos			
5	2022 Group	Total Embargo	5.05%
6	EU	Total Embargo	3.8%
7	Global	Total Embargo	20.67%

4 Firm-level Impact of Trade Sanctions

Another dimension to consider when evaluating the impact of sanctions on trade is the distinction between a simple reduction in trade volumes and higher prices, and a complete interruption of trade flows. This analysis requires using microeconomic data from firms' customs declarations. Aggregate reductions in exports (or imports) can be broken down into two complementary margins: the intensive margin, representing a reduction in the traded volume, and the extensive margin, which reflects the complete cessation of transactions. This distinction matters. Expanding trade networks into new destinations requires significant investments in building business relationships. This development is costly and gradual (see, for example, Morales et al. (2019) or Albornoz et al. (2012)). Extending firms' international networks is even slower and more challenging in environments characterized by high country risk (Berman et al., 2019).

The decision to entirely exit a sanctioned market may result explicitly from sanctions (e.g., for firms exporting prohibited goods) or from economic calculations when trade difficulties outweigh expected benefits. It may also reflect long-term strategic decisions, such as preserving brand image or market development.[7] The long-term impact of sanctions on trade differs depending on whether they primarily affect the extensive or intensive margins. Extensive margin effects are generally more profound and enduring: rebuilding business networks is costly in terms of both time and investment. Consequently, the effects of sanctions are asymmetric: lifting sanctions does not simply reverse their initial impacts. If sanctions are strong enough to disrupt trade relationships, they alter business networks. Firms in both sanctioning and sanctioned countries sever their bilateral relationships and establish new ones, meaning the end of sanctions does not restore the initial status quo. For instance, Crozet et al. (2021) shows that the partial lifting of sanctions against Cuba or Myanmar did not lead to a sudden boom in bilateral trade comparable to the

[7]This phenomenon of firms voluntarily leaving a market is often referred to as "self-sanctions".

decline observed when sanctions were imposed. Similarly, Aytun et al. (2025) analyzed the relatively short-lived sanctions episode of Russia's agricultural embargo against Turkey following the November 2015 downing of a Russian military aircraft near the Syrian border. Their findings reveal clear negative effects on Turkish exports during the sanctions period, which persisted even after the embargo was lifted. Moreover, firms directly affected experienced a lasting reduction in sales (including in domestic markets) and employment.

A complete cessation of trade amounts to the destruction of intangible assets, which sanctions exacerbate by increasing the inherent uncertainty of international trade. Their proliferation raises the costs of developing operations in countries likely to be sanctioned, particularly for younger, less experienced firms with less diversified market portfolios and greater financial constraints (see, for example, Dickstein and Morales (2018) or Berman et al. (2019)). Sanctions, especially those impacting the extensive margin, thus have heterogeneous effects across sectors (e.g., depending on reliance on trade financing or insurance tools, cf. Crozet and Hinz (2020), Crozet et al. (2021)) and firm types. They may also influence trade relationships with other nations sharing similar geopolitical profiles.

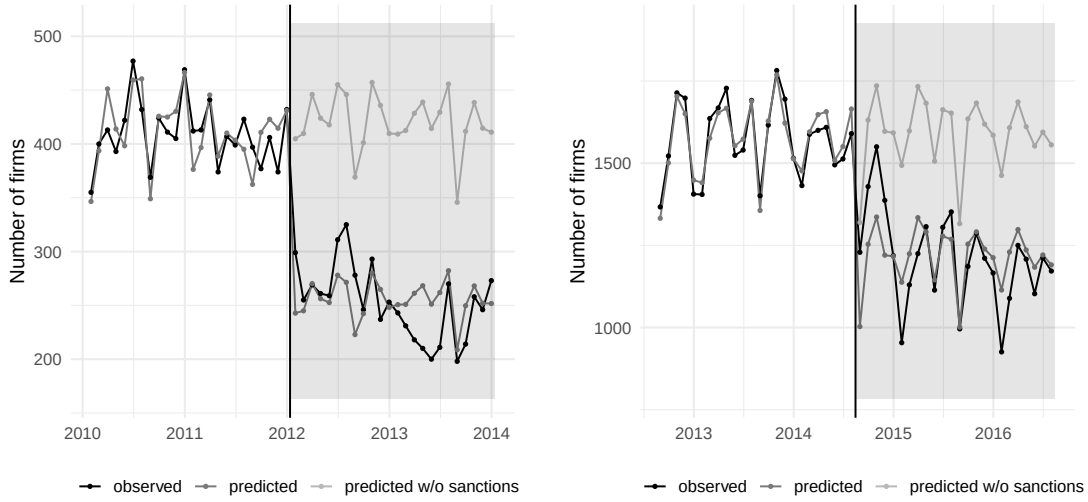
On the extensive margin, the firm-level evidence is instructive. Using highly disaggregated French customs data, Crozet et al. (2021) study sanctions against Iran (2012), Russia (2014), Myanmar, and Cuba, and show that prior market experience mitigates exit, while finance intensity matters for continuation. Figure 7 contrasts the observed number of French exporters with model-based predictions with and without sanctions. The gap to the counterfactual is the extensive-margin exit induced by the sanctions. Crozet et al. also document asymmetry: lifting sanctions does not simply reverse the imposition due to relationship-specific sunk costs and network re-wiring.

Investor and consumer pressures can further push exits. Around the 2022 invasion, companies that publicly remained in Russia under-performed peers that exited, consistent with an equity-market penalty (Tosun and Eshraghi, 2022). Survey evidence points in the same direction: a majority of U.S. respondents state they are willing to boycott firms that remain in Russia (Hart et al., 2024). Actual divestment was nonetheless slow—by late 2022, only about 8.5% of EU and G7 firms with Russian subsidiaries had completed an exit (Evenett and Pisani, 2023).

On the intensive margin, for firms that continue trading, volumes typically decline. Crozet and Hinz (2020) show for French exporters during the 2014 Russia episode that the bulk of the "lost trade"—displayed in Figure 8—occurred in *non-embargoed* goods, consistent with sanctions raising financing frictions and country risk, not simply banning listed products.

Comparable firm-level evidence exists for other senders: Germany (Görg et al., 2024), Denmark (Jäkel et al., 2024), and the Netherlands (Kohl et al., 2024) report reductions among firms remaining active, with magnitudes varying by finance intensity, product type,

Figure 7: Impact of Sanctions on the Extensive Margin of Trade (Source: Crozet et al. 2021)



(a) Iran sanctions (2012) **(b)** Russia sanctions (2014)

Notes: Observed exporters (red), model-predicted under sanctions (green), and counterfactual without sanctions (blue). The gap to the counterfactual indicates exits along the extensive margin.

and pre-existing relationships. The next section revisits both margins for the 2022 episode against Russia, where product-level variation in targeting allows the effect of the sanctions to be separated from the broader wartime shock.

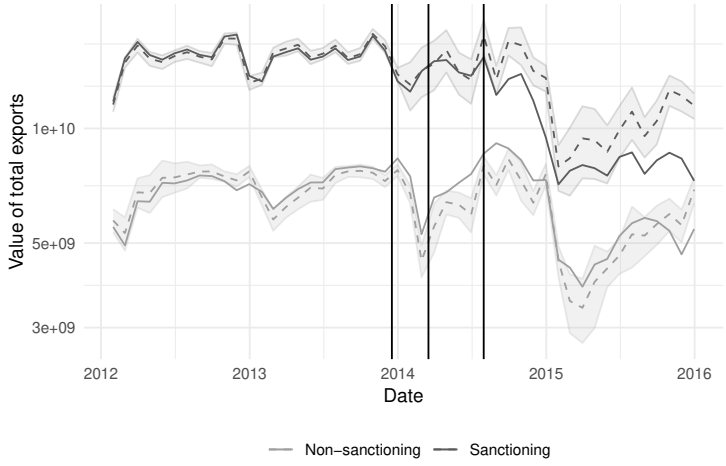
5 Case Study: French Firm-Level Impact of the Sanctions against Russia in 2014 and 2022

We now turn to the quantification of the impact of the 2014 and 2022 sanctions against Russia at the firm-level in a *sanctioning* country.[8]

