"Overuse" of Economic Sanctions

Does the Repeated Imposition of Economic Sanctions Hurt Their Effectiveness?

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Contents

Does the repeated imposition of economic sanctions make them less effective? While conventional wisdom in the scholarly and public debate seems to suggest so, there is little empirical evidence: we lack an understanding of how "overusing" economic sanctions affects their ability to extract policy concessions. I address this by examining whether the number of prior sanctions imposed by the same sender on the same target affects the effectiveness of newly imposed sanctions, drawing on the "Threat and Imposition of Economic Sanctions" data set to study the relationship. Using a fixed-effects approach to examine the relationship within sender-target dyads in an unbalanced panel, I observe negative effects, suggesting that sanctions become less effective when used repeatedly by the same sender against the same target. The results are, however, subject to particularizations. First, they depend on the operationalization of success. Second, the effect is hard to distinguish from potentially interfering unobserved trends in the time dimension. Third, the effect is largely driven by a handful of dyads with a very high number of sanctions, and the United States' frequent use of economic sanctions. While the findings are thus nowhere near conclusive, they do nevertheless offer circumstantial evidence that using sanctions too frequently may hurt their effectiveness.

Introduction

In 2019, *Foreign Affairs* magazine conducted an expert survey, asking participants whether they thought that "Washington's use of sanctions is doing more harm than good". Out of 35 respondents, 22 either agreed or strongly agreed, frequently arguing that the US was "overusing" sanctions, making them less effective ("Foreign Affairs", 2019). More recently, the issue was brought to broader public attention when US Treasury Secretary Janet Yellen publicly remarked that repeatedly targeted countries may be incentivized to decouple from the US Dollar, over time undermining the financial and economic position and leverage of the United States (Business Insider, 2023). The idea that imposing sanctions repeatedly makes them less effective also seems to be somewhat of a conventional wisdom in the scholarly

debate (Drezner, 1998; Nephew, 2019; Sedliar & Stadnichenko, 2019; Van Bergeijk, 1994). However, no matter how pervasive this argument is in the "sanctions discourse" - and how self-evident it may seem at first glance - there is little empirical evidence to back it up.

While there is some evidence that repeatedly imposing economic sanctions has diminishing returns economically (Biglaiser & Lektzian, 2020), we lack an understanding of how "overuse" affects sanctions' ability to coerce the target politically: it is well known that their economic impact does not translate well into policy change (Connolly, 2018; Dashti-Gibson, Davis, & Radcliff, 1997; Drury, 1998; Hufbauer, Schott, Elliot, & Oegg, 2007; Morgan, Bapat, & Kobayashi, 2014). However, since sanctions seldom impose economic hardship as an end in itself, but rather to provide a negative incentive to change political behavior (Hufbauer et al., 2007; Pape, 1997), it is crucial to understand how "overuse" affects their effectiveness in the political domain, and thus their usefulness as a policy instrument. I seek to address this gap by examining the effect of repeated imposition on the ability of economic sanctions to extract policy concessions, commonly referred to as their "effectiveness".

I begin by establishing terminology and providing a brief review of previous research on economic sanctions, considering what economic sanctions even are, why states impose them, and what it means for sanctions to be effective. I then turn to examine the proposed mechanism of adaptation and overuse, showing how target states may adapt to sanctions, and how being repeatedly targeted provides especially strong incentives to adapt.

I argue that the repeated imposition of economic sanctions against the same target state incentivizes the target to decouple from the imposing state, the sender, over time decreasing the economic leverage of the sender vis-a-vis the target, making future sanctions less likely to succeed. Repeatedly imposing sanctions on the same state also makes the target more likely to anticipate future sanctions, and thus to take further measures to improve its resilience. Drawing on previous, largely qualitative, research on adaptation, I show three categories of mechanisms through which targets adapt: *Adapt*, *Evade* and *Endure*. *Adapt* describes measures of macro-economic restructuring and trade reorientation to adapt the economy to sanctions and harden it over the long term, while *Evade* encompasses various informal, illicit, or illegal tactics to circumvent sanctions. Lastly, *Endure* means to bear the economic

hardship imposed by sanctions, and contains measures the target government can take to entice its population to tolerate the economic consequences of sanctions. I argue that when the same sender repeatedly imposes sanctions against the same target, this provides the target with strong incentives to take adaptive measures, many of which will make it more resilient towards future sanctions, decreasing the leverage the sender can exercise over the target. I thus hypothesize that the number of prior sanctions a sender has imposed on a target has a negative effect on the effectiveness of newly imposed sanctions.

Drawing on the "Threat and Imposition of Economic Sanctions" (TIES) data set (Morgan et al., 2014), I consider an unbalanced panel of sender-target dyads to test the hypothesis. I leverage dyad fixed-effects to examine the effects *within* the sender-target pairings, addressing unobserved, time-invariant heterogeneity between dyads. I also include a number of dynamically modelled covariates that may be considered potential confounders of the hypothesized relationship. A fundamental issue with research on economic sanctions is the "lack of generally accepted concepts (…) held together by loose assumptions based on empirical evaluations" (Giumelli, 2011, p. 19): even fundamental distinctions, like what it even means for sanctions to be considered "successful", remain contentious issues in themselves (Peksen, 2019), and many results are thus hardly comparable across studies. I address this by considering different operationalizations of "success", demanding either (1) tangible policy concessions by the targeted state to the demands of the imposing state ("maximalist" definition), or (2) the facilitation of a negotiated settlement ("minimalist" definition) as a threshold for success.

Results indicate a negative effect of repeated imposition on the effectiveness of economic sanctions, at least for a maximalist definition of success. The effect is, however, largely driven by a relatively small number of influential cases, and the United States' frequent imposition of sanctions. The effect is also hard to substantially distinguish from potentially interfering trends, and subject to certain theoretical particularizations, as I only consider sanctions for their *coercive* value, neglecting the role they may play as a signal or a punishment.

Theory

I investigate whether the repeated imposition of economic sanctions against the same target makes newly imposed sanctions less likely to succeed in coercing the target. While there is some evidence that repeatedly imposing sanctions has diminishing returns economically (Biglaiser & Lektzian, 2020), economic sanctions seldom cause damage as an end in itself, but usually leverage economic pressure to extract political concessions (cf. e.g. Hufbauer et al., 2007; Pape, 1997). It is thus crucial to examine whether the economic effect of overuse translates into the political realm, also making sanctions less likely to be successful in extracting policy concessions when used repeatedly.

In order to consider whether repeated imposition makes economic sanctions less "effective", it is necessary to first qualify at least two things: (1) what even qualifies as a sanction, and (2) what it means for sanctions to be "successful" or "effective", both of which are highly contentious issues in themselves (Peksen, 2019). The aim of the following section is to address these issues, giving a cursory overview of the previous literature and introducing some key concepts surrounding economic sanctions. After clarifying the terminology and some fundamental assumptions about sanctions, I will then turn to examine targets' adaptation to sanctions, their strategies, and its implications for the relationship between repeated imposition and effectiveness.

Economic sanctions

Economic sanctions are a prevalent part of the foreign policy of major global powers, especially of the United States, and also of scholarly and public discourse on foreign policy. Thus, one is likely to have an intuitive understanding of what the term means - but offering a precise, agreed-upon definition is nevertheless challenging. Hufbauer et al. (2007) define economic sanctions as "the deliberate, government-inspired withdrawal, or threat of withdrawal, of customary trade or financial relations" applied to change the target's policital behavior (p. 3). Pape (1997) defines economic sanctions as measures to "lower the aggregate welfare of a target state (…) in order to coerce the government to change its political

behavior" (p. 93-94). While the latter definition is clearly state-centric, and only counting measures to "lower the aggregate welfare" as sanctions omits more targeted measures (which I will discuss further below), both of these definitions share two common elements: (1) the creation of negative economic incentives, and (2) the intent to change political behavior. Defining economic sanctions as the application of negative economic incentives to change the political behavior of the target will be adequate for the purpose of this work. It should, however, be noted that this omits at least two other functions of sanctions: to signal resolve or outrage to domestic or international audiences (cf. Giumelli, 2011; Hufbauer et al., 2007), and to penalize the target for its "failure to observe international standards or international obligations" (Giumelli, 2011, p.15). Further, only considering the application of economic pressure - i.e. negative economic incentives - excludes "positive" sanctions, where a state provides positive economic incentives for another state to comply with its demands (Hufbauer et al., 2007; Van Bergeijk, 1994).

Economic sanctions involve at least two parties: one that imposes sanctions, and one that sanctions are imposed upon. Although they have been given varying names, the most widely spread terminology is to refer to the imposing party as the "sender", and to the party sanctions are imposed upon as the "target" (Hufbauer et al., 2007).

