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Economic Sanctions: Stylized Facts and Quantitative Evidence

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Economic Sanctions: Stylized Facts and Quantitative Evidence

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Abstract

The remarkable increase in the use of economic sanctions as a coercive tool of foreign policy over the past quarter century has been accompanied by an equally rapid growth in the number of academic and policy studies. We review recent work in this area. We start by highlighting stylized facts from the Global Sanctions Database, the most comprehensive macro source of information on sanction regimes. We then review the growing empirical literature on the effects of sanctions on economic outcomes with a special focus on trade. Finally, based on the evidence, we discuss open conceptual questions and the direction of future work in the area of sanctions.

JEL Classification Codes: F13, F51, H59, N40.

Keywords: Economic Sanctions, Data, Stylized Facts, Quantitative Evidence.

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1 Introduction

“Sanctions are now a central tool of governments’ foreign policy.” Numerous recent studies confirm this observation from The Economist (2021), see Morgan et al. (2023). The dynamics of the phenomenon are hard to overestimate. According to the newest version of the Global Sanctions Database (GSDB, Yalcin et al. (2024)), the number of sanction programs in place globally has shot up from about 200 ten years ago to about 600 in 2023. What is more, about 12% of all existing country-pairs and 27% of world trade are currently affected by some type of sanction. In their various forms, sanctions are the leading geoeconomic tool aiming to coerce foreign governments into actions that they would otherwise not undertake.

Unsurprisingly, the remarkable increase in the use of sanctions over the past quarter century has been accompanied by an equally rapid growth in the number and quality of academic and policy works devoted to understanding how sanctions work, to quantifying their economic effects, and to explaining the reasons for their political success or failure. These efforts have obvious policy relevance.

When, in 1990, Iraq invaded and seized Kuwait, the United States and its allies imposed extensive economic sanctions on Iraq and subsequently went to war to restore the *status quo ante*. Scholars were in disagreement over whether the invasion was necessary. Economists tended to argue that the sanctions on Iraq would bring such a severe economic cost that Hussein would withdraw his forces within a year (Hufbauer and Elliott, 1991). Many political scientists were more skeptical, claiming that sanctions almost never ‘work’ in an instrumental sense, especially when a leader believes the stakes are sufficiently high to justify the use of military force (Wagner, 1988). When, in 2022, Russia invaded Ukraine, scholars were much less divided in assessing the effects. They were in almost universal agreement that sanctions would have serious economic effects but that they would not induce Russia to leave Ukraine. Most also believed that the sanctions on Russia should be severe, imposed, enforced, and maintained.¹

The comparison of scholars’ views in these two cases suggests that sanctions processes are much better understood today than thirty years ago. The political science community has come to accept what economists have known – that sanctions bring substantial economic effects – and economists have come to accept what political scientists have long understood – that substantial economic costs do not always bring changes in policy. Over that same period of time, the use of sanctions has dramatically increased and they have come to affect many more bilateral economic relationships. This is a puzzling phenomenon: If sanctions

¹See, for example, Koeze (2022), which drew from the research of, and comments by, authors of this paper.

are costly and frequently fail to deliver the desired policy objectives, why have they become so endemic?

Answers to this question benefit from the fact that the profession's understanding of sanctions is far more nuanced than suggested by the simple observations noted above. In this article, we present the newest data on the use of sanctions and draw a number of lessons. We also highlight important results from the empirical literature on the effects of sanctions and revisit theoretical considerations.

Section 2 presents stylized facts derived from the GSDB, the most comprehensive database on sanctions available. It covers the period 1950 to 2023 and includes all other existing collections of cases, allowing reliable conclusions. First, besides documenting the impressive increase in the popularity of sanctions, the section shows that sanction initiation is rather concentrated on few entities (the UN, the EU, the US, and big countries) while the group of targets is more dispersed. Second, over time, the share of trade sanctions in overall sanction activity has gone down; non-trade sanctions (financial sanctions, travel restrictions) now dominate the picture. Trade sanctions rarely cover all bilateral trade and are almost always coupled with non-trade measures. Also, the objectives of sanction regimes have evolved. While security-related concerns have always dominated, since 1990, the share of non-security motivations (e.g., human rights enforcement) has grown significantly. Third, the section studies the determinants of sanction initiation and termination. Termination often comes after long periods of application; e.g., 5.4% of sanctions initiated in the 1950s are still in place. Nonetheless, many sanction episodes are very short-lived. The section describes the variables that act as predictors of sanction imposition, showing, *inter alia*, that larger and more democratic countries are more frequent users of the instrument. It also informs about the success, failure, or settlement of sanction regimes, highlighting heterogeneity across sanction objectives, and identifying the key drivers.

Section 3 reviews the econometric evidence on the effects of sanctions both on country-level and on country-pair variables. Focusing mostly on trade sanctions, it takes a three-pronged approach: First, it discusses evidence on the primary effects of sanctions, that is, their impact on bilateral trade costs and trade volumes. It shows that the effect of sanctions can be very strongly negative and long-lasting. Moreover, there is a strong degree of heterogeneity, e.g., across countries within the same political coalition. Second, the section reviews what we know about the general equilibrium effects of sanctions, thereby broadening the perspective to include trade diversion effects and welfare. Third, the section moves to the extraterritorial effects of sanctions, a matter of great interest in the current political landscape. Besides describing key findings in the literature, the section also identifies key recommendations for proper econometric research, for instance, the importance of properly

accounting for the transient nature of sanction regimes in gravity-type regression or the role of extraterritorial effects for the cost-benefit analysis of sanctions. Finally, the section discusses what we know about the linkages connecting the economic effects of sanctions to political outcomes. We consider which factors make imposed sanctions more likely to produce desired changes in target state policies and we discuss the importance of considering the threat stage in sanctions episodes.

The conclusion summarizes what we view as the most important lessons both for the interdisciplinary research community and the policy world.

2 Stylized Facts

To highlight some of the most prominent features of sanctions, we use the fourth release of the Global Sanctions Database (GSDB) (Yalcin et al. (2024)).² This section extends and complements earlier collections of facts, e.g., in Felbermayr et al. (2021) or Morgan et al. (2023).³

The GSDB covers the period 1950-2023 and contains 1,547 sanction cases. Its core consists of a collection of sanction cases – political decisions of countries, groups of countries, or international organizations to impose economic sanctions on one or several other countries. The GSDB defines sanctions as measures restricting bilateral economic activities between senders (the sanctioning countries) and targets (the sanctioned countries).⁴ Sanction cases differ in many dimensions: (i) the identity of the sender and target countries, (ii) the objective as declared by official authorities, (iii) type and (iv) intensity, and (v) the reason why a sanction was lifted (success or not). Additional information allows us to determine whether sanctions are imposed by multi- or plurilateral bodies (such as the UN or the EU) as compared to individual countries, whether they are reciprocal, and many more things. The GSDB, however, does not have sector- or product-level detail, the ambition being to cover all sanctions cases worldwide since 1950. The case data can be expanded to a dyadic panel structure to show whether a country-pair is affected by a sanction at a given time.

In what follows, we highlight the evolution of sanction activities over time (subsection

²According to the New York Times, the GSDB is the most comprehensive collection of sanction cases worldwide; see <https://www.nytimes.com/interactive/2022/03/11/world/economic-sanctions-history.html>.