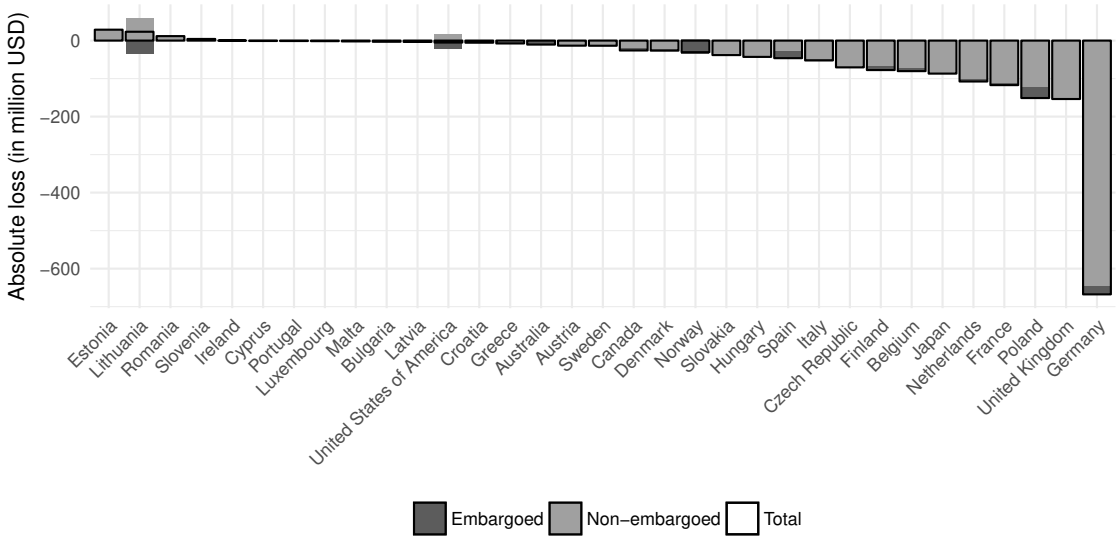
Using French data we quantify the impact along different margins and channels. The French customs authorities provide researchers with detailed customs declarations by French firms. The data are aggregated by firm (identified via their SIREN number),

[8]Egorov et al. (2025) provide an almost exhaustive account of the impact of the 2022 sanctions against Russia for the Russian side in an identically named paper. For their analysis they link a hand-coded sanctions dataset to Russian customs data at the firm level, firm balance sheets, domestic rail shipments, and procurement records to measure the real effects of the 2022 sanctions regime. Difference-in-differences estimates show sanctioned country–product flows to Russia fell by about 62% after February 2022 (nearly 80% by end-2023). Imports of sanctioned goods via "friendly" countries (e.g., China, Turkey) rose sharply — roughly 150% and largely through rerouting of Western goods — but did not fully offset losses: total Russian imports of sanctioned products were still down 27% through 2023. Firms that had relied on soon-to-be-sanctioned inputs experienced sizable output declines (≈14% lower revenues on average, ≈20% in science/technology; similar effects in manufacturing), weaker procurement outcomes (–2.4 pp probability of any award; –31% contract value), and negative spillovers along supply chains to their buyers and suppliers. While certain critical military components were preserved via rerouting, Egorov et al. conclude that measures materially constrained Russian production capacity and propagated economy-wide.

Figure 8: Lost Trade for Sanctioning Countries in the 2014 Russia Sanctions (Source: Crozet and Hinz 2020)



(a) Observed vs. counterfactual exports to Russia



(b) Average monthly export loss (US$ millions) by sender

Notes: The bulk of lost exports arises in non-embargoed products, consistent with finance/trust frictions binding even where trade is legally permitted.

product (classified under NC8), destination country (for exports), or origin country (for imports), and by month. This creates a large dataset of bilateral monthly trade flows at the microeconomic level. Throughout this section, a "flow" denotes a firm–product–destination–month observation in French customs data. Products are aggregated at the HS4 level. The data cover the period from January 1993 to December 2023, allowing for the observation of French firms' responses to several sanctions episodes.

This analysis focuses on the case of Russia in 2022[9]. Data on extra-EU trade flows are nearly exhaustive, while for intra-community flows, they are partially censored (Bergounhon et al., 2018). The vast number of observations necessitates choices for econometric analyses, such as aggregating products or destinations to manage the database's size. Specifically, for the econometric analysis below we will limit the data to the years 2021 to 2023.

Figure 9 provides an overview of over 30 years of French exports to Russia. From 1993 to 2013, French exports grew steadily, weathering the 1998 Russian financial crisis and the 2008 global financial crisis. The political tensions of 2014 and 2022, however, caused far greater trade disruptions. In 2014–15, exports fell by nearly half, a decline attributable to the conflict itself (and the associated rise in country risk), economic disruptions (a falling ruble and oil prices), EU sanctions, and the Russian agricultural embargo. Trade subsequently resumed its upward trend, suggesting much of the decline was driven by temporary instability. By early 2022, French exports had nearly recovered to their 2013 peak. The trade collapse in 2022, however, was unprecedented in its speed and depth. Within a month, approximately two-thirds of French exports vanished, falling to their 1998 levels.

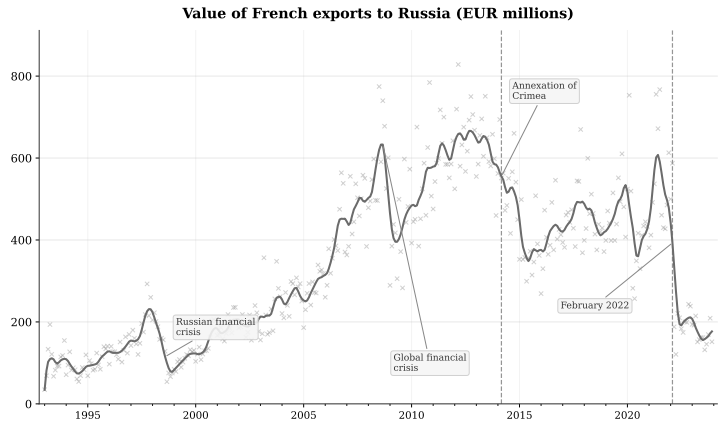
The total exported value can be decomposed into an extensive margin (the number of exporting firms) and an intensive margin (measured here by the average value per flow). The shock of February 2022 is particularly striking on the extensive margin (Figure **??**). While the 2014 crisis reduced the number of exporters from approximately 2,000 to 1,500, the 2022 crisis saw this figure plummet from 1,200 to just over 300—a level not seen since before 1993. It is also notable that, even as export values rebounded between 2015 and 2021, the number of exporters continued to decline. Conversely, the average intensive margin shown in Figure 9c increased sharply after February 2022. This should not be interpreted as larger exports by continuing firms. Rather, it is a composition effect. Smaller firms tended to exit the market abruptly, meaning those that continued exporting were, on average, larger to begin with. Our econometric results confirm that these remaining firms also reduced their individual export volumes. Figures 10 and 11 show, by sector, the two episodes of sudden declines in exports to Russia. They display the change in total export value and the trend in the number of exporters. Both trade collapses are visible across virtually all sectors.

This pronounced shift toward an extensive-margin adjustment is significant. On one hand, it suggests that French exporters perceived the 2022 rupture as deeper and more durable than that of 2014, likely reflecting heightened geopolitical risks beyond the sanctions themselves. On the other hand, it implies that any potential return to normalcy will be slow and arduous, as severed trade networks are costly and time-consuming to rebuild

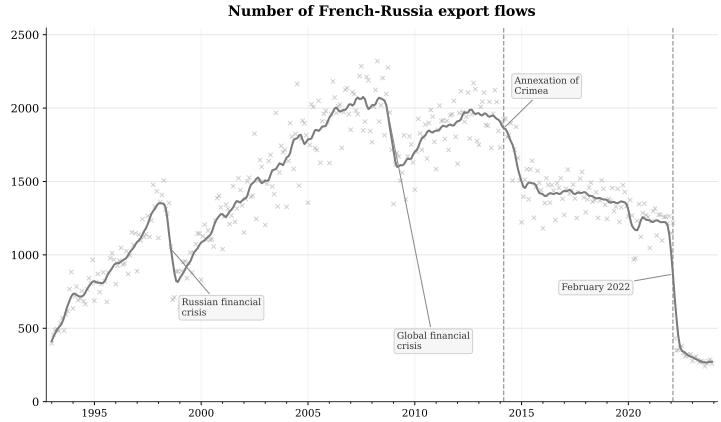
[9] See Crozet and Hinz (2020) for an analysis of the 2014 Russian sanctions and Crozet et al. (2021) for studies on sanctions against Iran and Myanmar.