It is common to divide sanctions into at least two "classes", which Peksen (2019) calls *conventional* and *targeted* sanctions. *Conventional*, sometimes also referred to as "comprehensive" (cf. e.g. Tostensen & Bull, 2002), sanctions comprehensively target the economy of a country at large. They include types of measures like all-out embargoes, as well as broadband trade and investment sanctions (Peksen, 2019, p. 639). Conventional sanctions are generally viewed as "blunt instruments (…) designed to coerce the leaders of the targeted regime to change policies", often causing "substantial collateral damage" (Hufbauer et al., 2007, p.138). *Targeted* sanctions, sometimes also called "smart sanctions" (cf. e.g. Drezner, 2003; Tostensen & Bull, 2002), on the other hand are meant to avoid the collateral damage imposed by conventional sanctions, while retaining their effectiveness. Targeted sanctions include measures like asset freezes, financial restrictions on international banking activity, denial of luxury good sales, sectoral sanctions (like arms embargoes or restriction of dual

use technologies), and travel restrictions (Peksen, 2019). Targeted sanctions are meant to be aimed at "specific officials or government functions without damaging the overall economy and imposing exceptional hardship on the general public" (Hufbauer et al., 2007, p. 138).

However, the distinction between "blunt" conventional sanctions imposing hardship on the general population of the target, and "smart" targeted sanctions that avoid such collateral damage, while retaining the coercive capacity, is in reality a lot more blurry. For example, while Iran's health sector was deliberately exempt from sanctions, the sanctions imposed on its banking sector drastically impaired its capabilities to purchase medical equipment, medicines, or raw materials for drug synthesis, or to build up medical infrastructure, or fund and publish research, thus crippling the medical sector anyways (Abdoli, 2020). In Sierra Leone in 1997, an embargo on arms and fuel meant that many basic goods, such as agricultural products, could not be transported within the country. At the same time, humanitarian shipments had to be cleared before entering the country due to the enforcement of the arms embargo, often critically delaying them, and even where they were cleared, they could often not get to their destination due to the aforementioned lack of fuel (Heine-Ellison, 2001). Both of these examples highlight the point that surgically targeting - or exempting - one sector of a target economy is often a chimera due to network effects. Bargaining models also draw into question whether the costs associated with targeted sanctions are sufficiently high relative to the values at stake, in order to induce a policy shift (Morgan & Schwebach, 1997). Concludingly, the general consensus among scholars seems to be that conventional sanctions are more effective, or at least that there is no evidence of targeted sanctions being more effective (Biersteker, Eckert, Tourinho, & Zuzana, 2016; Cortright & Lopez, 2002; Drezner, 2011; Eriksson, 2011; Tostensen & Bull, 2002).

Another potential class of sanctions that should be at least briefly mentioned, perhaps best viewed as a sub-class of targeted sanctions, are financial sanctions against individuals or groups for political reasons other than their nationality, which evolved during the 1990s and 2000s, especially during the war on terror (Alexander, 2009). As I will explain more elaborately in the empirical section, these are beyond the scope for the purpose of this paper, as they are not sanctions imposed by a state entity on another state entity.

Why do states impose sanctions?

Why states even choose to impose economic sanctions in the first place is a non-trivial question, and it has to be at least briefly addressed in order to tie together the questions of "what is a sanction" and "what does it mean for sanctions to be successful".

The most basic view is what Galtung (1967) calls the "naive model", which sees economic deprivation in direct relation to political disintegration or change. Here, the purpose of economic sanctions is to impose economic hardship in order to "coerce the target government to change its political behavior" (Pape, 1997, p. 93-94). Implicitly, states are assumed to be rational utility-maximizers, that make cost-benefit calculations about their political actions, and their behavior can thus be changed by imposing extra economic costs. The primary goal of sanctions in this view is to *coerce*.

Giumelli (2011) qualifies this model, by adding the objectives of *constraining*, i.e. denying the target resources it would need to continue pursuing policies undesirable to the sender, and *signalling*, either to domestic or international audiences. His definition gives much more space to the signalling element, calling sanctions "politically-motivated penalties imposed as a declared consequence of the target's failure to observe international standards or international obligations" (Giumelli, 2011, p. 16). Indeed, sanctions as a tool of signaling have been the subject of some scrutiny in the literature. Hufbauer et al. (2007) offer a categorization, distinguishing three forms of signals sanctions may send: First, sanctions may be used as a *demonstration of resolve*, i.e. to signal to the target that the sender is determined to follow words up with deeds. Second, senders may attempt to *discourage* future objectionable policies by increasing the associated cost, using sanctions as tool of deterrence. Lastly, signaling may serve a *domestic political purpose*: as David Lloyd George, then a British opposition leader, wittily remarked about the League of Nation's sanctions against Italy in 1935: "They came too late to save Abyssinia from subjugation by Italy, but they are just in the nick of time to save the British Government" (Rowland, 1975, p. 723; as cited in Hufbauer et al., 2007). Indeed, it seems policymakers - at least in democracies - do profit from imposing sanctions through increased domestic support, making sanctions appear to them as a (seemingly) low-cost way of displaying strong leadership during international conflicts (Whang,

2011).

What does it mean for sanctions to be "successful"?

When debating the effectiveness of economic sanctions, it is vital to differentiate their political *effectiveness* from their economic *impact*. While the economic costs imposed by sanctions are viewed by some as a determinant for their ability to extract political concessions, economic damage nevertheless does not translate directly into concessions (Dashti-Gibson et al., 1997; Drury, 1998; Hufbauer et al., 2007; Morgan et al., 2014). As Connolly (2018) puts it:

> It is important to emphasize that it does not necessarily follow that impact leads to effectiveness. A target country that suffers a reduction in the availability of goods or capital, or which experiences a reduction in GDP as a direct result of sanctions, may be said to have been impacted by sanctions. But the target government may not be prompted to modify the policy that caused sanctions to be imposed in the first place (p. 10).

Regarding the relationship between *impact* and *effectiveness*, some scholars have argued that what truly matters is not the total economic damage, "but whether the target government and its key domestic constituencies feel significant economic pain from noncompliance" (Drezner, 2003; cf. also Kaempfer & Loewenberg, 1992; Kirshner, 1997), while others highlight that, in order to coerce targets, sanctions need to have a drastic immediate impact that grabs the attention of decision-makers, and has rapid spill-over effects across sectors, to maximize outcome uncertainty and uncertainty about future conflict escalation (Andermo & Kragh, 2021). Given that the literature has also identified a broad array of other determinants (cf e.g. Peksen, 2019; Van Bergeijk, 2019), causing economic damage is perhaps best viewed as a necessary condition for extracting political concessions, but certainly not a sufficient one. While this distinction between economic impact and political success is crucial, it is frequently overlooked, especially in popular and political discourse. For example, in November 2020, then US Secretary of State Mike Pompeo called the "Maximum Pressure" sanctions campaign against Iran "extraordinarily effective", citing Iran's currency

crisis, mounting debt and rising inflation as evidence; left unsaid by him was that despite all this damage inflicted, Iran was not complying with US demands to halt the enrichment of Uranium, but was in fact accelerating its enrichment (Drezner, 2021, p. 150). The debate on whether sanctions are economically impactful (cf. e.g. Shin, Choi, & Luo, 2016), and what determines the amount of economic damage inflicted is beyond the scope of this work, since I am concerned with the *effectiveness* of economic sanctions in a political sense.

With regards to what qualifies "success" or "effectiveness" of sanctions in the political dimension, there are at least two competing views, which will be referred to as *minimalist* and *maximalist* view of sanctions success in the following. In the *minimalist* view, sanctions may be considered successful if they manage to extract *any* form of concession from the target state, or even just render a negotiated settlement possible (Peksen, 2019, p. 637). Some minimalists go even further, arguing the mere imposition of sanctions already poses a form of success: "to make the target of an influence attempt pay a price for non-compliance is to be at least partially successful" (Baldwin, 1985, p. 372). The *maximalist* view, on the other hand, requires targets to concede either entirely or at least partially to the demands the sender attached to the sanctions (Pape, 1997). A definition of success in line with this view is offered by Oxenstierna and Olsson (2015), who argue that sanctions should be considered successful when they induce "change in the policy behavior of the target in line with the objectives of the sender" (p. 22).