³Conveniently, the GSDB includes earlier and more partial databases, such as the HSE/HSEO database (by Hufbauer et al. (2007)), the TIES database (by Morgan et al. (2014)), the TSC database (by Biersteker and Hudakova (2021)), and the EUSANCT database (by Weber and Schneider (2022)), guaranteeing the generality of our analysis.

⁴The GSDB does not include sanctions legitimized by World Trade Organization (WTO) rules, nor does it include unofficial boycotts. For example, China has often used informal boycotts, often initiated by state-owned media, to coerce its trade partners; see Adachi et al. (2022).

2.1), describe how sanction regimes differ regarding the use of instruments and their objectives (subsection 2.2), and discuss the initiation and termination of sanction cases (subsection 2.3).

2.1 Sanctions: Strong Increase, Concentrated Initiators, Dispersed Targets

Figure 1(a) illustrates a first set of important facts. First, the number of active sanction cases has increased significantly over time, with marked accelerations in the late 1980s, around the Great Financial Crisis, and after 2015. In the last fifteen years, the number of active sanction cases has more than tripled. The US is by far the most frequent initiator of sanctions, accounting for almost half of all cases in most years; in 2023, it has active sanctions against 113 countries. The EU, the next frequent initiator, accounts for only about a tenth of all recorded cases. UN cases are much less frequent still (there are 26 in 2023), but they cover all UN-members. The rest of the sanctions are distributed over many countries, with larger ones such as Russia (53 countries on its sanction list in 2023), Great Britain (50), and China (47) following. The receiving side is much more dispersed. At any point in time, the number of initiators is much smaller than the number of targets.⁵

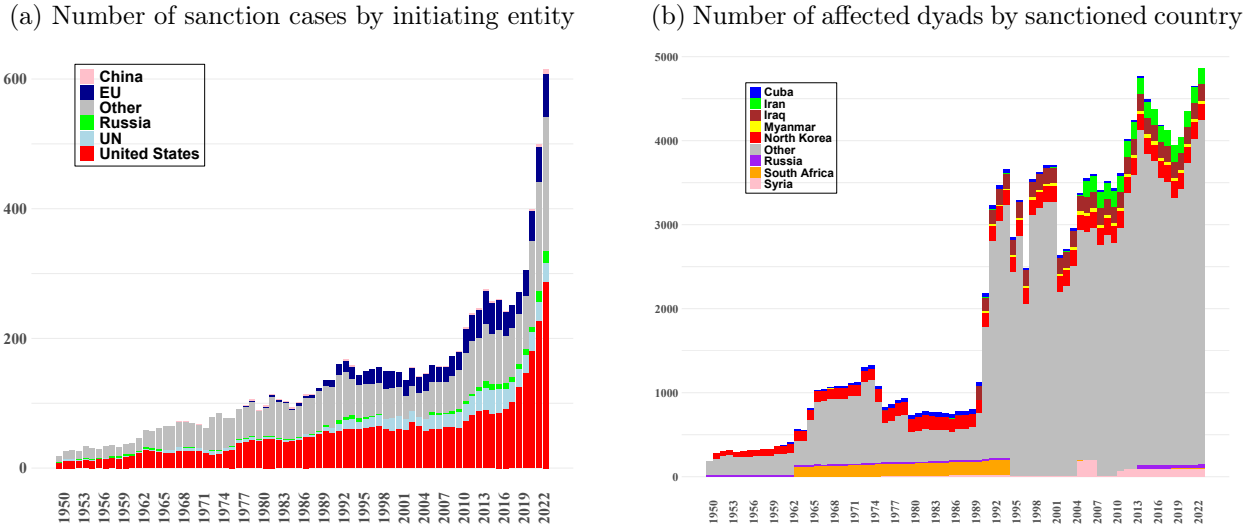
Being based on case data, Figure 1(a) conceals the fact that UN or EU sanctions bind many countries. Therefore, Figure 1(b) switches to dyadic data. It shows that the number of pairs under sanctions has increased strongly since 1950. In 2023, almost 3000 country-pairs are affected by UN sanctions. About 2000 pairs are affected by EU-driven sanctions. The number of pairs affected by US sanctions has gone up, too. However, the time pattern is different from that seen in panel (a). There is a very steep increase in the early 1990s reflecting the disintegration of the Soviet Union and Yugoslavia into independent states, many of the latter being immediately hit by UN sanctions. Whenever UN sanctions are terminated, as in the mid-1990s or 2014, the number of affected dyads falls precipitously.

Figure 1(b) highlights prominent sanction episodes such as the ones against South Africa (from the early 1960s to the mid-1990s), against Syria (initiated in 2005), or against North Korea.⁶ It also illustrates the dispersion of sanctions across targets: The prominent episodes (often UN cases involving many countries) only cover a small fraction of all dyads affected by sanctions.

⁵In 2023, there are 17 cases in which a country is sanctioned by essentially all other countries (192 out of 199). Those include North Korea, Somalia, Libya, and Afghanistan. By contrast, 48 countries are not sanctioned by any other country at all; 50 countries are targeted by a single sanctioning country each. The number of bilateral sanction regimes by sender country has a standard deviation that is more than four times higher than that of the number by target country.

⁶We discuss the duration and success of sanctions below.

Figure 1: Sanction cases: Who sanctions, who gets sanctioned?



Notes: The diagrams show the number of active sanction cases by year reported in the GSDB. Panel (a) uses case data and marks the most important initiating entities (countries or multi-/plurilateral organizations). Panel (b) uses dyadic data and marks prominent sanctioned countries (targets).

Since 1950, the number of sovereign states has almost quadrupled (so, the number of pairs has increased by 16). To account for this development, Figure 2 plots the share of existing country-pairs affected by one or several economic sanctions (i.e., the likelihood of sanctions). Again, the picture is clear: the likelihood of economic conflict has gone up over time – and significantly so. The figure tells a story of two distinct periods: From the 1950s to the 1990s, the likelihood fluctuated around 4%, but with a slight downward trend. Around 1990, the likelihood jumped abruptly to 8% and continued to increase subsequently, albeit at a reduced speed. In 2023, the share of dyads “treated” by one or several sanctions was about 12%.

We complete the evidence showing the increasing popularity of sanctions by noting that, on average, during the years 2020-2023, 26.8% of global trade in goods was affected by some sanctions (12.1% by trade sanctions) – an all-time high. Trade sanctions never affected more than 5% of global trade from the 1950s to the 2010s, with the 2010s featuring higher values than all the previous decades.