Figure 9: 30 Years of French Exports to Russia

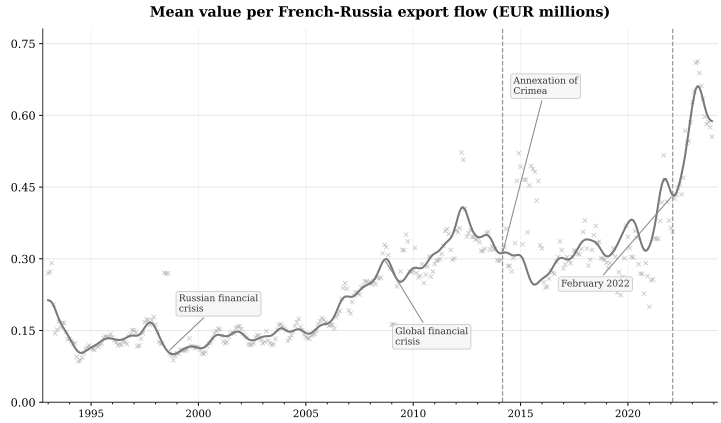
(a) Current Export Values



(b) Extensive Margin (Number of Flows)



(c) Average Intensive Margin (Value per Flow)

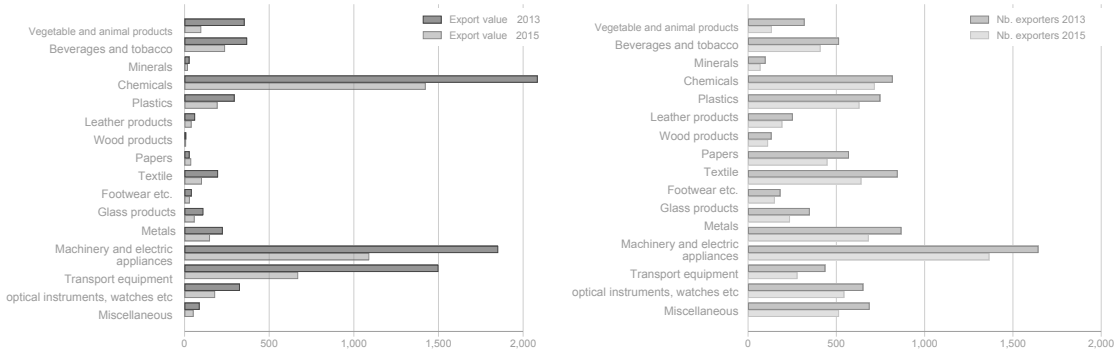


Source: Authors' calculations, French customs data

(see Crozet et al., 2021; Aytun et al., 2025).

Figure 10: The Decline in French Exports to Russia—2014

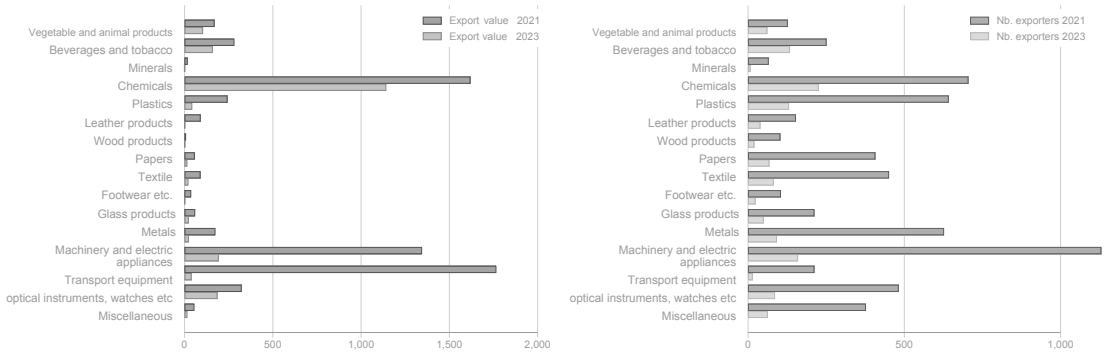
(a) Values **(b)** Number of Exporters



Source: Authors' calculations, French customs data

Figure 11: The Decline in French Exports to Russia—2022

(a) Values **(b)** Number of Exporters



Source: Authors' calculations, French customs data

5.1 Methodology

In order to identify the impact of the sanctions regime on the observed overall effects, we use a triple difference setup to control for unobservable factors specific to each firm, product, destination, and time period. We estimate the following equation:

$$Trade_{ikdt} = \alpha \cdot Treatment_{dt} + \theta_{ikt} + \theta_{ikd} + \varepsilon_{ikdt}$$

where indices i, k, d, t denote firm, product, destination, and date, respectively. The high-dimensional fixed effects θ_{ikt} (firm-product-date) and θ_{ikd} (firm-product-destination) absorb unobserved shocks to a firm's export capacity and time-invariant aspects of a firm's relationship with a market. The variable of interest, $Treatment_{dt}$, is an indicator for flows to Russia after February 2022. We estimate the impact on the total trade value (PPML), the intensive margin (OLS on log values), and the extensive margin (LPM on a binary trade indicator). Note that to reduce the datasets' size, the control group is

restricted to European countries imposing sanctions, aggregated into two groups: Nordic and Central European countries, and Western European countries. Similarly, in our baseline specification, products are aggregated at the 4-digit level of the Harmonized System (HS4) classification while distinguishing between products explicitly targeted by EU sanctions and others. The observation period is limited to 2021–2023. The resulting database contains over 32 million observations and roughly 9 million when excluding zero flows.

The results in Table 2 (panel A, rows 1–3) confirm a sharp decline in French trade with Russia. The coefficient of -1.369 implies that, on average, a given firm's exports to Russia were 74.6% lower from March 2022 to December 2023 compared to 2021.[10] This decline is driven far more by the extensive margin than the intensive one. While the value of persisting trade flows fell by a modest but significant 25.4% (i.e. $1 - exp(-0,294)$), the probability of exporting in any given month dropped by 0.258, a 75.9% reduction relative to the 2021 baseline average probability of 0.34. The results obtained over a treatment period covering every month of 2023 (lines 4 through 6) are very similar.

Figure 12 presents the dynamic results, plotting the estimated coefficients for each margin on a monthly basis from 2021 through 2023. The coefficients are estimated relative to the baseline month of February 2022, which is omitted. For the total trade value (Panel (a)), the stable, non-trending coefficients throughout 2021 act as a placebo test, supporting the assumption that the sharp decline in 2022 resulted from an exogenous shock rather than a pre-existing trend. This lack of a pre-trend also suggests that the geopolitical events and their commercial consequences were largely unanticipated by firms. The drop is immediate and remains remarkably stable through December 2023. This stability suggests that while the initial shock drove the drop, the persistence of the effect was not primarily driven by the subsequent, incremental tightening of sanction packages.

Panels (b) and (c) of Figure 12 decompose this effect. The firm-level intensive margin (Panel (b)) shows a sharp initial drop, followed by a brief recovery, and then a gradual decline, stabilizing around 22% below 2021 levels. Firms that maintained their relationships with Russia initially appeared to pause shipments amid acute military uncertainty before subsequently fulfilling pre-existing orders, eventually settling at a lower level of engagement. In contrast, the extensive margin (Panel (c)) shows a sharp, permanent drop. Firms that exited the market did so decisively and did not return. This highlights two distinct firm responses: a definitive exit by one group, and a cautious continuation by another.

This analysis illustrates the shock's magnitude but does not disentangle its causes, which could include: de-risking by firms, a Russian economic slowdown, boycotts, reputational concerns, financing disruptions, or the direct effect of sanctions. Isolating the role of sanctions requires further steps, which we pursue in the next subsection by exploiting

[10] The effect is computed as $1 - exp(-1.369) \approx 0.746$.

Table 2: Impact of the 2022 Russia Sanctions on French Firms' Exports

	Margin	Treatment	Coefficient	Std. Error
Panel A: Aggregate effects				
(1)	Total	Russia-2022	-1.369^a	(0.347)
(2)	Intensive	Russia-2022	-0.294^a	(0.017)
(3)	Extensive	Russia-2022	-0.258^a	(0.002)
(4)	Total	Russia-2022/23	-1.544^a	(0.381)
(5)	Intensive	Russia-2022/23	-0.354^a	(0.014)
(6)	Extensive	Russia-2022/23	-0.267^a	(0.001)
Panel B: Targeted vs. non-targeted products				
(7)	Total	Non-targeted	-0.677^a	(0.014)
		targeted	-1.976^a	(0.499)
(8)	Intensive	Non-targeted	-0.107	(0.079)
		targeted	-0.301^a	(0.079)
(9)	Extensive	Non-targeted	-0.298^a	(0.012)
		targeted	-0.335^a	(0.009)
Panel C: Dual-use hierarchy				
(10)	Total	Targeted Non Dual-use	-1.276^a	(0.193)
		Targeted Dual-use	-2.752^a	(0.816)
(11)	Intensive	Targeted Non Dual-use	-0.168^a	(0.088)
		Targeted Dual-use	-0.497^a	(0.141)
(12)	Extensive	Targeted Dual-use	-0.339^a	(0.012)
		Targeted Non Dual-use	-0.331^a	(0.012)

Notes: Fixed effects: Firm-Product (HS4)-Destination and Firm-Product (HS4)-Date. Monthly data (2021–2022) and (2021–2023) for rows (4) to (6). Models: PPML (Total), OLS (Intensive Margin), LPM (Extensive Margin). Clusters: Firm-product. ^{a} indicates 1% significance level. Panels B and C report differential effects from interacting the treatment with sanctioned-product and dual-use indicators.

variation in the product-level targeting of EU export controls.