One thing that should be pointed out - although hard to operationalize - is that viewing the outcome of sanctions as dichotomous (either they are "successful" or they are "unsuccessful") neglects another likely outcome: that target policy may diverge further away from sender demands (Peksen, 2019), i.e. the target not only does not comply with sender demands, but defies them by doing the opposite. This may seem trivial to point out, but it has profound consequences for evaluating how effective economic sanctions are as a policy instrument. Assuming the sender preferences with regard to the target's policy are transitive, in cases where the target responds to sanctions by doing the opposite of what the sender demands, it would have been preferable to the sender not to impose sanctions at all.

Next to the possibility of having an adverse effect, sanctions - especially conventional sanc-

tions - are known to have major negative externalities: For example, their imposition may cause a rally-around-the-flag effect in the target, bolstering support for its leadership (Kazun, 2016), lead to increased repression and generally worsen the human rights situation in the target country (even when imposed for the very purpose of enforcing human rights) (Peksen, 2009; Wood, 2008), decrease the sender's popularity in the target population (Frye, 2019), contribute to the escalation of violent conflict (Hultman & Peksen, 2017), and result in an overall decline in civil liberties in the target (Adam & Tsarsitalidou, 2019). This is not even mentioning the deleterious effect sanctions can have on the target populations' economic life and living standards, sometimes by design (cf. e.g. Katzmann, 2013).

The question of *how* successful sanctions are is closely related to the question of how useful of a policy instrument they are, and has thus been of great interest to the previous literature. However, this debate is "mired in scholarly limbo" (Baldwin, 2000, p. 80), owing to rivaling definitions and different underlying data sources with different coding standards. The first data set enabling "large-N" research on economic sanctions was provided by Hufbauer, Schott, and Elliot (1985) [1], who estimated sanctions were successful around 34% of the time. Pape (1997), reexamining their 1990 data set, argued that sanctions could only really be considered successful in 10% of cases, questioning not only their definition of success, but also coding decisions[2]. Morgan et al. (2014), including both threatened and imposed economic sanctions, show success rates of 27% for a maximalist definition, and 41% for a minimalist definition of success. Kirilakha, Felbermayr, Syropoulos, Yalcin, and Yotov (2021) estimate that sanctions are successful in 30-42% of cases, depending on whether ongoing sanctions are included as "unsuccessful". Concludingly, depending on who one asks, estimates for how successful sanctions are differ wildly, with the lowest estimate being 10% (Pape, 1997) and the highest being 42% (Kirilakha et al., 2021); thus, the only tangible consensus one may establish is that sanctions are effective less than half of the time.

[1] and subsequently updated in both Hufbauer, Schott, and Elliot (1990) and Hufbauer et al. (2007), known as the "HSE" or "HSEO" data bases.

[2] Pape (1997) was not the only one to criticize the approach taken by Hufbauer et al. (1985) and Hufbauer et al. (1990): Van Bergeijk (1994) voiced major methodical concerns, stating that "[a]ll in all, their econometrics are not righly applied, and as a consequence not very instructive. This is especially disappointing since the Hufbauer, Schott and Elliot study has become the major reference work on the subject of economic sanctions" (p. 73). While this may not directly relate to their estimates of how often sanctions are successful, it should nevertheless be kept in mind that their findings have never been undisputed.

One last thing to point out when discussing *how* successful sanctions are is the role of selection bias in the cases we observe. Morgan and Schwebach (1997) point out two potential problems here: On the one hand, policymakers are likely to be aware of the restrictions of economic sanctions and thus only apply them in cases where they are likely to succeed, meaning the true utility of economic sanctions is likely to be much lower than the observed utility. On the other hand, sanctions that are very likely to succeed probably already do so in the threat stage, meaning the mere threat of economic sanctions may be enough to coerce the target, and we never get to observe their effect once imposed (Morgan & Schwebach, 1997). The second problem is addressed by Morgan et al. (2014) in their estimates by also including cases of *threatened* economic sanctions; however, it should be kept in mind that most existing estimates of how successful sanctions truly are may still have considerable leeway on both ends.

Overuse

In the following section, I will attempt to develop a theoretical framework for *why* we would expect sanctions to become less effective if used repeatedly. I argue that the repeated imposition of sanctions by the same sender incentivizes targets to adapt and to decouple, often making them less vulnerable to sanctions in the long run. I will first examine previous research into adaptive strategies that targeted countries can adopt in order to become less affected by and less vulnerable to economic sanctions. I will then elaborate how repeated imposition incentivizes targets to adapt, making sanctions less effective in the long run.

The first to explicitly raise concerns about the potentially degrading effect inflationary use may have on the effectiveness of economic sanctions was Van Bergeijk (1994). He argued that, like the blade of a knife, sanctions - if used too frequently - may eventually become blunt, depriving states of what he considered their "ultimate non-violent tool" (Van Bergeijk, 1994, p. 93-94). However, he could only draw on a very limited set of observations to test his idea, and he neglected to develop a more coherent theoretical argument for *why* sanctions would become less effective if imposed repeatedly. There is plenty of anecdotal evidence, for example suggesting that "[t]he main challenge to sanctions in the future lies in their overuse,

particularly where strategic considerations ought to prompt evaluation of other tools and in the multi-polarization of the global economy" (Nephew, 2019, p. 112), and that sanctions are expected to become less effective if used repeatedly, simply because this logic supposedly applies to all instruments of foreign policy (cf. Drezner, 1998). However, we lack systematic evidence for the effect of "overusing" sanctions on their effectiveness, and we lack a theoretical framework. Regarding economic impact, Biglaiser and Lektzian (2020) show that imposed sanctions lead to a decline in stock market capitalization in targeted countries - but that the negative effect decreases once the number of sanctions against the target increases, which provides evidence that repeatedly imposing sanctions may have at least diminishing returns economically.

Adaptation

The primary expectation is that "the economy [of the target] will adapt to the new circumstances, and in fact gradually lose its dependence on the sender" (Wallensteen, 2000, p. 5). Economic adjustment in turn reduces the costs imposed by the sanctions, and thus the incentive to comply (Van Bergeijk & Van Marrewijk, 1995), decreasing their likelihood of extracting political concessions: sanctions will fail to induce a policy shift if the economic costs they impose are not sufficiently high relative to the political values at stake (cf. Morgan & Schwebach, 1997). Adaptation further has implications not only for the coercive effectiveness of sanctions, but also for their value as a signal: "[a]fter all, if a target country is able to adapt to sanctions relatively quickly and at a modest cost, the signal sent to both the domestic constituencies and the international community might serve only to highlight the weakness of sender states" (Connolly, 2018, p. 199). This potential signalling value of successful adaptation may provide an additional incentive for the target to pursue economic adjustments that make it more resilient to sanctions.

Most of the previous literature on adaptation is qualitative and focuses on high-profile, salient cases, like Iran, Russia, or North Korea, meaning we lack systematic information on how representative adaptation strategies are for the whole of the sanctions universe (Attia & Grauvogel, 2022). Expanding on the original idea of different classes of counter-strategies

(Galtung, 1967) [3], in the following section I will attempt to systematize the findings of these previous investigations, by grouping adaptive measures identified by the literature into three categories, called *Adapt*, *Evade* and *Endure*. The categories are, of course, relatively loose and not mutually exclusive: targets may take measures from all three of these categories simultaneaously. In short, *Adapt* describes measures the target government can take to adapt its economy to the impact of economic sanctions and harden it over the long term. *Evade* refers to undercutting the sanctions, using either unconventional measures, or illicit - often illegal - channels. Lastly, to *Endure* means to withstand the economic hardship imposed by sanctions, and encompasses measures the target government can take to entice its population to tolerate the consequences of life under sanctions. The following sections develop the categories in more detail.

Adapt

Although strictly speaking all three strategies refer to modes of adaptation, *adapt* encompasses measures of macro-economic restructuring and adaptation taken mostly by the central government.

It is vital to point out that adaptation also happens at the micro-level, as companies proactively adapt to the changing economic conditions under economic sanctions (cf. e.g. Panibratov, 2021; Taslimi, Azimi, & Nazari, 2021). Gaur, Settles, and Väätänen (2023) show that they can do so successfully, and how the impact of sanctions on target companies diminishes over time as they find ways to adapt their business and supply chains to sanctions. However, the efficiency of companies' response depends to a substantial degree on the policies pursued by the government in response to sanctions (Kuvalin, Zinchenko, Lavrinenko, & Ibragimov, 2022). A survey of Russian enterprises found that the biggest factors aiding domestic companies under sanctions are (1) limiting the growth in prices for fuel, energy, and transportation services, (2) reducing the tax burden on manufacturers, (3) financial support for manufacturers producing goods for import-substitution, (4) supporting demand, for example with

[3] Galtung (1967) identifies "three holes" in the sanctions system, which he calls "adaptation to sacrifice, restructuring the economy to absorb the shock, and smuggling" (p. 393). The three categories I offer are very similar to these distinctions.

public procurements or direct transfers to the population, and (5) expanding concessional lending (Kuvalin et al., 2022).