2.2 Sanction Types and Sanction Objectives

Sanction Types. The GSDB distinguishes 5 different types of sanctions: (i) trade sanctions, (ii) financial sanctions, (iii) travel sanctions, (iv) arms sanctions, and (v) military sanctions. Trade sanctions can be further classified into partial sanctions, which cover only a part of bilateral trade, and complete ones, as well as into sanctions affecting imports,

exports, or both. Because many sanction regimes involve sanctions of different types at the same time, we aggregate sanction regimes into mutually exclusive categories of types: (a) non-trade sanctions (the types (ii) to (v)), (b) partial trade sanctions only, (c) partial trade sanctions combined with some non-trade sanctions, (d) complete trade sanctions (a subset of (i)). Sanctions of type (a) often are applied to individuals or firms, but also to entire sectors or economies (in particular types (iv) or (v)). Also, partial trade sanctions can cover only certain products or sectors, or even only certain firms within a product category as well as large shares of total trade. Nonetheless, one can view a type (a) or a type (b) regime as being of lower intensity than a type (c) regime and a type (d) regime as being more rigorous than type (b).⁷

Figure 2(a) reveals several important facts. First, complete trade sanctions have become extremely rare. While in the early 1990s 3% of all dyads were affected by such sanctions, since 2003 the share is down to less than a tenth of a percent. It appears that countries are reluctant to impose the toughest possible regime as the collateral damage of such sanctions can be very high.⁸ Second, from the early 1990s onwards, partial trade sanctions almost always have been coupled with non-trade instruments. Before, partial trade sanctions were often used in a stand-alone fashion. Third, from the 1950s, non-trade sanctions have gained in importance. In 2023, almost 10% of dyads are affected by such measures, this corresponds to about 80% of all sanction regimes. Hence, most sanction regimes do not directly target trade flows at all.

Looking more closely into the types (i) to (v) enumerated above, in the year 2023, the likelihood of a given dyad being affected by travel sanctions is about 7.5%; the likelihood of financial sanctions is of similar size. The likelihood of trade sanctions is only about 2.5%. Very often, different types are bundled together in one sanction regime. In earlier years the dominance of financial and trade sanctions was less pronounced and military sanctions were quantitatively more important. For example, in the 1970s about 4% of all dyads were affected by military sanctions or arms sanctions (reflecting the Cold War).

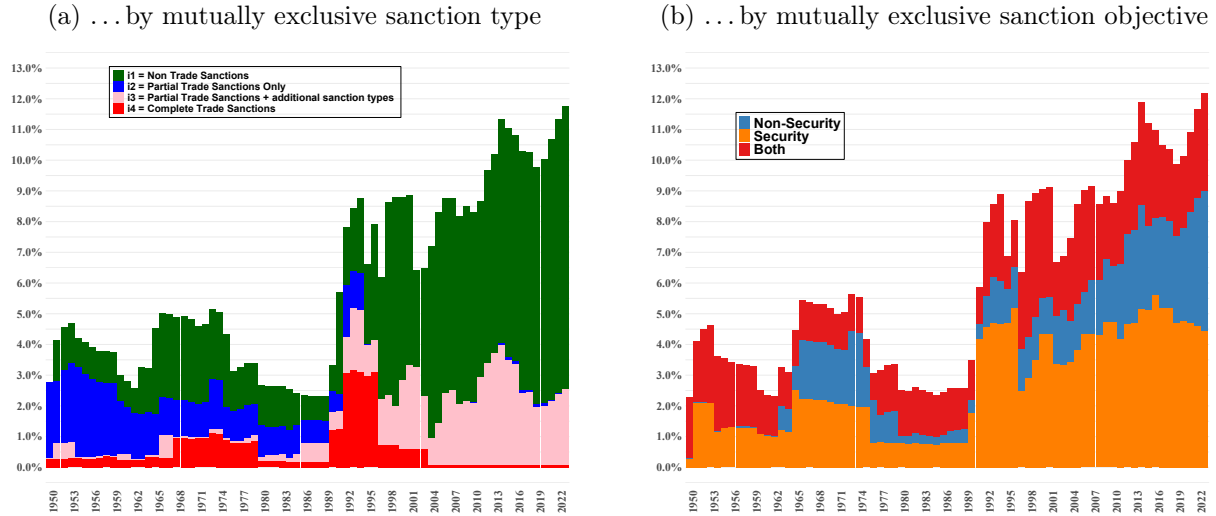
Sanction Objectives. The GSDB distinguishes nine different objectives for economic sanctions as stated by official documents:⁹ (i) defend human rights, (ii) promote democracy,

⁷The GSDB does not define ‘smart sanctions’ despite the frequent use of this term in both scientific literature and popular debate (see, e.g., Drezner (2003) and Drezner (2011)). The essence of smart sanctions is that they target pivotal players or sectors of a polity to achieve impact at minimal humanitarian cost in the target country and minimal economic cost in the sending economy. In that sense, partial trade sanctions and most of the sanctions in categories (ii) and (iii) are smart by design; whether they are effective is another question.

⁸See the literature on child mortality associated with complete sanctions against Iraq, e.g., Dyson and Cetorelli (2017).

⁹Public statements may not reveal the true (e.g., protectionist) intentions of policy-makers.

Figure 2: Shares of dyads affected by sanctions



Notes: Panel (a) displays a stacked bar plot used to visualize the mutually exclusive likelihood of any given country-pair being affected by either type of sanction regime described in the legend. Panel (b) classifies sanction regimes according to three types of mutually exclusive objectives.

(iii) change a specific policy, (iv) end a war, (v) prevent a war, (vi) stop terrorism, (vii) destabilize a regime, (viii) end a territorial conflict or (ix) other. The most common objective by far is the defense of human rights. Very often, initiators of sanctions cite several objectives when announcing their decisions.

Interestingly, while the objective of policy change accounted for over 60% of sanction cases in the 1950s, its share has dropped to less than 10% by the 2020s. Similarly, the share of sanctions attempting to destabilize a regime has fallen to almost zero in the last decades. In the 1990s and 2000s, the objective of preventing or ending terrorism gained importance but has lost ground over the last decade. Objectives related to promoting democracy peaked around the 1980s and 1990s. These patterns track the political salience of problems faced by major initiators of sanctions. In contrast, the objective of defending human rights has gained relative importance continuously, moving from less than 5% between the 1950s and 1990s to a much higher percentage in recent decades.

Figure 2(b) aggregates the objectives (iv), (v), and (vi) into one group described as security objectives and the remaining objectives into a residual category entitled non-security objectives. Both broad objectives can be combined, too, so that we deal with three mutually exclusive categories. The figure shows the share of country-pairs affected by sanctions of either category. Interestingly, in the early years covered by our data, virtually all sanction regimes had a security motivation. In half of the dyads covered by sanctions security objectives were the only public justification. Non-security motivations as stand-alone objectives of sanctions appear in the early 1960s and have remained important thereafter. In 2023, in

about three-eighths of the dyads covered by sanctions, non-security objectives were stated as the only reason for the sanction, approximately the same share of dyads was covered by sanctions imposed for security reasons only, the remaining quarter featuring a dual motivation. Since the turn of the millennium, sanctions imposed for non-security reasons have continuously gained importance.

2.3 Determinants of Initiation and Termination of Sanctions

We start by discussing circumstances that are associated with the imposition of sanctions, then provide information on the duration of sanction regimes, and finally discuss the conditions under which they are terminated.

Explaining Sanction Imposition. There is a considerable empirical literature that tries to understand the determinants of the success of sanctions, see Weber and Schneider (2022) for an excellent recent paper. There is much less work on the determinants of the imposition of sanctions. Based on the dyadic GSDB, several important stylized facts emerge:¹⁰ First, sanction probability is lower if there is a substantial distance between the capitals of two countries, the existence of common minorities increases the likelihood, having the same official language lowers it, and having a common colonial past has no statistically significant effect.