5.2 Targeted vs. Non-targeted Products

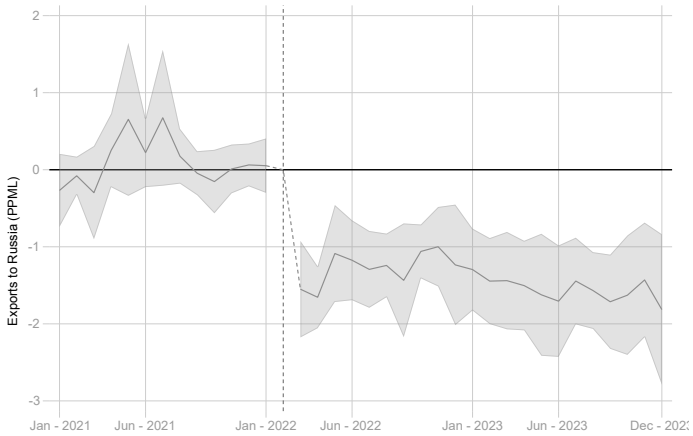
A more precise approach to assess sanctions' impact is to compare products explicitly targeted by EU export bans with those that are not.[11] Some products were already subject to restrictions before February 2022 (notably dual-use goods under the 2014 regime). Our classification treats the *cumulative* post-2022 list as the treatment, so products sanctioned earlier that remained on the list are included among targeted goods.[12] We use the product list compiled by Chupilkin et al. (2026), which is based on EU regulations covering dual-use

[11] Note that we use the terms "targeted" and "sanctioned" interchangeably.

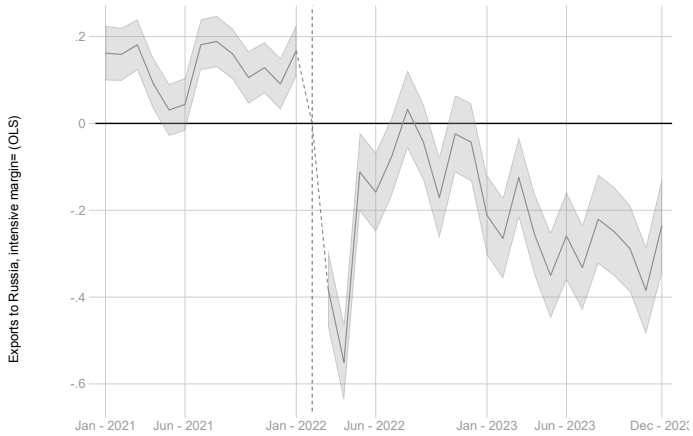
[12] In practice, the additional products placed under restriction after February 2022 dominate the variation, as the 2014 dual-use list was narrow.

Figure 12: Estimation of the impact of the 2022 conflict on French exporters to Russia

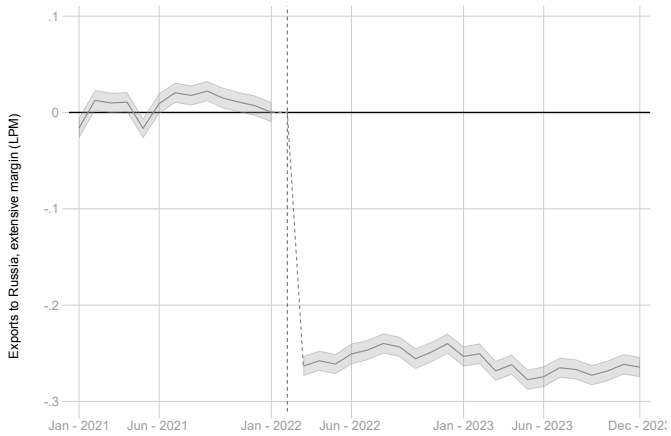
(a) Total



(b) Intensive margin
(values, excluding interruptions)



(c) Extensive margin
(probability of exporting)

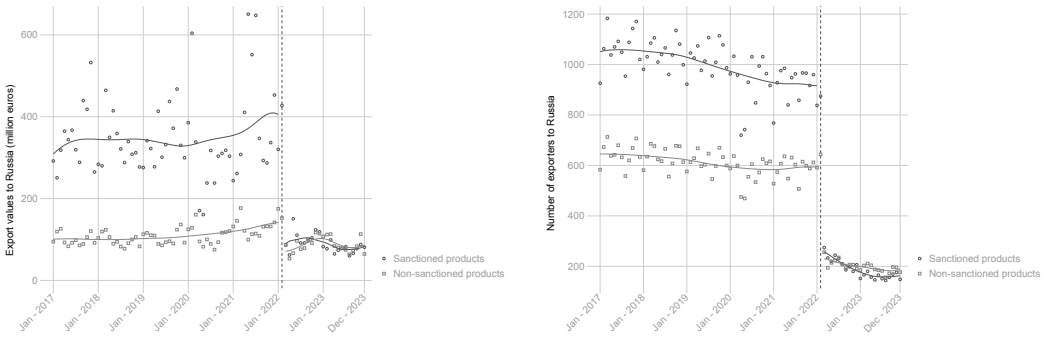


Source: Authors' estimations, French customs data

and other strategic goods.[13]

Figure 13: Evolution of exports to Russia for targeted and non-targeted products

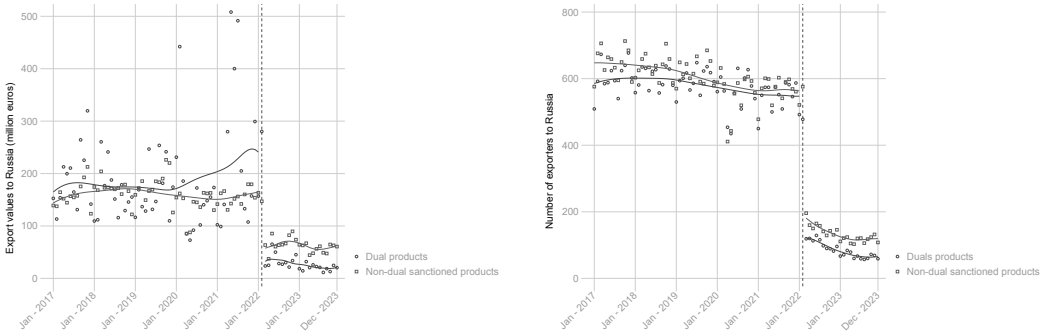
(a) Value **(b)** Number of exporters



Source: Authors' calculations, French customs data

Figure 14: Evolution of exports to Russia for dual-use and other sanctioned products

(a) Values **(b)** Number of exporters



Source: Authors' calculations, French customs data

Figure 13 provides a descriptive overview. In 2021, sanctioned products accounted for just over half of French export value to Russia. The figure shows a sharp decline for both goods subject to sanctions and those that are not. At first glance, the impact appears to be more pronounced for sanctioned goods, a finding confirmed by our econometric results. By interacting our treatment variable with an indicator for sanctioned products, we can formally test for this differential reaction.

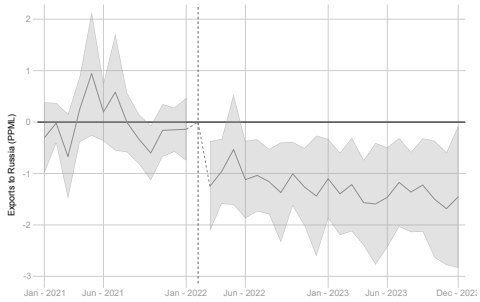
The econometric estimates in Table 2 (rows 7 to 9) quantify this differential impact. The effect on total export value is stark: after February 2022, the value of exports of non-targeted products fell by about 50% ($1 - \exp^{-0.677}$), whereas exports of sanctioned

[13]Products are defined at the six-digit level of the HS classification. The list is based on a review of European regulations, including Council Regulation (EU) No 833/2014 of 31 July 2014 concerning restrictive measures in response to Russia's actions destabilizing the situation in Ukraine, as well as the list of dual-use products, Regulation (EU) 2021/821 of the European Parliament and Council of 20 May 2021 establishing an EU regime for the control of exports, brokering, technical assistance, transit, and transfers of dual-use items.

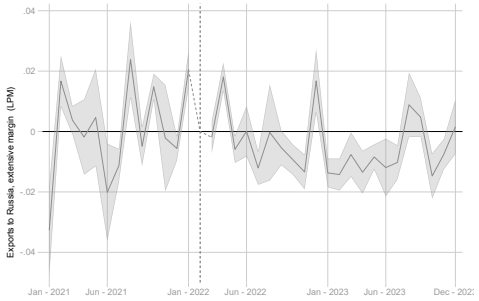
products fell by over 86%. This difference is driven primarily by the intensive margin (a larger reduction in flow values) rather than the extensive margin (where the difference in exit probability is not statistically significant). Figure 15 details the differential impact on products targeted by sanctions. For export values, the gap emerges immediately after February 2022 and remains constant, showing no further reaction to subsequent sanctions packages.