Three strategies or responses are to be highlighted here: (1) the securitization of strategic areas of economic policy, (2) import substitution in strategic or specially affected sectors of the economy, and (3) seeking out alternative trade and revenue channels[4].

Securitization of economic policy

The securitization of economic policy, especially of strategic sectors, has two dimensions. First, it means framing sanctions and economic policy as existential issues "requiring emergency measures and justifying actions outside the normal bounds of political procedure" (Buzan, Wæver, & de Wilde, 1998, p. 24). Second, on a more basic level, it may be taken to mean the subjugation of economic policy and trade to foreign policy calculus (as it is implicitly used e.g. by Connolly (2018)). The consequence of this is that the political economy of the target state becomes increasingly "defined by national security concerns rather than the demands of economic development" (Connolly, 2016). While this may lead to a less efficient allocation of resources, it also fosters elite cohesion and leads the target to take measures to harden its economy against outside pressure (Connolly, 2016). Securitizing economic policy may be viewed, in a certain sense, as a prerequisite for adaptation, which can often be costly and uneconomic, but politically valuable.

Import substitution

Import substitution may be measured as a decrease "in the ratio of imports to the total availability (imports plus domestic output) of a single product or category of products" (Bruton, 1989, p. 1604). Under economic sanctions, this decrease occurs partly naturally since "economic boycott in general implies a rapid decrease in import-export business and a change toward home-based production" (Galtung, 1967, p. 395). Targets may decide to actively substitute imports with domestically produced equivalents to lower their dependence on imports from the sender countries, and to increase their overall "economic sovereignty" (Connolly & Hanson, 2016), making them less vulnerable to outside economic pressure in

[4]This systematization was developed by Connolly (2018), investigating Russian adaptations to economic sanctions, but I show that these adaptations are common among economies greatly affected by sanctions - or at least across the cases given significant attention by previous research.

the long run.

For example, beginning in 2014 after the initial imposition of sanctions over the annexation of Crimea and its support for separatists in Eastern Ukraine, Russia embarked on a campaign of radical import substitution to become less dependent on Western technology imports (Connolly & Hanson, 2016) [5]. Salitskii, Zhao, and Yurtaev (2017) show that Iran and China also engaged in strategic import substitution efforts, with varying degrees of success.

Challenges to the implementation of import substitution by target economies may be the (1) availability and (2) competitiveness of domestic alternatives to previously imported goods (Simola, 2022). For example, Russia was able to successfully supplant foreign equipment and technologies, but only for low-tech items: for advanced technologies, it mostly still had to rely on foreign suppliers (Shagina, 2021) [6].

Finding alternative trade and revenue channels

When sanctioned, targets may look for alternative trade partners, both to replace imports from the sender, but also to find new markets for their own exports. For example, Western economic sanctions lead Russia to pursue "vigorous efforts" to cultivate closer economic relations with non-Western countries, especially in Asia (Connolly, 2018, p. 68). Similarly, when Japan and South Korea severed most economic ties with North Korea and imposed trade embargoes in the mid and late 2000s, North Korea instead sharply increased its trade with China (Lee, 2022). Trade with third parties may also enable targets to import commodities blocked by sanctions through them, in some cases even from the sender (Shin et al., 2016). The success of the target's efforts in this domain hinge on the willingness of third parties to engage in trade with the target. The third parties engaging in trade with the target despite sanctions may be sorted loosely into two groups: (1) "Black Knights"[7], who help

[5] In three presidential instructions, *porucheniya*, beginning in May 2014, the Russian government was asked to (1) assess the possibility of competitive import-substitution, especially in industry and agriculture, (2) compile a list of goods and services obtainable from only members of the Eurasian Economic Union, and (3) work out detailed plans for the implementation of import substitution by October (Connolly & Hanson, 2016; Presidential Administration of the Russian Federation, 2014).

[6] This problem is exemplified, for example, by the *Zvezda* shipyard, considered Rosneft's "flagship" of import substitution: it required extensive government funding to remain operational, and it had to sign agreements with two South Korean companies, Hyundai Heavy Industries and Samsung Heavy Industries, to compensate for the lack of domestic technical expertise (Shagina, 2021, p. 190-191).

[7] "Black Knight" may also refer to a third state aiding the target more generally, not only by providing

the target state for political reasons, and (2) commercially motivated third parties who view sanctions as an economic opportunity (Early, 2011; Hufbauer et al., 2007). Early (2009) suggests that the latter is more common, showing that third parties trading with the target seem to be more frequently motivated economically, rather than politically. Often, sanctions enable companies from third parties to break into a market that was previously dominated by companies of the sender country (McLean & Whang, 2010).

Evade

This group is comprised of various strategies for evading sanctions regimes in ways that are informal, illicit, and often illegal. Thanks to Andreas (2005), we have a relatively solid theoretical framework for what he calls "sanctions busting". When sanctions are imposed, the target government may decide to have state sponsors "organize crime to generate funds and secure supplies", often fostering transnational alliances with actors of the informal economy abroad, and subcontracting smuggling and evasion tasks, offering funds and privileged access in exchange for loyalty (Andreas, 2005, p. 336).

Again, at the micro-level, businesses may proactively evade sanctions by entering into illegal economic activities, especially if the probability of detection and punishment is relatively low: for example, in Iran, businesses smuggle up to three billion US Dollars in goods annually, with an estimated success rate of up to 95% (Farzanegan, 2013). Even individual citizen may adapt dynamically, for example by entering "grey" or illegal economic activities to support their livelihoods, if the economic situation becomes particularly dire (Hejsek, 2012).

North Korea provides a prime example for evasion strategies: it often attempts to conceal the nature of trade and actors, engages in arbitraging in countries in which its companies operate, maintains relationships with brokers that obfuscate the origin of goods, and engages in smuggling (Hastings, 2022). A relatively harmless example of North Korean evasion strategies is, for example, the breaking down of compound goods into their component parts, which are not explicitly on the sanctions lists, while a more drastic example is the

a trade channel. For example, during the Cold War, the Soviet Union extensively supported Cuba when it was sanctioned by the US, providing it with billions of Dollars in subsidies and assistance (Early, 2011).

operation of front companies in its embassies abroad (Hastings, 2022). The creation of illicit channels makes monitoring the sanctions significantly harder and more costly for the senders, increasing enforcement costs. For example, the US had to create several interdepartmental committees, involving at least five different departments coordinating efforts, to try to detect North Korean illicit revenue channels and deny them (Frank, 2006, p. 29).

However, target governments have to balance the pros and cons of informal economic activities, since it may also lead to increased corruption, ineffective monitoring and allocation, and domestic actors abusing the illicit channels, potentially weakening overall economic performance (Farzanegan, 2013).

Endure

To *endure* sanctions means to adapt to the economic hardship and sacrifice imposed by sanctions. In theory, the "pain leads to gain" assumption of economic sanctions dictates that imposing economic hardship will lead the target's population to demand a change in policy from its government to get the sanctions lifted and return to normal; in reality, however, the opposite may be the case (Mack & Khan, 2000). Sanctions often decrease the popularity of the sender in the target population (Frye, 2019), and may cause a rally-'round-the-flag effect (Kazun, 2016) [8], making the target's population more willing to endure considerable hardship. Economic sanctions may also bolster target governments by providing them with a "convenient alibi" for poor economic performance (Connolly, 2016, p. 769). Target governments may also actively try to "spin" the situation in their favor by inciting patriotic or nationalist tendencies to entice their population to endure the economic impact of sanctions, to resist the demands of the sender. As Pape (1997) points out:

> Pervasive nationalism often makes states and societies willing to endure considerable punishment rather than abandon what are seen as the interests of the nation, making even weak or disorganized states unwilling to bend to the demands of foreigners (p. 93).

[8] There is some disagreement whether, and if so under what circumstances, sanctions actually cause a rally-'round-the-flag effect (cf. e.g. Frye, 2017, 2019; Kazun, 2016)

For example, when the League of Nations sanctioned Italy in 1935 over its bellicose foreign policy, Benito Mussolini exclaimed: "To sanctions of an economic character we will reply with our discipline, with our sobriety, and with our spirit of sacrifice" (cited in Hufbauer et al., 2007, p. 8).

Another strategy may be to belittle the actual impact of sanctions. For example, Kazun (2016) shows how pro-regime Russian media engaged in what she calls a strategy of "deproblematization", trying to convince the general population that the economic problems are not as severe, and that Russia is strong enough to resist them.