Second, size asymmetries matter greatly. A sender is substantially more likely to sanction a target if the sender is large relative to the target as measured by GDP or population. The likelihood of a sanction, conditional on various controls, increases by about 1 percentage point when the sender is very large compared to the target,¹¹ and the effect increases monotonically in the ratio of GDPs (sender over target). Interacting year dummies with the GDP ratio, we find that from the 1990s onwards, relative size has a positive effect on sanction imposition that grows over time, reaching an average marginal effect of 0.25 in the 2020s. Before the 1970s, the estimated effect is negative and small.¹²

¹⁰The following is based on a simple Probit model on pooled cross-sections that regresses a binary variable denoting the presence of a sanction between two countries on bilateral variables such as the log of distance, and on dummies denoting contiguity, a common language, a common colonial past, as well as on year dummies and other explanatory variables.

¹¹Note that the baseline probability is about 6% across the sample period 1950-2023.

¹²We interpret this finding as evidence suggesting an interesting selection bias: in earlier years, relatively large countries seemed to successfully impose their will on smaller countries by issuing sanctions threats so that only sanctions between similarly sized countries are actually imposed and thus observed. With globalization advancing, countries have more scope to evade bilateral sanctions as multilateral openness goes up, so that threats work less well and more and more sanctions between asymmetric countries are imposed and thus observed.

Third, using the liberal democracies index from the V-Dem project at the University of Gothenburg, one can show that a democratic country has a 5 percentage points higher probability of being a sender than an autocracy and a probability of being a target that is 17 percentage points smaller. The latter effect appeared only since the 1990s and has grown in importance ever since. The magnitude of the effects of democracy is large. Sanctions, it appears, are instruments of choice of democracies.

Success, Failure, and Settlement. Based on public documents or official announcements of sending countries,¹³ the GSDB distinguishes between different reasons for termination, namely between (i) total success, (ii) partial success, (iii) negotiated settlement, and (iv) failure.

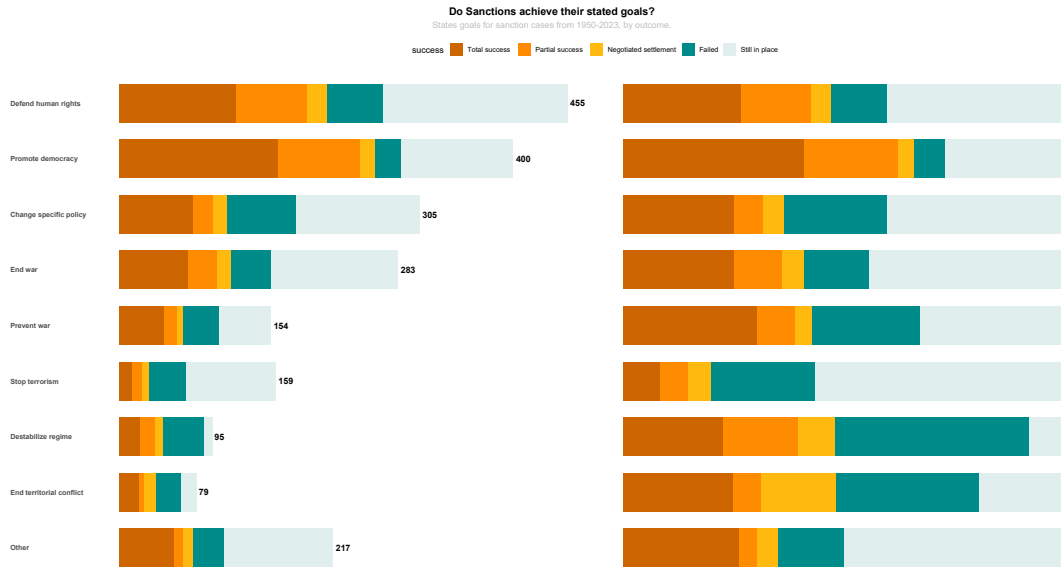
Figure 3 categorizes all sanction cases by intended objective and status. The left-hand diagram counts cases, the right-hand diagram provides percentages. Policymakers often cite several objectives when imposing a sanction. The three most cited objectives are non-security ones: defense of human rights, followed by promoting democracy, and the change of a specific policy. From 1950 to 2023, there are 455 cases citing the defense of human rights as objective. About 40% of those cases are still in place. Another 40% or so have been terminated as a total or a partial success, about 5% have ended with a negotiated settlement and 15% produced a failure. Sanctions aimed at changing specific policies exhibit the highest failure rates amongst non-security objectives.

Security objectives are, as we have seen above, less frequently cited. Sanctions intended to prevent a war have a higher likelihood of success compared to those aimed at ending an ongoing war. Efforts to destabilize a regime frequently result in failure rather than success or a negotiated settlement. However, Figure 3(b), which shows the distribution of objectives over time, provides additional insights. Sanctions aimed at destabilizing regimes constituted over 20% of the total in the 1950s but have become rare in recent decades. This decline explains the small share of ongoing sanctions with this objective today.

The Duration of Sanction Regimes. Sanctions are often in place for a long time before they are terminated. Hence, it is logical that the share of sanctions imposed in some decade and not terminated yet increases over time. 95% of sanctions initiated in the 2020s are still in place. More surprisingly, 5.4% of sanctions initiated in the 1950s still apply today; a higher share than the ones observed during the three decades thereafter. The duration of terminated sanctions has gone down decade by decade from 1950 to today. Those imposed in

¹³Public declarations that end sanctions after many years must be treated with caution as objectives and constraints of policy-makers may have changed.

Figure 3: Sanction Success by Objective



Notes: Status (success, settlement, failure, ongoing) of all sanction cases initiated in 1950-2023 by objective. The left-hand panel reports the case counts, the right-hand panel shows percentages.

the 1950s and completed as of today were in place for more than 13 years, those imposed in the 1960s took an average of 9 years to be completed. These figures are driven by prominent cases, such as the sanctions against North Korea (imposed in the 1950s) or Cuba (imposed in the 1960s), which are still on-going. Also, sanctions against communist countries in Europe or against South Africa lasted several decades. Note that the nature of sanctions matters. Financial and travel sanctions are less likely to be lifted, possibly due to their minimal cost to the sender. Nonetheless, many sanctions are lifted soon after their imposition. Sanctions imposed in the 2010s and terminated as of today lasted an average of 2.7 years. Pooling over the whole period 1950 to 2023, the duration of terminated sanctions is distributed in a very skewed fashion. Many sanctions are quickly lifted again, but a few remain in place for many decades.

Finally, either target compliance (including settlement) or sender capitulation can lead to the termination of a sanction regime. Using data from the GSDB, Caetano et al. (2023) use a competing risk discrete-time hazard model and report the following important findings. While higher levels of political volatility, democracy, and equality in target countries increase the probability of compliance, higher levels of democracy and overall trade openness increase the probability of sender capitulation. The likelihood of compliance is higher for financial and military sanctions than for trade sanctions. The likelihood of compliance also increases if the objective is to promote democracy and decreases if the objectives are policy, regime

change, or terrorism. Instead, the probability of sender capitulation is higher for travel and trade sanctions and if the objective is to promote human rights.

3 Quantifying the Effects of Sanctions

To add structure to the analysis in this section, we decompose the effects of sanctions into three categories: (i) the “Primary” sanction effects are the direct effects on the target and the sender, (ii) the “General Equilibrium (GE)” sanction effects are indirect effects on countries that are not part of the sanction (e.g., trade diversion effect), and (iii) the “Extraterritorial” effects of sanctions, which we define broadly as the direct effect of sanctions on third countries.