Figure 15: Overreaction of targeted product exports

(a) Export value, including interruptions (PPML)



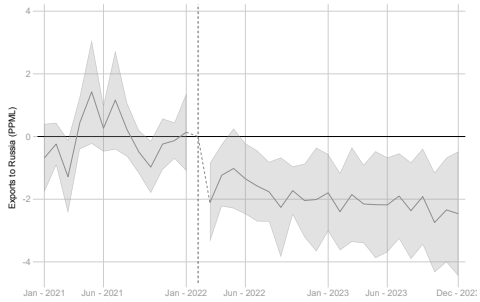
(b) Probability of exporting (LPM)



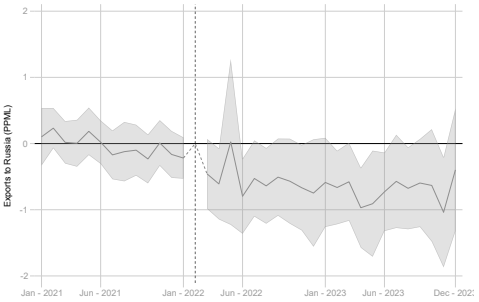
Source: Authors' calculations, French customs data

Figure 16: Overreaction of targeted product exports: dual-use vs other goods (Values, PPML)

(a) Sanctioned Dual-Use Products



(b) Sanctioned Non-Dual Products



Source: Authors' calculations, French customs data

We can further distinguish between dual-use items and other sanctioned goods (e.g., luxury items, mining equipment). Figure 14 shows the corresponding descriptive evolution. Table 2 (rows 10 to 12) reveals a clear hierarchy: the decline is most severe for dual-use products (a drop of nearly 94%), followed by other sanctioned products (-72%), and finally non-sanctioned products (-50%, see coefficient reported in row 7). The monthly estimates for dual-use and other sanctioned goods displayed in Figure 16. Once again, this hierarchy is driven by adjustments on the intensive margin.

6 Financial Effects of Trade Sanctions and Trade Effects of Financial Sanctions

The impact of trade sanctions propagates through financial links and capital markets beyond direct trade flows. Using German balance-of-payments microdata, Besedeš et al. (2021) find marked reductions in financial activities with sanctioned countries by non-financial firms, alongside redirection toward non-sanctioned partners—yet limited immediate effects on employment or total sales, suggesting short-run adaptation on the finance margin. Equity markets also embed these shocks: firms with higher Russia exposure saw lower cumulative returns around the 2022 invasion, particularly where commodity dependence was high (Biermann and Leromain, 2025).

The transmission runs through the plumbing of international payments. Financial sanctions restrict access to correspondent banking and payment-messaging infrastructure—most visibly the exclusion of Iranian banks from SWIFT in 2012 and of major Russian banks in 2022 (Cipriani et al., 2023). Evidence from TARGET2 transaction data suggests that, among the measures imposed on Russian banks, the SWIFT exclusion had the largest effect on payment flows (Drott et al., 2024), and banks anticipate and propagate such designations well beyond the targeted institutions (Efing et al., 2023). Because a substantial share of trade is bank-intermediated—letters of credit are the exemplary instrument (Crozet et al., 2022)—the loss of correspondent-banking relationships depresses exports directly (Borchert et al., 2026).

Not only do trade sanctions have effects in financial markets, but financial sanctions powerfully drive observed trade effects of accompanying trade sanctions. Targeted financial sanctions impose extensive monitoring costs on all international payments, creating friction for firms not directly targeted by trade sanctions. Crozet and Hinz (2020) show that the 2014 Russia sanctions had a significant negative impact on overall trade relations, even for non-sanctioned products, as displayed in Figures 8a and 8b. The effect was most pronounced for goods reliant on external financing and trade insurance, pointing to frictions generated by financial transaction sanctions as a key channel (Crozet et al., 2021). More recently, Bayer et al. (2026) provide direct evidence on the interaction between financial and trade sanctions, showing that the interaction is asymmetric: financial restrictions amplify the trade impact of export controls when they are imposed first—by disrupting the payment and credit channels on which cross-border transactions depend—but not vice versa.

At the macro level, financial sanctions reach beyond trade altogether. The freezing of roughly half of the Russian central bank's USD 600 billion in reserves in February 2022 was arguably the single most consequential measure of the 2022 package. Bianchi and Sosa-Padilla (2024) analyze such reserve freezes in a model of wars, sanctions, and sovereign

default. Itskhoki and Mukhin (2025) show that the composition of sanctions maps into the exchange rate—import restrictions appreciate the target's currency while export restrictions and asset freezes depreciate it—rationalizing the collapse and subsequent sharp appreciation of the ruble in 2022. However, the payment system itself adjusts: within two years of the invasion, more than a third of Russian imports were invoiced in renminbi, supported by People's Bank of China swap lines (Chupilkin et al., 2025b), and the prospect of further weaponization of dollar infrastructure may erode the very dominance on which this leverage rests (Bianchi and Sosa-Padilla, 2023).

7 The Limits of "Smart" Sanctions

Sanctions aim to influence political decisions or hinder specific economic capacities. Hence, ideally, sanctions are targeted to maximize pressure on decision-makers while sparing innocent populations and minimizing costs for sanctioning countries. This doctrine of "smart" or "targeted" sanctions has guided policy since the 1990s. However, the expectation that targeted sanctions can avoid collateral damage while remaining effective is widely considered unrealistic (Tostensen and Bull, 2002, e.g.).

Targeted sanctions include visa bans, asset freezes, restrictions on specific banks, and — in terms of trade sanctions — prohibitions on strategic products. In practice, measures aimed at a few individuals have limited leverage, and few measures successfully hit only their intended targets. This is due to two primary factors: (*i*) externalities, where shocks inflicted on specific targets ripple through the rest of the economy, and (*ii*) the ability of political authorities in the targeted country to compensate for losses, thereby shifting the burden of sanctions onto other actors.

7.1 Shields and Collateral Victims

Efforts by governments to protect targeted firms often result in a protective shield that rarely provides complete immunity but instead redirects sanctions to other actors who were expected to be spared.

This phenomenon is clearly illustrated in Ahn and Ludema (2020), examining the 2014 sanctions on Russia. Using records of Russian firms and individuals specifically designated by individual measures, the study compiles a list of nearly 3,000 firms or subsidiaries explicitly or indirectly sanctioned (e.g., due to majority ownership by sanctioned individuals or high dependency on imports from Western countries).[14] The results show a significant impact: on average, a targeted firm loses about one-quarter of its operating revenue, more than half its asset value, and approximately one-third of its employees compared to non-targeted comparable firms. The study also identifies a subgroup of firms publicly

[14]These firms are not exclusively in Russia. Many are located in other countries.

labeled by Russian authorities as "strategic" entities requiring support. These firms were largely shielded from the effects of sanctions, likely due to substantial government aid. This finding highlights the limitations of targeted sanctions. Public support for strategic firms is not free—it takes the form of subsidies, concessional loans, or public contracts. Thus, while the ability of a sanctioned government to support its targeted firms does not signify a failure of sanctions, it undermines the notion of targeted sanctions. The defensive measures of the sanctioned country redirect economic restrictions to a broader economic base: taxpayers (funding the subsidies), consumers (paying higher prices), and other firms (facing competition for credit access).

Nigmatulina (2022) arrives at a similar conclusion. Using detailed accounting data from a large sample of Russian firms, the study finds that firms explicitly targeted by 2014 Western sanctions did not experience reduced activity. On the contrary, these firms significantly increased their sales and capital relative to comparable firms, largely due to public contracts. However, this protection proved costly for Russia. Targeted firms, already prone to overcapitalization and low productivity, further solidified their position in the Russian economy, reducing the overall efficiency of the production system. Nigmatulina (2022) estimates that sanctions and the accompanying government support led to an aggregate productivity loss of up to 1%. Ultimately, the study concludes that "smart" sanctions missed their target and made the broader Russian economy a collateral victim.

Conversely, Draca et al. (2023) concludes that sanctions on Iran were more effective (or, rather, that the Iranian government's protective measures were less effective). The paper examines the Tehran Stock Exchange's reaction to announcements of progress in lifting sanctions. Unsurprisingly, such positive news triggered a rise in stock prices. Notably, the gains were significantly greater for firms owned by elites close to the government (such as Ali Khamenei and leaders of the Islamic Revolutionary Guard Corps).