Under sanctions, target citizen are sometimes willing to endure economic consequences that reach well into their private lives. For example, Galtung (1967) shows how, when hit by international sanctions, the (white) Rhodesian population adapted their private lives to economic hardship: as household items became less available, people started repairing instead of replacing, and when resources like fuel became scarce, neighborhoods came together and formed a car pool.

Concludingly, it may be said that a population that is either willing to endure hardship, or at least content with the economic situation under sanctions, is a powerful resource for the target government.

To conclude this entire section, it should be highlighted once again that all findings on adaptation may only be drawn from largely qualitative research, which focused largely on a handful of high-profile cases unlikely to be representative of the whole spectrum of economic sanctions (cf. Attia & Grauvogel, 2022). While most targets are likely to take some form of measures to blunt the economic impact of sanctions, the degree of adaptation likely also depends on the political relationship between sender and target and the target's anticipation of the future relationship. After all, sanctions are very commonly imposed not on salient high-stakes foreign policy issues, but on trade related issues among trading partners (Morgan et al., 2014). The dynamics of imposition and adaptation are likely to be very different in ordinary trade disputes than in the eyeball-to-eyeball confrontations of the US with Iran, North Korea, and Russia. However, targets may still draw certain measures from the above repertoire to alleviate economic damage.

Repeated imposition incentivizes target adaptation

The prior sections show that targets have a broad array of adaptive strategies and tactics at their disposal, and the qualitative evidence seems to suggests that (1) they readily make use of them, and (2) the measures taken seem to blunt the impact of sanctions. How does repeated imposition relate to adaptation? Anecdotally, "[a]ny tool of foreign policy depreciates in value the more frequently it is used" (Drezner, 1998, p. 71), and there is no reason to assume that economic sanctions are any different in this regard. Investigating the effect economic sanctions have on the stock market of targeted countries, Biglaiser and Lektzian (2020) note that "the accumulation of sanctions gave targets increasing incentives to find alternate sources of trade, financing, and investment", and that further the "long-term accumulation of sanctions desensitized investors, undermining the foreign policy leverage of sender states" (p. 21). It seems likely that these findings apply to the target economy at large. After all, in the political domain, the benefit of adaptation is not only lower economic impact of sanctions, but also the signalling value of adaptation highlighted above: if the target is able to adapt to sanctions, withstand economic pressure, and defy sender demands, this sends a signal of strength to domestic and international audiences (Connolly, 2018). Thus, there is both an economic and a political prize to win for the target government by adapting to sanctions.

The fundamental mechanism is hypothesized to be that the more sanctions are imposed by the same sender on the same target, the more adaptations the target will develop, the less effective future sanctions are expected to be. Above we have seen that targets do in fact develop extensive adaptations and expertise in dealing with sanctions imposed by the same senders, especially the US, and do sometimes plan for the long term: many of the adaptations, like Russian import substitution and its pivot to Asia, are likely to be long-run commitments also making the target less vulnerable to future sanctions imposed by the same sender, in this case the US and the EU (cf. Connolly & Hanson, 2016). Andreas (2005) points out that even illicit channels which were used to evade sanctions tend to persist if sanctions are lifted, which may mean they remain available in case sanctions are imposed again.

If sanctions are imposed repeatedly by the same sender on the same target, the target may

also learn to anticipate sanctions whenever it makes policy choices against the interests of the sender, taking adaptive measures preemptively: for example, in 2014, Russia started exploring possibilities for import substitution *before* the imposition of sectoral sanctions (Connolly & Hanson, 2016; Presidential Administration of the Russian Federation, 2014), meaning it to some extent anticipated becoming the target of sanctions. This does, to a degree, suggest that targeted states do engage in "strategic anticipation" (Chan, 2009) when senders use sanctions repeatedly.

On the sender side, the repertoire of possible economic actions against the target is limited by the amount of economic interaction between the sender and the target. While this is to some extent a dynamic quantity, once a certain measure has been taken, it can not be taken again: with the imposition of sanctions, senders automatically restrict their future range of choices (cf. Lektzian & Sprecher, 2007). Another, less researched point may be that the more often sanctions are imposed, the harder it becomes for the sender to illicit support from allies and institutions. For example, although both the EU and the US imposed sanctions on Russia after its annexation of Crimea in 2014, the second large wave of sanctions in 2017 was largely imposed unilaterally by the US, as the EU senders felt the reasons for imposing sanctions were becoming increasingly elusive and inconcrete (cf e.g. Arkhipova, 2019). However, multilateral sanctions are considered much more likely to be effective than unilateral sanctions (Allen, 2008; Lektzian & Souva, 2007; McLean & Whang, 2010).

From these above arguments follows the main hypothesis:

> H_1: The number of previous sanctions imposed by the same sender on the same target has a negative effect on the effectiveness of newly imposed sanctions.

Empirical Analysis

Data

To examine the effect that the repeated imposition of economic sanctions by the same sender on the same target has on the effectiveness of newly imposed sanctions, I use the "Threat and

Imposition of Economic Sanctions" (TIES) data set (Morgan et al., 2014). TIES includes a total of 1412 cases of one or more states threatening or imposing sanctions on another state, between 1945 and 2005. I only consider cases of *imposed* economic sanctions, of which there are 845 cases (meaning sanctions were actually imposed in only 60% of cases). I further dropped cases where there TIES did not record a primary sender of a sanctions episode, leaving 766 cases where a primary sender imposed sanctions against a target state. To qualify as a "case" within TIES, a sanction has to fulfill two criteria: (1) it must involve one or more imposing states and a target state, and (2) has to be implemented by the sender to change the behavior of the target state[9]. Sanctions can only have one target; if one sender declares threats or imposes sanctions on multiple targets, separate cases are created. In the case of multiple senders, separation into multiple cases hinges on whether the senders coordinate and whether they have identical demands (Morgan et al., 2014). TIES includes a well-defined and documented categorical measure of the final outcome of each sanctions episode, which allows for testing different definitions of "success".

The unit of observation for the analysis is a case of imposed economic sanctions, following the definition of Morgan et al. (2014), meaning it must involve one or more imposing states and a target state, and the sanction has to be implemented by the sender to change the behavior of the target state. The only edge cases here are sanctions imposed in unison by or against the European Union, which is treated as a unitary sender and target in such cases by Morgan et al. (2014).

The dependent variable is the "success" of a given sanctions episode, which I define as either total or at least partial acquiescence by the target to sender demands following the imposition of sanctions. This may be called a maximalist definition and is close to what e.g. Pape (1997) favored as a reasonable threshold. However, I also test a more minimalist definition following Peksen (2019), including negotiated settlements as successful. "Success" is coded in a binary fashion, meaning $y_i = 1$ if the given sanctions episode is considered successful, and $y_i = 0$

[9]Note that this, by definition, seems to exclude sanctions that are imposed to either *restrict* the target in its abilities, or ones imposed primarily as *signalling* devices (Giumelli, 2011). It seems hard to disentangle the true reasons for the imposition of sanctions, e.g. to assert that a sanction was purely imposed to coerce, but not to signal; it is unclear how rigidly this distinction is really made by Morgan et al. (2014), although this would be interesting to investigate in detail.

if it is considered unsuccessful. The coding is based on the categorical "Final Outcome" variable included in the TIES (Morgan et al., 2014) data set, which denotes the way the sanctions episode was concluded. For cases with missing final outcome, I assume they were unsuccessful.

The independent variable representing repeated imposition is the number of concluded, previous sanctions episodes imposed by the same sender on the same target. I chose to examine the number of prior *concluded* sanctions episodes to disentangle prior from simultaneous sanctions: multiple simultaneously ongoing sanctions regimes could cause cumulative economic damage depending on their overlap, and alter the dynamics I am trying to investigate. For sanctions episodes without a recorded endyear, I assume they went on for the duration of the panel to be sure that there is no overlap. I do, however, include models in the appendix where I disregard overlap.

Descriptives

Figure 1 provides a brief overview of (1) the states imposing the most sanctions, (2) the states being most frequently targeted, and (3) the most prominent dyads. Perhaps unsurprisingly, the most prolific sender is the United States of America, having singlehandedly imposed half of all sanctions in the data set (386 of 766, or 50.4%). More interestingly, the US is also the most frequent target of economic sanctions. Among the dyads, the only dyad in the Top 10 where the sender is not the United States is Mexico imposing sanctions on the US.

Figure 2 shows the distribution of the independent variable - the number of prior sanctions - across all cases. As we can see, the distribution is right skewed; for 461 cases (or approximately 60% of cases), there are no prior sanctions. Conversely, in 305 cases (or around 40% of cases), there are prior sanctions in the dyad.