3.1 The Primary Sanction Effects: Evidence and Challenges

Perhaps not surprisingly, most of the empirical literature has focused on the primary effects of sanctions, generating several key insights. At the same time, however, some important aspects of sanctions have not been treated consistently in the existing literature. Against this backdrop, we proceed in two steps. First, we synthesize the main findings about the primary effects of sanctions from the existing literature into three conclusions. Then, we highlight several sanction features that should be taken into account when estimating the primary sanction effects.

Primary Effects. Our first conclusion is that *the primary effects of sanctions on the target states are negative, large, and often long-lasting*. A series of studies document strong negative sanction effects on the overall economic performance of the target states, including on growth (Neuenkirch and Neumeier, 2015; Kwon et al., 2022), trade (Hufbauer et al., 2007; Felbermayr et al., 2020a; Crozet and Hinz, 2020; Kohl, 2021), foreign direct investment (Yang et al., 2004; Biglaiser and Lektzian, 2011; Mirkina, 2018), poverty (Neuenkirch and Neumeier, 2016), banking and financial crises (Hatipoglu and Peksen, 2018), and political stability (Marinov, 2005; Peksen, 2021). Others have found negative impacts on specific economic agents, entities, and activities, including individuals (Miromanova, 2024), firms (Ahn and Ludema, 2020; Miromanova, 2023) and specific sectors – banking and finance (Arnold, 2016; Faraji, 2021), tourism (Hall and Seyfi, 2021), energy (Larch et al., 2022), and agriculture (Larch et al., 2024). Finally, some authors have demonstrated that sanctions have long-lasting effects, which often persist even after sanctions are lifted, e.g., on economic development (van Bergeijk, 1995), trade flows (Evenett, 2002; Kohl, 2021; Dai et

al., 2021), foreign direct investment (Biglaiser and Lektzian, 2011), the extensive margin of trade (Crozet et al., 2021), and growth (Kwon et al., 2022).

Our second conclusion is that *the primary sanction effects are very heterogeneous across various dimensions*. For example, Felbermayr et al. (2024b) document significant heterogeneity in the effects of sanctions on trade depending on their type (e.g., arms vs. financial sanctions), whether they are complete or partial, across industries, and depending on sanction duration. Kirilakha (2022) demonstrates that the effects of complete trade sanctions are heterogeneous not only across sanction cases but also across pairs within individual sanctions, and even within pairs depending on the direction of trade flows. Ahn and Ludema (2020) analyze ‘smart’ sanctions, Besedeš et al. (2021) analyze financial sanctions, Bapat and Morgan (2009), Neuenkirch and Neumeier (2015), and Syropoulos et al. (2023) distinguish between the effects of unilateral vs. multilateral sanctions. Perhaps not surprisingly, an important conclusion from this literature is that the effects of multilateral sanctions are significantly stronger as compared to those of unilateral sanctions. Syropoulos et al. (2023) show that the effects of the 2014 sanctions on Russia are very different across sanctioning states and even across the members of the European Union. This has implications for the implementation and effectiveness of multilateral sanctions. A broader implication of the wide heterogeneity in the effects of sanctions is that statistical models that impose common sanction effects across sanction dimensions, even within individual cases, may mask very significant heterogeneous effects.

Our third conclusion is that *the primary sanction effects on the senders of sanctions are usually small and short-lived*. This is documented in some early studies (e.g., Bayard et al. (1983) and Hufbauer et al. (1997)) and reinforced in more recent analyses, e.g., for French firms (Crozet et al., 2021), for German firms (Besedeš et al., 2021), and for the sanctions on Iran (Felbermayr et al., 2021). Morgan et al. (2023) attribute the small negative impact on the senders to the fact that they are usually larger than the target states and that the senders may select whether and when to issue sanctions, the types of sanctions, their content and design, and how to implement them. Despite the small impact on senders and given the relatively little attention that these effects have attracted in the existing literature, Morgan et al. (2023) conclude that further research on the effects on senders is needed because this may shed light on some important questions such as the optimal design of unilateral and multilateral sanctions, the political-economy motives for imposing sanctions (Kaempfer and Lowenberg, 2007), and the imposition of ‘fake’ sanctions that may mask economic motives.

Econometric Considerations and Challenges. According to Bapat et al. (2013), the estimates of the effects of sanctions appear to be quite sensitive to model specification. More-

over, most of the econometric challenges regarding the evaluation of the primary effects of sanctions are specific to the nature of the investigation and/or the available data. A comprehensive review of the concerns and of possible solutions is beyond the scope of this paper. However, we want to highlight three important issues – (i) endogeneity, (ii) extraterritorial effects, and (iii) the fact that sanctions are not only imposed but often lifted, too – that apply broadly and have important implications for estimating the effects of sanctions but have received relatively little attention in the existing literature.

The issue of endogeneity of sanctions has been recognized for a long time (Morgan, 1995). However, somewhat surprisingly, much of the literature has ignored the problems (Gutmann et al., 2020). A few studies have used different approaches to address endogeneity. For example, Neuenkirch and Neumeier (2015) tackle it by reducing the control sample. Neuenkirch and Neumeier (2016) employ a “nearest neighbor matching approach”, while Gutmann et al. (2021) employ an instrumental variables (IV) treatment with instruments based on the target country’s geographical and genetic distance and its voting patterns. More recently, Kwon et al. (2022) propose a flexible instrument based on senders’ aggressiveness. As argued in Morgan et al. (2023), assessments of the effects of sanctions should recognize and address the endogeneity problem.

As we discuss in more detail later in this section, recent empirical evidence (e.g., Kwon et al. (2024) and Yalcin et al. (2024)) suggests that sanctions may have direct effects on the economic relationships between the countries that are involved in a sanction episode and the countries outside it. As demonstrated by Kwon et al. (2024), if the extraterritorial effects of sanctions are not taken into account, then the econometric estimates of the primary sanction effects may be severely biased. Specifically, in the case of international trade, Kwon et al. (2024) find that not accounting for the extraterritorial effects of sanctions results in a bias of more than 50% in the estimate of the primary impact of trade sanctions.

Unlike other international policies that are implemented and never revoked, e.g., FTAs, most sanctions are not only imposed but often lifted, too. The lifting of sanctions is important from a policy perspective and, even though most papers that evaluate the effects of sanctions do not take ‘exit’ into account, some scholars (e.g., Krustev and Morgan (2011); Attia et al. (2020)) have asked why sanctions are lifted and how certain economic activities (e.g., trade) evolve during the imposition of sanctions and after their termination (e.g., Dai et al. (2021)). Regardless of whether the existing studies take the lifting of sanctions into account, or not, they all have relied on established *two-way-fixed-effects* (TWFE) methods (Wooldridge, 2021). However, as demonstrated in a series of recent econometrics papers (e.g., Hull (2018); Sun and Abraham (2021); de Chaisemartin and D’Haultfoeuille (2023)), the TWFE estimates of treatments with entry and exit may be biased, not only due to

negative (or arbitrary) weighting of treatment effects of the same category (de Chaisemartin and D’Haultfoeuille, 2020; Wooldridge, 2021; Borusyak et al., forthcoming), but also due to *contamination bias* triggered by the effects of other treatments. Kwon et al. (2024) take these considerations into account while re-evaluating the effects of sanctions on trade, and find that both the TWFE estimates that take and do not take sanction exit into account are significantly biased. The implications of this result extend beyond trade; hence, we recommend that the entry-and-exit nature of sanctions should be accounted for regardless of the outcome variable or the type of sanctions that are considered.