7.2 Consumer Prices and Collateral Damage

As discussed above, trade diversion and supplier switching impose direct costs on the target country's population via higher import prices. In Russia's 2014 agricultural embargo on Western goods, for example, city-level price data show that the prices of embargoed goods rose by 7.7–14.9% in the short run and 2.6–8.1% on average over the longer term (Figure 17). Input-output linkages also caused spillover price increases for non-embargoed goods (Hinz and Monastyrenko, 2022). A quantitative trade model built to analyze this episode implies a welfare loss of about 1.84% for Russia, with an overall CPI impact near 0.33%, consistent with the micro-price evidence. This demonstrates how even a counter-sanction, intended as a retaliatory measure, ultimately imposes a significant and untargeted burden on domestic consumers, serving as another example of widespread collateral damage.

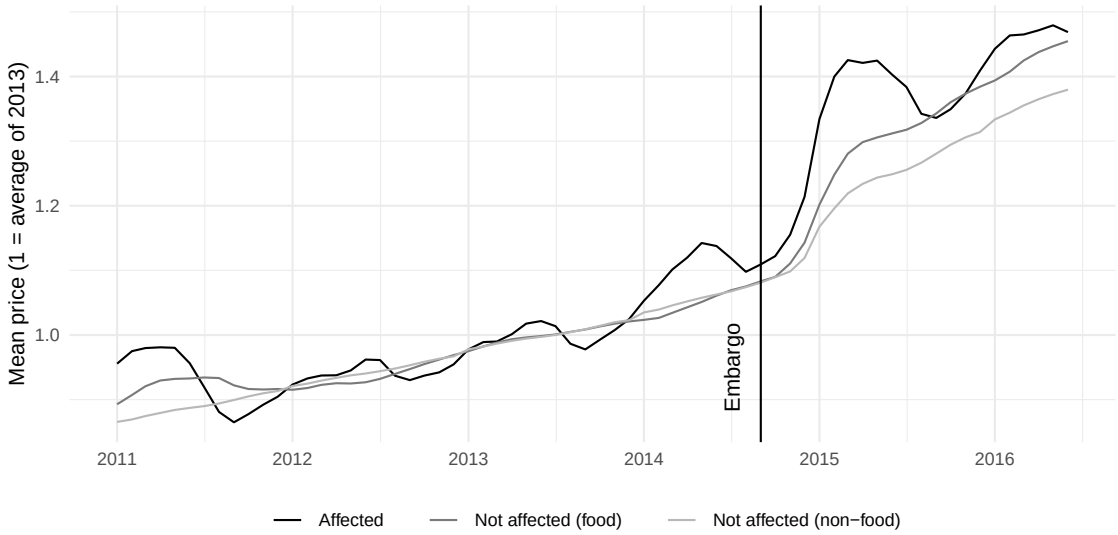


Figure 17: Average Prices of Embargoed vs. Non-Embargoed Products after Russia's 2014 Embargo (Source: Hinz and Monastyrenko (2022))

8 Political Outcomes

The primary objective of sanctions is to change political outcomes. Hence, in the end, evaluating the effect of trade sanctions ultimately means studying their technical effectiveness: to what extent has a sanctions regime weakened the targeted regime? This question is critical because the expected outcome is ambiguous.

Any such evaluation has to contend with the selection problem emphasized in the theoretical literature and in the Introduction (Eaton and Engers, 1992; Drezner, 2003). Sanctions are imposed only when the threat alone fails to coerce. The most successful episodes—those in which the target concedes at the threat stage—never enter samples of imposed sanctions (Morgan et al., 2009, 2014). Observed sanctions are hence a selected set of the hardest cases, and estimates of their political effects are best read as effects *conditional on the failure of coercion*. The selection is not innocuous: threats alone can already trigger domestic protest in targeted regimes (Grauvogel et al., 2017). The rally-around-the-flag findings discussed below should be interpreted against this backdrop.

8.1 Popular Revolt, Elite Rebellion, and the Rally-Around-the-Flag Effect

On the one hand, it is reasonable to hope that populations bearing the economic burden of sanctions will develop resentment and mobilize to demand that their leaders change

policies or step down.[15] This effect, however, is not guaranteed and can vary in intensity depending on the political regime. The economic cost imposed by sanctions is likely a stronger incentive for policy change when leaders are sensitive to public opinion. This is typically true of democracies (Marinov, 2005), but also of some illiberal regimes — either because they rely heavily on a broad popular base (e.g., populist, agrarian, ethnic, or religious governments) or because their ability to suppress popular dissent is limited.[16]

Conversely, the economic burden imposed by foreign powers could foster a sense of victimization and ultimately strengthen national cohesion around political leaders (the "rally-around-the-flag" effect). This backlash effect may stem from a spontaneous rise in nationalist and patriotic sentiments, a media-driven denigration of foreign adversaries, or increased repression of domestic opposition.

Empirical analyses show that the intensity of these two mechanisms depends on the nature of the sanctions (e.g., "smart" sanctions or broader restrictions)[17], and especially on the type of political regime. Studies by Marinov (2005) and Escribà-Folch and Wright (2010) estimate the impact of international sanctions on the likelihood of targeted governments being forced out of power. Unsurprisingly, they find that non-democratic regimes are more resilient. Escribà-Folch and Wright (2010) specifically highlights that this is especially true for military regimes or single-party states. In these systems, power is maintained through the allocation of national resources to support groups directly aligned with the government. The economic impact of sanctions on elites is thus neutralized through intensified predation and repression. In contrast, "personalist" dictatorships and autocratic regimes centered on smaller clans are more likely to struggle with managing popular discontent. More specifically, the econometric results of Escribà-Folch and Wright (2010) show that sanctions tend to increase the likelihood of regime change in personalist dictatorships, while military regimes and single-party states withstand them largely unscathed.

It is worth noting that these empirical studies, which span numerous countries and long time periods, remain fragile and often struggle to establish truly causal relationships. Clearly, sanctions are not imposed randomly, making it difficult to disentangle the effects of sanctions from the events that prompted their imposition. A government may fall due to international sanctions, but equally likely due to pre-existing internal movements motivated by the political choices or crises condemned by the international community.

[15] Firms must also decide whether to follow the choices made by their political leaders. Weber and Stepien (2020) conceptualize this problem by distinguishing between a "Conformance" strategy (to adapt to sanctions) or a "Challenge" strategy (to be opposed to sanctions). Among other determinants, market and resource dependency induces strategies that challenge sanction policies. Institutional factors in the form of administrative burdens have the opposite effect.

[16] For example, this may be the case in China, where non-linear effects are evident. Popular discontent can remain politically inconsequential as long as it is diffuse and localized, but it can induce significant and rapid changes once the dissent becomes entrenched and widespread. The abrupt abandonment of the zero-COVID policy illustrates this dynamic.

[17] Marinov (2005), for instance, notes that the threat of violence tends, all else being equal, to increase the likelihood of governments staying in power.

Similarly, foreign nations may impose sanctions precisely when they perceive that the targeted regime is showing signs of weakness, aiming to bolster an existing opposition movement.

Nonetheless, some studies offer more robust analyses. Grossman et al. (2018) conducted a controlled experiment based on a series of surveys of the Israeli population. They found that Israeli voters were more likely to support the incumbent government when reminded of the EU's 2015 decision to impose specific labeling on products manufactured in occupied territories. This result clearly challenges the general notion that democracies are vulnerable to sanctions while illiberal systems are better equipped to generate backlash by rallying their political support bases. Even in democracies, rally-around-the-flag effects can be observed.

8.2 The Impact of Western Sanctions on Russian Public Opinion

Two recent studies have examined the impact of Western sanctions on Russian public opinion, as expressed in elections outcomes. These studies analyze the period after the annexation of Crimea and the following sanction from Western countries in 2014. To accurately evaluate the political impact of the imposed sanctions, it is necessary to distinguish their effects from the broader political and economic disruptions affecting the targeted country.

Gold et al. (2024) investigate the reaction of the Russian population to the 2014 sanctions. They causally relate election results—both parliamentary and presidential—across Russian regions with those regions' levels of exposure to sanctions, measured by estimated losses in international trade. They identify a pronounced rally-around-the-flag effect: support for the regime significantly increases with higher levels of sanction exposure. This effect is substantial, though, given the overwhelming dominance of the ruling party, it had no noticeable impact on the country's broader political balance. Survey-based evidence points in the same direction: Alexseev and Hale (2020) find that Western sanctions, where they were felt, tended to strengthen rather than weaken Russians' support for the regime's position on Crimea.

In a similar vein, Peeva (2019) links election results from various Russian polling stations to the proximity of sanctioned enterprises (in 2014). She demonstrates that areas hosting a sanctioned enterprise saw an increase in votes for Vladimir Putin. The effect is concentrated where the sanctioned firm did not suffer visible economic losses—consistent with a rally-around-the-flag reading rather than economic grievance.