How often sanctions are considered successful (Figure 3) depends, perhaps unsurprisingly, on the definition of "success". If we include negotiated settlements as "successful", sanctions are considered effective about 35% of the time. Excluding them and only counting partial or total acquiescence by the target to sender demands as successful, sanctions are effective around

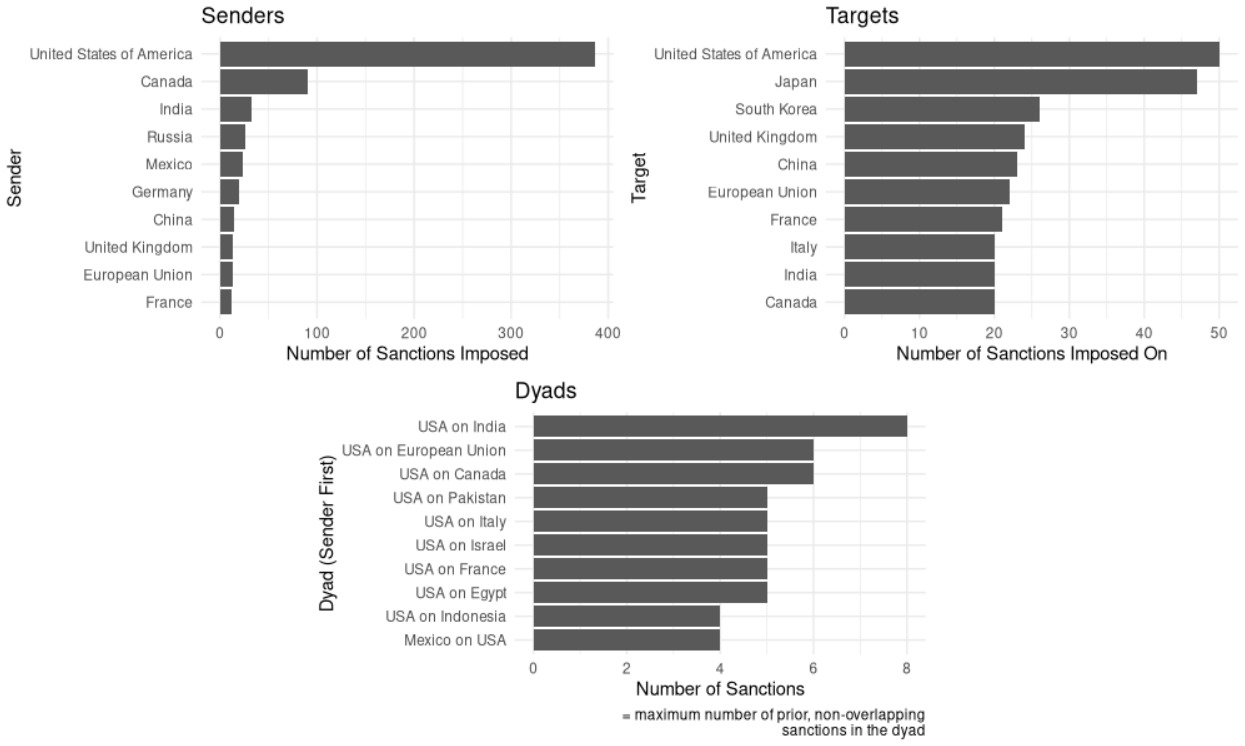

Figure 1: Most prolific senders, most frequently sanctioned targets, and dyads with the most sanctions.

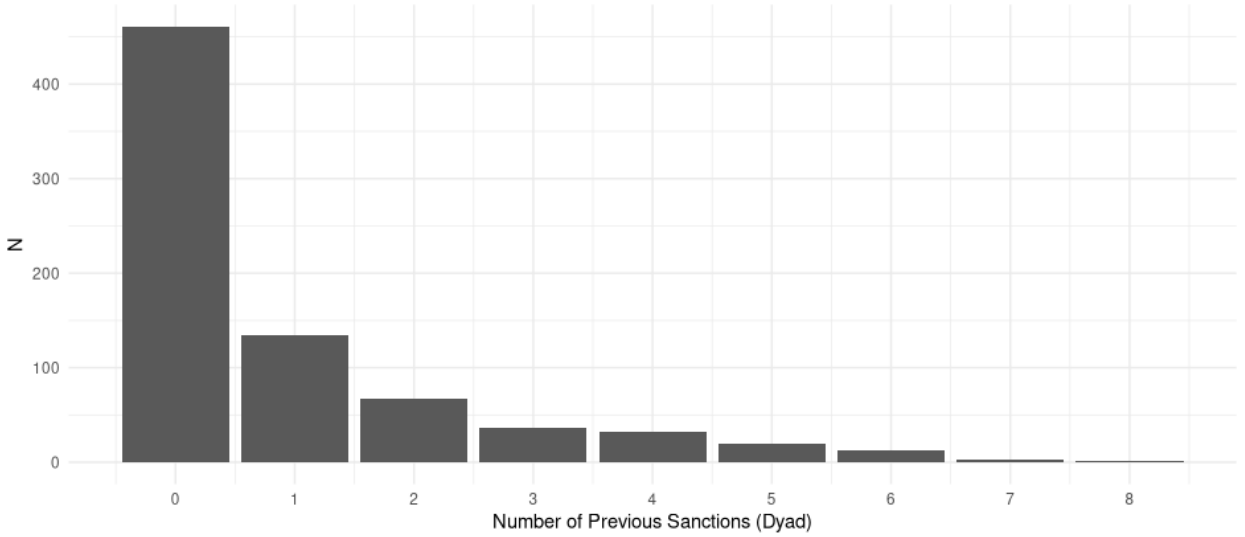

Figure 2: Distribution of the independent variable.

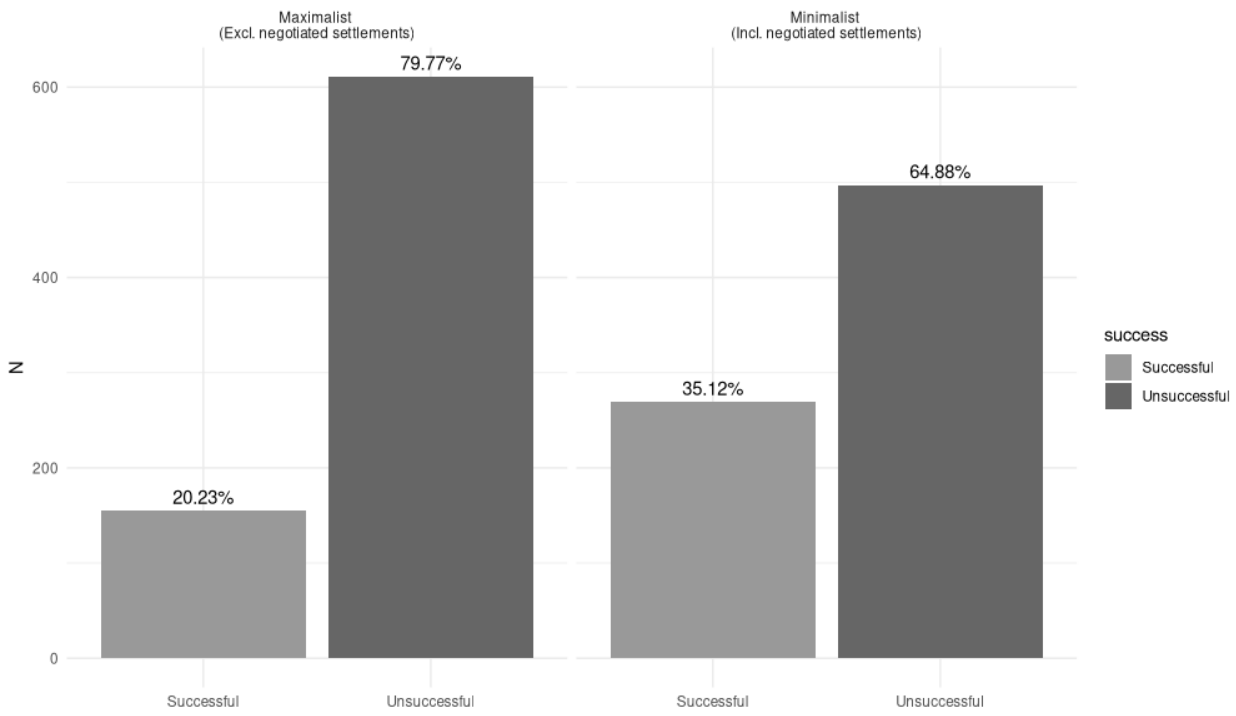

Figure 3: Distribution of the dependent variable.