3.2 The General Equilibrium Effects of Sanctions

Quantifying the GE effects of sanctions may be useful for various reasons, e.g., to evaluate the total impact of sanctions, their effectiveness, and the probability of sanction success. Perhaps most importantly, the GE effects can mitigate significantly the direct impact of sanctions on the target states. To highlight this possibility, we focus on two types of GE effects, which are triggered in response to the primary sanction effects. The first one is the diversion of economic activity (e.g., trade, investment, technology transfer, etc.) between the sender or the target and third countries. The second one is a restructuring of the target economy to adapt to the new economic environment. To describe both of these channels, we use trade sanctions as an example.

To analyze the trade-diversion effects of sanctions, we rely on the international trade literature, which has devoted significant attention to quantifying the trade-diversion effects of various trade policies, e.g., free trade agreements. The most important impact of the GE trade-diversion effects of sanctions is that, by redirecting trade from the sanctioning states to third countries, they mitigate the negative primary impact of sanctions on target states. Naturally, the third countries benefit from the GE effects since they can trade at more favorable conditions, e.g., China and India buying cheaper oil from Russia as a result of the sanctions on Russia due to its invasion in Ukraine. The GE sanction effects on individual third countries are usually small, however, depending on the strength of the economic relationship with the target state and the economic size of the target, they can be large.

More importantly, even if the GE diversion effects on individual third countries are small, in combination, they may lead to a very large positive impact on the target state. For example, the ability of Russia to export oil to China and India has compensated for

a significant fraction of the lost Russian trade with the sanctioning states.¹⁴ This has two important policy implications: (i) The GE diversion effects may lead to significantly smaller overall sanction effects on the target states, and this should be taken into account in the evaluation of the costs of sanctions and their effectiveness. (ii) To increase the impact of sanctions on targets, senders may have to limit the possibilities for diversion of economic activity from the target state to third countries.¹⁵

The GE trade-diversion effects also apply to the senders of sanctions. The logic and transmission channels of these effects are similar to the effects on the target states, e.g., to compensate for the lost trade with the target state, the senders divert their trade toward third countries. Given that most sanctions are imposed by large senders on small targets, the GE trade-diversion effects of sanctions on the senders are usually small. However, there are some notable exceptions, e.g., when the target state is a key producer of a certain product (e.g., Iran and Russia for oil), which, especially if overlapping with the comparative advantage of the sender (e.g., US), may lead to significant beneficial trade-diversion effects for the sender. This logic unveils the possibility that some sanctions may be imposed for economic reasons that are masked behind the sanction objectives officially announced by governments.

The GE effects of sanctions may also lead to structural changes in the sanctioned state and affect economic outcomes that are not explicitly targeted by the sanction, e.g., trade sanctions may affect production, investment, the labor market, etc.¹⁶ Similar to the GE diversion effects, these linkages are important in gauging the total costs of sanctions when quantifying their effectiveness. However, despite the availability of sophisticated models that can translate the partial effects of various policies into corresponding GE effects, such analyses are relatively rare (e.g., Haidar (2017); Felbermayr et al. (2020b); and Besedes et al. (2018)). For example, Felbermayr et al. (2020b) find that the trade sanctions on Iran have led to a significant (of up to 30%) increase in Iran’s production in some agricultural sectors. This result has three implications for the effectiveness of sanctions: (i) The ability of the target states to adapt to sanctions increases over time, which decreases the negative impact of sanctions and, possibly, the probability of sanction success. (ii) Even though structural change may take time, some sectors (e.g., agriculture) are more sensitive than others. (iii) Sanctions should be applied in combination, e.g., trade sanctions and financial sanctions (as

¹⁴According to Babina et al. (2023), “European countries, previously the largest buyers [of Russian oil], now play a negligible role and have been replaced almost entirely by China and India, with the latter appearing as the key ‘new’ buyer. In 2023Q1, the two countries together accounted for close to 75% of the total Russian crude oil exports [compared to 26% in 2021].” (p. 3).

¹⁵‘Extraterritorial sanctions’ have been a controversial practice to pursue this objective, and we discuss them in more detail below.

¹⁶It is also possible that a government may ‘shield’ existential economic agents, e.g., large firms, from the impact of sanctions to avoid their ‘death’ (Ahn and Ludema, 2020).

they often are, see Section 2).

3.3 The Extraterritorial Effects of Sanctions

The popular perception of extraterritorial sanctions is that they affect negatively the relationship between third countries and the target state (Moehr, 2019; Crabtree, 2019; European Parliament, 2020; Bloomberg, 2021). However, due to the evolution of sanctions and new empirical evidence, we define the “*extraterritorial effects of sanctions*” broadly as the *direct* (as opposed to GE) impact of sanctions on the relationships between the countries that are involved in a sanction episode and outside countries. Our definition differs from the traditional definitions of ‘extraterritorial’ and ‘secondary’ sanctions across two dimensions.¹⁷ First, it allows for extraterritorial effects of sanctions on the relationships between the sender and third countries as well as between the target and third countries. Second, it does not restrict the extraterritorial effects of sanctions to be negative. Based on this broad definition, we distinguish between four types of extraterritorial effects of sanctions, and we discuss their implications for the impact and effectiveness of sanctions.

The motivation for the ‘traditional’ negative impact of extraterritorial sanctions on the relationships between third countries and the target states is that, in its pursuit to punish the target, the sender puts pressure on third countries to limit their economic exchanges with the target. For example, through this channel, the sender may limit the GE diversion effects that we discussed earlier. Moreover, if successful, the extraterritorial sanction effects may also limit the direct links between the target state and third countries. This hypothesis is supported by Kwon et al. (2024) who provide econometric evidence that, on average, the extraterritorial effects of sanctions on trade between target states and third countries are negative and statistically significant even after controlling for the GE diversion effects. In addition, in the case of the US sanctions on Cuba, Kwon et al. (2024) show that the extraterritorial effects of the US sanctions on Cuba’s welfare are significantly larger than the welfare losses due to the primary sanction effects. This result implies that extraterritorial sanctions are an effective tool to increase the cost of sanctions on the target states, which is consistent with arguments from the political science literature that extraterritorial provisions are one of the main determinants of sanction success (Early, 2021).

As discussed earlier, sanctions may trigger GE effects that divert economic activities from the target to third countries. It is also possible that the sanctions may stimulate stronger integration between the target state and third countries that goes beyond the GE diversion

¹⁷Morgan et al. (2023) discuss the definitions of ‘extraterritorial’ and ‘secondary’ sanctions.

effects, e.g., a sanctioned state may liberalize trade with third countries.¹⁸ Kwon et al. (2024) offer evidence for such effects in the case of Cuba, which, in response to US sanctions, decreased its direct bilateral trade costs with some economic allies and neighboring countries. Similarly, and after controlling for all possible GE forces, Yalcin et al. (2024) obtain estimates that suggest large decreases in the direct bilateral trade costs between Russia and China, India, and Turkey after the sanctions on Russia after its invasion of Ukraine. The implication is that Russia’s trade with China, India, and Turkey has increased beyond the GE trade diversion effects. Based on this, Yalcin et al. (2024) conclude that such trade liberalization efforts between targeted states and third countries may be sufficient to not only offset the losses from less trade with the senders of sanctions but also to generate net gains for Russia.