Two caveats apply to vote- and survey-based evidence from autocracies. Measured support may reflect preference falsification: a list experiment conducted during the 2022 war puts the gap between stated and actual support for the war in Russia at around 10 percent-

age points (Chapkovski and Schaub, 2022). And rallies themselves can be reputational cascades—citizens conforming to perceived majority opinion rather than sincerely changing their minds—as Hale (2022) shows for Putin's post-Crimea popularity surge. These caveats qualify the magnitude rather than the direction of the exposure effects documented by Gold et al. (2024) and Peeva (2019). Finally, the political economy of sanctions extends to the *sanctioning* countries: in France, local exposure to the Russian counter-sanctions shifted votes toward pro-Russian far-right candidates in the 2017 presidential election (Crozet and Hinz, 2023).

9 Conclusion

Sanctions have become a structural feature of the global economy. Our synthesis shows that, at the macro level, broad coalitions can impose sizable costs on targets at relatively modest average costs to senders, with heterogeneity concentrated in small, highly exposed economies. Quantitatively, the 2022 regime against Russia imposed welfare losses an order of magnitude larger on the target than on a typical EU member, and counterfactuals clarify both the limited marginal role of individual large senders once coalitions are in place and the upper bounds from tighter embargoes or universal participation.

At the micro level, sanctions bite mainly through the extensive margin: many firms exit, and those that remain trade less. Targeted export controls (especially on dual-use goods) reduce flows more than non-targeted products, yet financial restrictions and heightened risk affect otherwise legally permitted trade. Diversion and possible circumvention redirect part of the trade to nearby non-participants, raising enforcement questions.

In general, sanctions design is crucial, as the intended "smart" sanctions face inherent limits: Governments can shield strategic firms from direct effects while shifting costs to taxpayers, consumers, and non-privileged firms in the sanctioned economy. Beyond these economic costs, sanctions can carry humanitarian consequences—restricting access to medical supplies, essential goods, and financial channels needed for humanitarian transactions—that merit careful consideration in the design of future regimes. And finally, importantly, political responses are context-dependent: The 2014 Russia sanctions appear to have triggered rally-around-the-flag dynamics rather than a weakening of the political regime in Russia.

References

Ahn, Daniel P and Rodney D Ludema, "The sword and the shield: The economics of targeted sanctions," *European Economic Review*, 2020, *130*, 103587.

Albornoz, Facundo, Héctor F. Calvo Pardo, Grégory Corcos, and Emanuel Ornelas, "Sequential Exporting," *Journal of International Economics*, 2012, *88* (1), 17–31.

Alexseev, Mikhail A. and Henry E. Hale, "Crimea come what may: Do economic sanctions backfire politically?," *Journal of Peace Research*, 2020, *57* (2), 344–359.

Aytun, Uğur, Julian Hinz, and Cem Özgüzel, "Shooting down trade: Firm-level effects of embargoes," *Journal of Economic Behavior & Organization*, 2025, *231*, 106821.

Bachmann, Rüdiger, David Baqaee, Christian Bayer, Moritz Kuhn, Andreas Löschel, Benjamin Moll, Andreas Peichl, Karen Pittel, and Moritz Schularick, "What if? The macroeconomic and distributional effects for Germany of a stop of energy imports from Russia," *Economica*, 2024, *91* (364), 1157–1200.

Bayer, Christian, Alexandros Gilch, and Farzad Saidi, "Financial Sanctions Interact(ed) with Trade Sanctions," Unpublished manuscript, University of Bonn 2026.

Becko, John Sturm, "A Theory of Economic Sanctions as Terms-of-Trade Manipulation," *Journal of International Economics*, 2024, *150*, 103898.

Bergounhon, Flora, Clémence Lenoir, and Isabelle Méjean, "A guideline to French firm-level trade data," *Mimeo*, 2018.

Berman, Nicolas, Vincent Rebeyrol, and Vincent Vicard, "Demand Learning and Firm Dynamics: Evidence from Exporters," *The Review of Economics and Statistics*, 2019, *101* (1), 91–106.

Bernstein, Martin, Josefin Meyer, Kevin Hjortshøj O'Rourke, and Moritz Schularick, "Economic Insecurity: Trade Dependencies and Their Weaponization in History," CEPR Discussion Paper 20457, CEPR 2025. Also Kiel Working Paper No. 2295.

Besedeš, Tibor, Stefan Goldbach, and Volker Nitsch, "Cheap talk? Financial sanctions and non-financial firms," *European Economic Review*, 2021, *134*, 103688.

Bianchi, Javier and César Sosa-Padilla, "International Sanctions and Dollar Dominance," NBER Working Paper 31024, National Bureau of Economic Research 2023.

_ **and** _ , "On Wars, Sanctions, and Sovereign Default," *Journal of Monetary Economics*, 2024, *141*, 62–70.

Biermann, Marcus and Elsa Leromain, "The ripple effect: trade linkages and the stock market response to the Russia–Ukraine war," *Review of World Economics*, 2025, *161* (4), 1637–1660.

Borchert, Lea, Ralph De Haas, Karolin Kirschenmann, and Alison Schultz, "Broken Relationships: De-Risking by Correspondent Banks and International Trade," *The Review of Financial Studies*, 2026. forthcoming.

Bělín, Matěj and Jan Hanousek, "Which sanctions matter? analysis of the EU/russian sanctions of 2014," *Journal of Comparative Economics*, 2021, *49* (1), 244–257.

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

Chapkovski, Philipp and Max Schaub, "Solid Support or Secret Dissent? A List Experiment on Preference Falsification during the Russian War against Ukraine," *Research & Politics*, 2022, *9* (2).

Chowdhry, Sonali, Julian Hinz, Katrin Kamin, and Joschka Wanner, "Brothers in arms: The value of coalitions in sanctions regimes," *Economic Policy*, 2024, *39* (118), 471–512.

Chupilkin, Maxim, Beata Javorcik, Aleksandra Peeva, and Alexander Plekhanov, "Decision to Leave: Economic Sanctions and Intermediated Trade," *Mimeo*, 2024.

_ , _ , _ , and _ , "Economic Sanctions and Intermediated Trade," *AEA Papers and Proceedings*, May 2025, *115*, 568–572.

_ , _ , _ , and _ , "Exorbitant Privilege and Economic Sanctions," CEPR Discussion Paper 20471, CEPR 2025.

_ , _ , and Alexander Plekhanov, "The Eurasian roundabout: Trade flows into Russia through the Caucasus and Central Asia," *European Economic Review*, 2026, *187*, 105340.

Cipriani, Marco, Linda S. Goldberg, and Gabriele La Spada, "Financial Sanctions, SWIFT, and the Architecture of the International Payment System," *Journal of Economic Perspectives*, 2023, *37* (1), 31–52.

Clayton, Christopher, Matteo Maggiori, and Jesse Schreger, "A Framework for Geoeconomics," *Econometrica*, 2026, *94* (1), 105–136.

Corsetti, Giancarlo, Banu Demir, and Beata Javorcik, "Trading around Geopolitics," CEPR Discussion Paper 20625, CEPR 2025.

Crozet, Matthieu and Julian Hinz, "Friendly fire: The trade impact of the Russia sanctions and counter-sanctions," *Economic Policy*, 2020, *35* (101), 97–146.

_ and _ , "Blowback: The Effect of Sanctions on Democratic Elections," Kiel Working Paper 2247, Kiel Institute for the World Economy 2023.

_ , Banu Demir, and Beata Javorcik, "International Trade and Letters of Credit: A Double-Edged Sword in Times of Crises," *IMF Economic Review*, 2022, *70* (2), 185–211.

_ , Julian Hinz, Amrei Stammann, and Joschka Wanner, "Worth the pain? Firms' exporting behaviour to countries under sanctions," *European Economic Review*, 2021, *134*, 103683.

de Souza, Gustavo, Naiyuan Hu, Haishi Li, and Yuan Mei, "(Trade) War and peace: How to impose international trade sanctions," *Journal of Monetary Economics*, 2024, *146*, 103572.

Dickstein, Michael J. and Eduardo Morales, "What do Exporters Know?," *The Quarterly Journal of Economics*, 2018, *133* (4), 1753–1801.

Draca, Mirko, Jason Garred, Leanne Stickland, and Nele Warrinnier, "On target? Sanctions and the economic interests of elite policymakers in Iran," *The Economic Journal*, 2023, *133* (649), 159–200.

Drezner, Daniel W, "The hidden hand of economic coercion," *International Organization*, 2003, *57* (3), 643–659.

Drott, Constantin, Stefan Goldbach, and Volker Nitsch, "The effects of sanctions on Russian banks in TARGET2 transactions data," *Journal of Economic Behavior and Organization*, 2024, *219*, 38–51.