20% of the time. The estimate for a more lenient definition of success is well within the range of estimates provided by for example Hufbauer et al. (2007) (overall success rate of 34%), or Kirilakha et al. (2021) (30-42% depending on whether ongoing sanctions are included). The percentage of successful sanctions when using a maximalist definition is notably lower than these estimates, but also higher than the original estimate of Pape (1997) (who argued sanctions could only really be considered successful in around 10% of cases, reexamining the data provided by Hufbauer et al. (1990)) - although differences in the estimates may, again, well be driven by differences in the underlying data sources.

Strategy

I investigate the effect that the repeated imposition of economic sanctions by the same sender on the same target has on the effectiveness of newly imposed sanctions, using the TIES data set (Morgan et al., 2014). The general strategy is to estimate the relationship as a linear model, using one-way (dyad) fixed-effects to examine the effect *within* dyads, addressing

unobserved, time-invariant heterogeneity between dyads, and to dynamically control for a number of potential time-variant confounders.

Confounders

There are a number of variables, both time-variant and time-invariant, that could potentially confound the relationship between repeated imposition and effectiveness, leading to omitted variable bias and thus endogeneity if not addressed.

Time-invariant One problem may be that sender-target pairings - the dyads - are different from each other in ways that are constant over time, or at least for the duration of the panel. Both the repeated imposition of sanctions, X_{it}, as well as the outcome of the sanctions episode Y_{it} within a sender-target dyad i may be constantly affected by unobserved, time-invariant characteristics U_i specific to the pairing (cf. Figure 4).

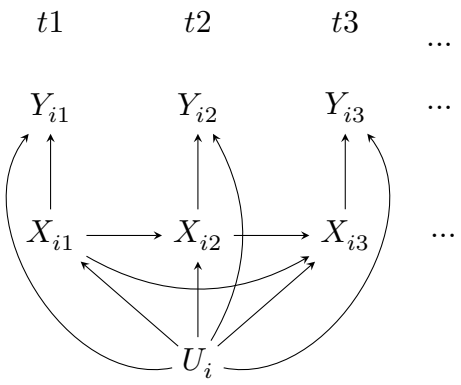

Figure 4: Time invariant unobserved factors affect observations within dyads; following the notation of Imai and Kim, 2019. This representation omits (1) random error, and (2) time-variant confounders.

For example persistent grievances between sender and target, past disputes, a shared culture, shared norms and values, geographic proximity ("neighbourhood struggles" (Hufbauer et al., 2007, p.3)), or unequal access to natural resources (which could result in significant leverage (Bradshaw & Connolly, 2016; Le Billon, 2001)). In short, I assume that there are unobserved factors that are constant across time that make, for example, the Egypt - Israel dyad different

from the USA - France dyad, making "pooling" all observations seem an implausible choice. To account for this, I use dyad fixed-effects to examine the effect of repeated imposition on the effectiveness of newly imposed sanctions *within* sender-target dyads.

Time-variant Next to the time-invariant factors affecting observations within dyads shown in Figure 4, there is also a number of time-variant confounders that may affect both the repeated imposition of sanctions by the same sender against the same target, as well as the effectiveness of the sanctions. These are alliance ties between the sender and the target, institutional characteristics of sender and target state, power - both economic and material - of sender and target, trade linkage, especially the target's dependence on trade with the sender, and structural changes in the international system, here primarily the end of the Cold War.

First, the political relationship between sender and target, operationalized in the form of formal alliance ties, may affect the decision of the sender to impose sanctions, and they are believed to affect their effectiveness: it is a relatively prevalent view in the literature that targets are less likely to concede to adversaries than to allies (Drezner, 1998; Hufbauer et al., 2007; Peksen, 2019; Whang, 2010). For data on alliances, I use version 4.1 of the COW project's data set on formal alliances (Gibler, 2009). The variable is coded as 1 in the case of a mutual defense pact, non-aggression treaty, or entente-agreement between the sender and the target state.

Second, institutional and regime characteristics of sender and target state may affect both the imposition, as well as the effectiveness of economic sanctions (Allen, 2008; Escribà-Folch & Wright, 2015; Jeong & Peksen, 2019; Peksen, 2019). The relationship between sender and target, and their institutional characteristics may also be affected by shared cultural or social traits, like a shared language or shared norms and values, which may also affect their behavior toward each other. Considering norms and values, adherence to certain norms is also a determinant of membership in international institutions (cf. e.g. Abbott & Snidal, 2000), which are commonly recognized as major factors in both the imposition and effectiveness of economic sanctions (Drezner, 2000; Early & Spice, 2015). While institutional characteristics

may arguably be viewed as relatively persistent over time, I nevertheless attempt to model them dynamically, since the time period of the panel (1945-2005) includes multiple waves of institutional changes (Huntington, 1991). To model institutional characteristics, I include the VDem (Coppedge et al., 2021) polyarchy index for both the sender and the target state.

Third, although hard to operationalize, power may be an important confounder: more powerful states are more likely to impose sanctions (cf e.g. Hufbauer et al., 2007), and a more powerful sender may also be more likely to coerce the target. Vice versa, senders may be more hesitant to target more powerful targets, and more powerful targets may also be more likely to resist. Economic power of course plays a major role, but the importance of material power should also not be neglected when it comes to coercive capacity (cf. Jeong, 2023). To model power, I consider (1) an indicator of material capabilities, and (2) Gross domestic product (GDP) as an indicator of economic power. As an indicator of material capabilities, I use the "composite index of national capability" (CINC), from version 6 of the "National Material Capabilities" data set. The data is assembled and maintained by the Correlates of War (COW) project, originally by Singer, Bremer, and Stuckey (1972) and Singer (1987). The CINC itself is comprised of six indicators: military expenditure, military personnel, energy consumption, iron and steel production, urban population, and total population. I include the CINC for both the sender and the target state. The data on historical GDP comes from Feenstra, Inklaar, and Timmer (2015); I use the natural logarithm of the output-side real GDP (measured in Mio./2017US$).

Fourth, and related to this, patterns in trade between the target and the sender could plausibly influence both the repeated imposition of sanctions, as well as their effectiveness. Sanctions are often imposed on trade related issues (Morgan et al., 2014), and it has been established that sanctions work best when targets have fewer venues to bust them (Andreas, 2005; Early, 2015; Peksen, 2019), i.e. when they are more dependent on trade with the sender[10]. For data on bilateral trade, I use version 4.0 of the COW data set on international trade from 1870-2014 (Barbieri & Keshk, 2014; Barbieri, Keshk, & Pollins, 2009). The target's dependence on trade with the sender is operationalized as trade with the sender

[10]Although there are also some who draw the role trade dependence plays into question; cf. e.g. Dashti-Gibson et al. (1997); Peksen (2019).

(imports and exports) as percentage of the total trade of the target (all imports and exports).

Finally, structural changes in the international system may also induce changes in the behavior of senders and targets, affecting both the use and the effectiveness of sanctions (Schneider & Weber, 2019; Van Bergeijk, 1994). For example, Whang (2010) points out that the US often had to weigh the severity of sanctions more carefully during the Cold War, since it often tried to coerce countries it nevertheless wanted to retain as allies in the anti-communist camp. As can be seen in Figure 5, sanctions became much more widely used when the Cold War ended, with uncertain implications for their effectiveness. To account for this, I include a "Cold War"-dummy.