This result has two broader implications. First, from an econometric perspective, it implies that if such positive extraterritorial effects are not accounted for when estimating the primary effects of sanctions, then the latter may be significantly biased. Second, from a policy perspective, it implies that if the positive extraterritorial effects of sanctions are not taken into account, then the estimates of the economic costs of sanctions on the target states could be significantly over-estimated. Importantly, the discrepancy between the actual vs. estimated costs of sanctions on the target state may explain the apparent puzzle in the sanctions literature that greater sanction costs to the target do not necessarily translate into a higher probability of success (Demena et al., 2021; Morgan et al., 2023).

The extraterritorial sanction effects between the sender and third countries may also be negative or positive, i.e., a “stick” or a “carrot”. Most often, the negative effects are due to failures of the third countries to comply with the extraterritorial sanctions and, among many others, one of the most prominent examples of such negative effect is the fine of 8.9 billion dollars, which was paid by BNP Paribas “for illegally processing financial transactions for countries subject to U.S. Economic Sanctions” (US Department of Justice, 2014). By definition, the negative effects of extraterritorial sanctions on third countries are limited to specific individuals and companies. The effects on the relationship between the sender and third countries can also be positive. For example, Kwon et al. (2022) find that bilateral trade costs between the senders of sanctions and third countries decrease after sanctions are imposed. A possible interpretation of this result is that the sender is offering favorable trade conditions to third countries to convince them to engage less with the target state.

¹⁸More broadly, sanctioned states may form coalitions with third countries (Joshi and Mahmud, 2020), based on trade relationships (Garfinkel et al., 2020) or political alliances (Kleinman et al., 2020).

3.4 Do Sanctions Work?

The empirical evidence strongly supports the notion that economic sanctions produce tangible economic effects. It does not necessarily follow, however, that those economic effects lead to intended changes in policy. Indeed, “Do Sanctions Work?” is perhaps the most important and also the most difficult question in the sanctions literature. Morgan et al. (2023) discuss some prominent challenges in answering this question by highlighting the differences between the perspectives offered by economics vs. political science scholars. Consistent with the analysis in this section, economists are usually concerned with the “economic impact” of sanctions, and they often characterize sanctions as ‘effective’ when sanctions inflict significant economic damage on the target states. Political scientists, on the other hand, define sanction effectiveness and success based on whether sanctions have reached their stated political objectives and, quite often, sanctions are deemed ineffective/unsuccessful as they fail to reach these objectives (Galtung, 1967; Doxey, 1971; Pape, 1997; Hufbauer et al., 1990; Morgan et al., 2023).

Thirty years ago, the conventional wisdom in political science was that sanctions simply do not work in an instrumental sense. Several explanations were offered for this: For example, the stated political objectives of sanctions may be quite different from the true sanction motives (Hufbauer and Jung, 2020). Some scholars argued that sanctions are purely symbolic (Lindsay, 1986) or intended only as a signaling mechanism (Schwebach, 2000) and others developed formal theories suggesting that sanctions should not be expected to achieve their stated objectives (Wagner, 1988; Morgan and Schwebach, 1997). It was soon realized, however, that this conventional wisdom was based largely on studies of individual, prominent, and long-lasting cases, such as the US sanctions on Cuba. However, these cases were prominent and long-lasting precisely because they did not lead to a change in the targets’ policies, it became rather obvious that the conclusions might be heavily influenced by selection bias. Subsequent research based on large-N analyses showed that sanctions did ‘work’ in around one-quarter of the cases (Hufbauer et al., 1990), a result which was confirmed using a subsequent and more complete data set (Morgan et al., 2014).

These data also led scholars to recognize that the success of sanctions is heterogeneous and may depend on various characteristics. Sanctions are less effective when the target and sender anticipate that they will be involved in future conflicts (Drezner, 1999) and more effective when their objectives are focused on relatively less important issues, e.g., sanctions targeting human rights are more successful than those that aim to change regime or resolve territorial disputes (Morgan et al., 2023). Further, the type of sanctions matters, e.g., complete trade sanctions are more effective than partial sanctions (Felbermayr et al., 2024b) and ‘smart’ sanctions are usually more successful than broad-based ones (Cortright

and Lopez, 2002). Other factors influencing the success of sanctions include whether the sanctions are imposed unilaterally or multilaterally (Martin, 1992; Bapat and Morgan, 2009; Early, 2021; Syropoulos et al., 2023), whether ‘black knights’ come to the aid of the target (Early, 2011) and the political and economic health of the target state (Allen, 2008; Lektzian and Souva, 2007; Attia et al., 2020). In a nutshell, these results suggest that sanctions can work instrumentally and that the determinants of their success are well understood.

Many of the results can be interpreted as suggesting that improving effectiveness is a straightforward matter of increasing the costs of sanctions to the target. So, why does the rate of success continue to be relatively low? One, seemingly straightforward explanation is that senders might often design insufficiently costly sanctions. This could be attributable to the role of third parties which, as we argued earlier, can play a crucial role in significantly magnifying or mitigating the impact of sanctions. It might also follow from the fact that senders (and perhaps analysts) have failed to pay proper attention to the value the target places on the issue at stake. Costs matter relative to what is at stake, not in an absolute sense. This suggests that further research will improve the success rate of sanctions. It seems likely, however, that sanctions will continue to bring about policy change in only a fraction of those cases in which they are imposed. This leads to one of the puzzles with which we began: why are states continuing to use sanctions, and do so at an increasing rate?

One answer to this puzzle rests with the fact that sanctions are rarely imposed ‘out of the blue’. Rather, senders usually threaten to impose sanctions if the target does not change its behavior before imposition. If targets can anticipate that they would back down when sanctions are imposed, they might change their behavior before reaching that point. If the target does not acquiesce to the threat of sanctions the sender might or might not impose them, creating an incentive for some targets that will capitulate when sanctions are imposed to bluff. All targets that would stand firm in the face of sanctions will ignore the threat, however. Senders must, at least with some regularity, impose sanctions on recalcitrant targets to maintain the credibility of their threats. This implies that studying only cases of sanctions imposition focuses primarily on those cases in which sanctions cannot ‘work’ and might seriously underestimate the success rate of using sanctions as a matter of policy.¹⁹ This realization led to the development of the Threat and Imposition of Economic Sanctions (TIES) data set (Morgan et al., 2009; 2014) that includes data on sanction threats as well as impositions.

Analyses of these data confirm that, when we also consider sanction threats, the success rate increases substantially. When we consider threats and impositions, targets change their policies in over half the cases (Morgan et al., 2009). Moreover, we know several of the factors

¹⁹See Smith (2011), Morgan and Miers (1999), and Drezner (2003) for further elaboration of this argument.

that make threats more or less effective. These include circumstances where the threats and accompanying demands are unambiguous and precise, when domestic actors can influence policy, and, rather obviously, when the anticipated costs to the target are high (Morgan et al., 2009; Bapat et al., 2013; Clay, 2018; Walentek et al., 2021). This research is based on cases in which threats were made explicitly and, usually, publicly. Implicit threats might be even more effective. Any government considering testing nuclear weapons, violating human rights, or invading a neighbor can expect to be sanctioned. Many may have chosen to avoid even the explicit threat of sanctions by not engaging in these behaviors.