Eaton, Jonathan and Maxim Engers, "Sanctions," *Journal of Political Economy*, 1992, *100* (5), 899–928.

Efing, Matthias, Stefan Goldbach, and Volker Nitsch, "Freeze! Financial Sanctions and Bank Responses," *The Review of Financial Studies*, 2023, *36(11)*, 4417–4459.

Egorov, Konstantin, Vasily Korovkin, Alexey Makarin, and Dzhamilya Nigmatulina, "Trade Sanctions," CEPR Discussion Paper 20601, CEPR 2025.

Escribà-Folch, Abel and Joseph Wright, "Dealing with Tyranny: International Sanctions and the Survival of Authoritarian Rulers," *International Studies Quarterly*, 2010, *54* (2), 335–359.

Evenett, Simon J. and Niccolò Pisani, "Geopolitics, conflict, and decoupling: Evidence of Western divestment from Russia during 2022," *Journal of International Business Policy*, 2023, *6* (4), 511–540.

Farrell, Henry and Abraham L. Newman, "Weaponized Interdependence: How Global Economic Networks Shape State Coercion," *International Security*, 2019, *44* (1), 42–79.

Fedoseeva, Svetlana and Roland Herrmann, "The price of sanctions: An empirical analysis of German export losses due to the Russian agricultural ban," *Canadian Journal of Agricultural Economics*, 2019, *67* (4), 417–431.

Fuchs, Andreas and Nils-Hendrik Klann, "Paying a visit: The Dalai Lama effect on international trade," *Journal of International Economics*, 2013, *91* (1), 164–177.

Ghironi, Fabio, Daisoon Kim, and Galip Kemal Ozhan, "International Economic Sanctions and Third-Country Effects," *IMF Economic Review*, 2024, *72* (2), 611–652.

Gold, Robert, Julian Hinz, and Michele Valsecchi, "To Russia with Love? The Impact of Sanctions on Regime Support," CESifo Working Paper 11033, CESifo 2024.

Grauvogel, Julia, Amanda A. Licht, and Christian von Soest, "Sanctions and Signals: How International Sanction Threats Trigger Domestic Protest in Targeted Regimes," *International Studies Quarterly*, 2017, *61* (1), 86–97.

Grossman, Guy, Devorah Manekin, and Yotam Margalit, "How Sanctions Affect Public Opinion in Target Countries: Experimental Evidence From Israel," *Comparative Political Studies*, 2018, *51(14)*, 1823–1857.

Görg, Holger, Anna Jacobs, and Saskia Meuchelböck, "Who is to suffer? Quantifying the impact of sanctions on German firms," *Journal of Economic Behavior & Organization*, 2024, *228*, 106767.

Haidar, Jamal Ibrahim, "Sanctions and export deflection: evidence from Iran," *Economic Policy*, 2017, *32* (90), 319–355.

Hale, Henry E., "Authoritarian Rallying as Reputational Cascade? Evidence from Putin's Popularity Surge after Crimea," *American Political Science Review*, 2022, *116* (2), 580–594.

Hart, Oliver, David Thesmar, and Luigi Zingales, "Private Sanctions," *Economic Policy*, 2024, *39* (117), 203–268.

Hilgenstock, Benjamin, Elina Ribakova, Nataliia Shapoval, Tania Babina, Oleg Itskhoki, and Maxim Mironov, "Russian oil exports under international sanctions," *Energy Economics*, 2026, *153*, 109006.

Hinz, Julian and Evgenii Monastyrenko, "Bearing the cost of politics: Consumer prices and welfare in Russia," *Journal of International Economics*, 2022, *137*, 103581.

Itskhoki, Oleg and Dmitry Mukhin, "Sanctions and the Exchange Rate," *Review of Economic Studies*, 2025. forthcoming.

_ **and Elina Ribakova**, "The Economics of Sanctions: From Theory into Practice," *Brookings Papers on Economic Activity*, 2024, *55* (2), 425–470.

Jäkel, Ina C., Søren Østervig, and Erdal Yalcin, "The Effects of Heterogeneous Sanctions on Exporting Firms: Evidence from Denmark," *Review of International Economics*, 2024, *32* (1), 161–189.

Johnson, Simon, Lukasz Rachel, and Catherine Wolfram, "Design and implementation of the price cap on Russian oil exports," *Journal of Comparative Economics*, 2023, *51* (4), 1244–1252.

Kilian, Lutz, David Rapson, and Burkhard C. Schipper, "The Impact of the 2022 Oil Embargo and Price Cap on Russian Oil Prices," *The Energy Journal*, 2026. forthcoming.

Kohl, Tristan, Marcel van den Berg, and Loe Franssen, "Going Dutch? Firm Exports and FDI in the Wake of the 2014 EU–Russia Sanctions," *Review of International Economics*, 2024, *32* (1), 190–222.

Kwon, Ohyun, Constantinos Syropoulos, and Yoto V. Yotov, "Identifying and quantifying the extraterritorial effects of sanctions," *European Economic Review*, 2024, *170*, 104888.

Lim, Darren J. and Victor A. Ferguson, "Informal economic sanctions: the political economy of Chinese coercion during the THAAD dispute," *Review of International Political Economy*, 2022, *29* (5), 1525–1548.

Marinov, Nikolay, "Do Economic Sanctions Destabilize Country Leaders?," *American Journal of Political Science*, 2005, *49* (3), 564–576.

Martin, Philippe, Thierry Mayer, and Mathias Thoenig, "Make Trade Not War?," *Review of Economic Studies*, 2008, *75* (3), 865–900.

Mohr, Cathrin and Christoph Trebesch, "Geoeconomics," *Annual Review of Economics*, 2025, *17*, 563–587.

Morales, Eduardo, Gloria Sheu, and Andrés Zahler, "Extended Gravity," *The Review of Economic Studies*, 2019, *86* (6), 2668–2712.

Morgan, T. Clifton, Constantinos Syropoulos, and Yoto V. Yotov, "Economic Sanctions: Evolution, Consequences, and Challenges," *Journal of Economic Perspectives*, 2023, *37* (1), 3–30.

_ , Navin Bapat, and Valentin Krustev, "The Threat and Imposition of Economic Sanctions, 1971–2000," *Conflict Management and Peace Science*, 2009, *26* (1), 92–110.

_ , _ , and Yoshiharu Kobayashi, "Threat and Imposition of Economic Sanctions 1945–2005: Updating the TIES Dataset," *Conflict Management and Peace Science*, 2014, *31* (5), 541–558.

Mulder, Nicholas, *The Economic Weapon: The Rise of Sanctions as a Tool of Modern War*, New Haven, CT: Yale University Press, 2022.

Nguyen, Trung Thanh and Manh Hung Do, "Impact of economic sanctions and counter-sanctions on the Russian Federation's trade," *Economic Analysis and Policy*, 2021, *71*, 267–278.

Nigmatulina, Dzhamilya, "Sanctions and Misallocation: How Sanctioned Firms Won and Russia Lost," CEP Discussion Paper 1886, Centre for Economic Performance, LSE 2022. Revised 2023.

Peeva, Aleksandra, "Did sanctions help Putin?," Discussion Paper 2019/7, Freie Universität Berlin, School of Business & Economics 2019.

Scheckenhofer, Lisa, Feodora A. Teti, and Joschka Wanner, "Dodging Trade Sanctions? Evidence from Military Goods," *AEA Papers and Proceedings*, 2025, *115*, 573–577.

_ , _ , David Torun, and Joschka Wanner, "The Effectiveness of EU Export Bans on Military Goods," EconPol Working Paper 80, ifo Institute / EconPol Europe 2026.

Spiro, Daniel, Henrik Wachtmeister, and Johan Gars, "Assessing the impacts of oil sanctions on Russia," *Energy Policy*, 2025, *206*, 114739.

Syropoulos, Constantinos, Gabriel Felbermayr, Aleksandra Kirilakha, Erdal Yalcin, and Yoto V. Yotov, "The Global Sanctions Data Base – Release 3: COVID-19, Russia, and Multilateral Sanctions," *Review of International Economics*, 2024, *32* (1), 12–48.

Tostensen, Arne and Beate Bull, "Are Smart Sanctions Feasible?," *World Politics*, 2002, *54* (3), 373–403.

Tosun, Onur Kemal and Arman Eshraghi, "Corporate decisions in times of war: Evidence from the Russia-Ukraine conflict," *Finance Research Letters*, 2022, *48*, 102920.

Weber, Patrick M. and Beata Stepien, "Conform or challenge? Adjustment strategies of sanction-torn companies," *The World Economy*, 2020, *43* (11), 3006–3024.

_ and Gerald Schneider, "Post-Cold War Sanctioning by the EU, the UN, and the US: Introducing the EUSANCT Dataset," *Conflict Management and Peace Science*, 2022, *39* (1), 97–114.