We can now provide an answer to one of the puzzles with which we began: why are states continuing to use sanctions, and at an increasing rate, when we know that they produce adverse economic effects and are unlikely to produce a policy change? In the first place, sanctions do sometimes ‘work’ in an instrumental sense. Given that they are generally designed to be fairly low cost to the senders, even a 30% probability of ‘success’ might be highly cost-effective. Moreover, the knowledge we have gained in recent decades has led to improvements in sanctions design and that trend may continue. Most important, however, is the fact that imposed sanctions, even if they fail, support the credibility of sanction threats. That produces very low-cost policy successes in many other cases. More specifically, this explains why sanctions scholars were nearly unified in their views of sanctions on Russia over the invasion of Ukraine. We have very good evidence that sanctions, no matter how costly, seldom induce a state, especially one with an authoritarian government, to stop military operations once they have begun. By increasing the cost of the policy, however, they might dissuade the target or other potential aggressors from future hostile actions.

4 Conclusions and Future Research

Motivated by the unprecedented proliferation of economic sanctions and the proclivity of governments to rely increasingly more on this relative to other (e.g., military) policy tools, our aim in this paper may be summarized as follows. First, with the help of the latest version of the Global Sanctions Data Base, we described the evolution of sanction use since the 1950s, paying special attention to the changing identities of sanctioning and sanctioned countries, the types of sanctions imposed, their duration over time, and their underlying objectives. Over the last couple of decades, three important changes (among several others) stand out: (i) the significant shift from comprehensive to targeted sanctions; (ii) the increased involvement of the US, relative to other countries, in the initiation of sanctions; and (iii) the emergence of Russia as one of the most frequent targets. Aided by the GSDB, we also identified and discussed plausible links between the imposition of sanctions, their

likelihood of success, and the characteristics of the dyads involved in the various sanction episodes. Perhaps unsurprisingly, the existence of common minorities and/or common language, distance, asymmetries in country size, and political regimes matter in this context.

Second, we reviewed the quantitative literature aimed at assessing the economic effects of sanctions on all sides. Our discussion, which was based on our categorization of the various sanction effects as *primary*, *general equilibrium (GE)*, and *extraterritorial*, enabled us to draw the following noteworthy conclusions: (i) The primary effects on targets are negative, large, often long-lasting, and very heterogeneous; in contrast, the corresponding effects on senders tend to be small and short-lived. (ii) While the GE (e.g., trade diversion) effects on senders tend to be relatively small, their effects on targets (e.g., Russia) in certain sectors (e.g., oil) normally work against the adverse primary effects and are significant. (iii) Recent work on the extraterritorial sanction effects on targets (e.g., Kwon et al. (2024) and Yalcin et al. (2024)) reveal that these effects can be large and, if ignored, seriously bias inferences that are based solely on estimates of the primary effects.

Third, the apparent difference in perspectives among economists and political scientists regarding the ‘effectiveness’ of sanctions and the paramount importance of this issue to all sides induced us to address the question “Do Sanctions Work?” The consensus on this issue seems to be that, while sanctions effectively inflict significant harm on targets, their success in achieving senders’ stated objectives remains relatively low. One explanation for this may be that the actual cost of sanctions to targeted states is below the level needed to bring about compliance and that sanctions are more effective at the threat stage.

Another relevant consideration in this context – and one of senders’ motivation to rely more heavily on ‘smart’ (i.e., ‘targeted’) sanctions – is the identity of the targeted activity in sanctioned states. Simply put, the instrumental effectiveness of sanctions may be low because they target an activity that is feebly related to senders’ stated objective(s). Moreover, the likelihood of success need not be a binary concept – success vs. failure – or deterministic. The rate of sanction success may depend, not just on the way it is measured, but also on the nature (e.g., negotiable vs. non-negotiable) and availability of policy instruments to social planners and the various (e.g., institutional, political, and in some cases existential) constraints they may face. In other words, additional valuable insights might be generated on the issue at hand if closer attention were paid to the broader environment within which foreign policy decisions are designed and implemented.

The above observations give rise to several related questions: If sanctions are costly to all sides, why are they imposed in the first place? What prevents rival states from settling their differences peacefully through negotiation? Finding plausible answers to these questions strikes us as a worthwhile endeavor in itself because the answers may identify important roots

and linkages in the problem at hand.²⁰ It is also our view though that they could potentially shed valuable light on the questions of whether sanctions work, why their frequency of use has been increasing over time, and how various types of sanctions may be ranked in terms of effectiveness. Finally, they could provide new insights on the efficacy of unilateral and multilateral sanctions in achieving senders’ objectives and, more generally, fresh inspiration for empirical work.

Felbermayr et al. (2024a) represents a step toward answering the questions posed above. In the spirit of Keckskemeti (1958), Clausewitz (1968), Schelling (1966), Wagner (1988) and numerous others who viewed war as part of the bargaining process, we model sanctions as an instrument of coercive bargaining (specifically, an “inside option”) that aims to enhance the sender’s leverage in future negotiations. We do this in a dynamic, rationalist setting in which governments aim to bring an internationally contested issue (e.g., territory, technological expertise, human rights abuse, pollution, etc.) to a desired level peacefully through negotiations or antagonistically through the imposition of sanctions and/or countersanctions to lock in benefits in future dealings. Importantly, to achieve their goals, the contending states rely on non-negotiable resource-using activities that generate adverse international externalities. No less importantly – and in the spirit of Fearon (1995) and Powell (2004) who attribute war to bargaining failures – policy planners are unable to pre-commit to future settlements of their dispute (i.e., ‘agreements’ are renegotiated).²¹

Through their influence on resource-using activities that shape governments’ leverage in future negotiations, our theory provides a plausible answer to the question “Why Are Sanctions Imposed?” and identifies conditions under which this is likely. Furthermore, our theory admits the possibility that sanctions do not always guarantee the fulfillment of senders’ objectives as well as the possibility that successful sanctions may work at the threat stage (i.e., they may not be imposed at all). What is more, our framework captures the direct relationship between the costs of sanctions and their probability of success and allows for improved sanction design and more effective enforcement that further contribute to their effectiveness. Last but not least, it prepares the ground for studying issues like the ones mentioned above and, hopefully, for substantive analysis of sanctions’ possible relationships to armed wars – like the ones in Ukraine and the Middle East.

²⁰For example, such answers may explain why the allies in the West imposed severe sanctions on Russia for its invasion of Ukraine even though it was (perhaps arguably) common knowledge that the sanctions would (i) inflict serious economic and human harm to (almost) all sides, and (ii) (almost) certainly fail to compel Russia to reverse its course of action.

²¹In Felbermayr et al. (2024a), the initiation of sanctions in the current period affects negotiated settlements in the future through their impact on policy planners’ resolve. Garfinkel and Syropoulos (2024) use a similar setting (though a very different intertemporal linkage) to examine how trade (or its cessation) affects the emergence of conflict and peaceful settlements.

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