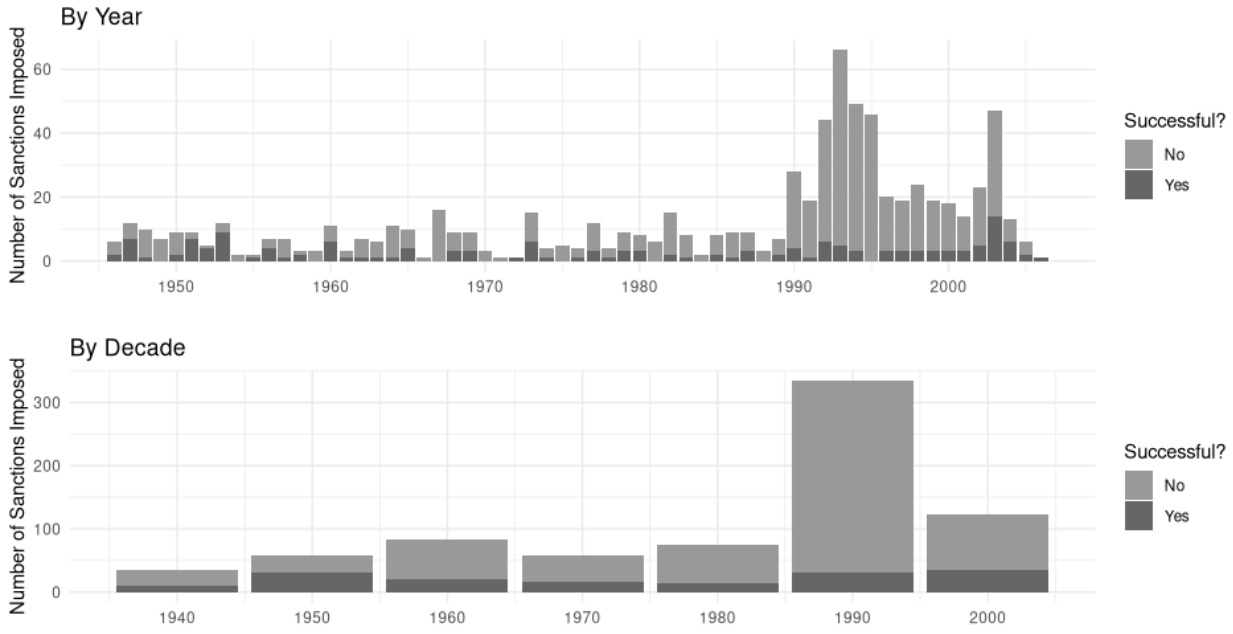

Figure 5: The number of sanctions imposed increased drastically during the 1990s.

Except for the Cold War-dummy, all time-variant controls are lagged by one year to ensure they are not affected by the imposition itself. Including the time-variant confounders, a full "directed acyclic graph" (DAG) (Pearl, 2009) of the proposed effect dynamics is shown in Figure 6.

Economic controls, especially trade dependence and target GDP, may be problematic since they can plausibly be affected by the number of prior sanctions and may thus be on the path of the hypothesized effect (Figure 7). Since the independent variable is defined as the

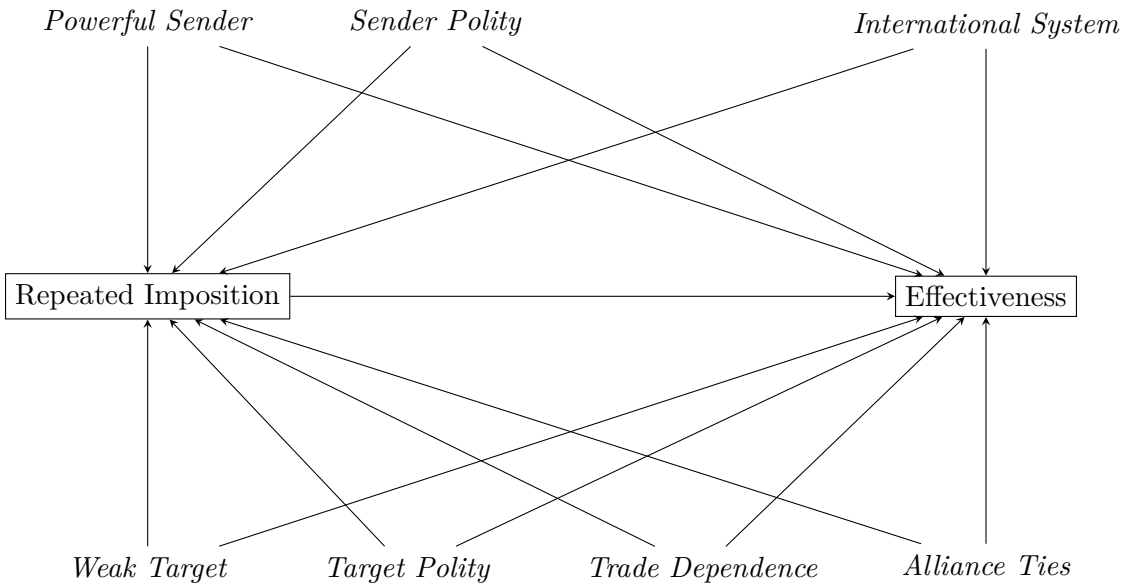

Figure 6: Full "DAG" of the suspected effect.

number of prior *concluded* sanctions episodes in the dyad, I believe this to not be a major issue. As the economic impact of sanctions may, however, extend beyond their conclusion, I nevertheless also consider models without these controls.

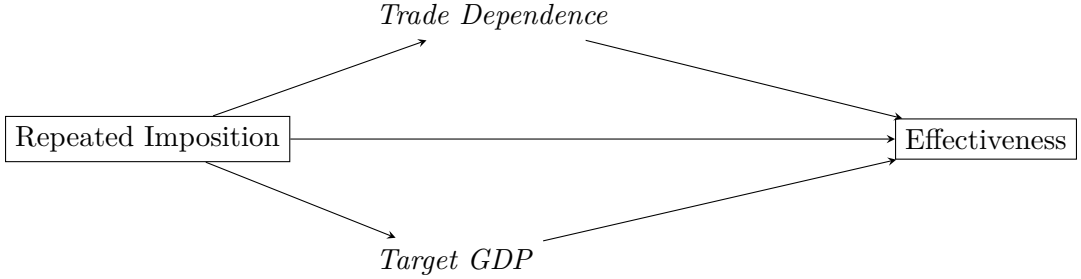

Figure 7: Some controls may be affected by the independent variable and thus problematic.

Model Estimation

To investigate the effect of prior sanctions on the success of newly imposed ones, I estimate the relationship as a linear model (OLS) with dyad fixed-effects α_i, and including different combinations of the dynamically modelled covariates C:

$$\text{success}_{i,t} = \alpha_i + \beta_1 \text{Prior Sanctions}_{i,t} + C + \epsilon_{i,t}$$

I report Driscoll and Kraay (1998) standard errors for all models, which are robust to heteroskedasticity and autocorrelation, and adjust for cross-sectional dependence. Standard errors are clustered by dyad. All models have been fit in R using the `fixest`-package (Bergé, 2018).

Results

I investigate the effect of repeated imposition on the effectiveness of economic sanctions, by examining the within dyad effect of the number of prior, concluded sanctions episodes on the effectiveness of newly imposed sanctions.

"Maximalist" definition of success

First, I consider a maximalist definition of success, meaning either partial or full acquiescence by the target state to the demands of the sender following the imposition of sanctions are considered "successful". The results are shown in Table 1. As can be seen, the repeated imposition of economic sanctions by the same sender against the same target is associated with a decline in their effectiveness: as the number of prior, concluded sanctions episodes in a dyad increases, the success probability of newly imposed sanctions decreases. Model 1 shows the relationship when only accounting for time-invariant heterogeneity. Model 2 excludes the time-variant controls I consider problematic (cf. above), model 3 shows them separately, and model 4 includes all time-variant controls.

The relationship holds up regardless of which time-variant controls are included, even under the inclusion of potentially problematic (cf. above) covariates, seemingly confirming H_1.

In Figure 8, I attempt to show the micro-dynamics of the effect in more detail, by estimating model 4 again, however this time specifiying the number of prior sanctions as a factor (categorical) variable, using zero previous sanctions as baseline estimate. As can be seen, the negative effect gets stronger as the number of prior sanctions increases, and it only really

	Success Excl. negotiated settlements			
	(1)	(2)	(3)	(4)
Prior Sanctions	-0.053**	-0.041**	-0.069***	-0.068***
	(0.021)	(0.020)	(0.023)	(0.021)
CINC - Sender$_{t-1}$		2.124**		3.825***
		(1.007)		(1.126)
CINC - Target$_{t-1}$		0.185		4.924
		(3.120)		(4.689)
Post-Cold War		0.013		0.015
		(0.063)		(0.057)
Formal Alliance$_{t-1}$		0.150		0.100
		(0.121)		(0.097)
Polyarchy - Sender$_{t-1}$		0.452		0.396
		(0.453)		(0.467)
Polyarchy - Target$_{t-1}$		-0.269		-0.284
		(0.169)		(0.180)
Log (GDP) - Sender$_{t-1}$			0.125	0.095
			(0.231)	(0.191)
Log (GDP) - Target$_{t-1}$			-0.116	0.032
			(0.158)	(0.146)
Trade Dependence - Target$_{t-1}$			0.284	-0.044
			(0.337)	(0.342)
Num.Obs.	766	657	535	534
R2	0.632	0.626	0.640	0.667
R2 Adj.	0.306	0.291	0.348	0.385
R2 Within	0.039	0.110	0.101	0.176
R2 Within Adj.	0.036	0.092	0.089	0.148
AIC	731.9	599.4	390.5	355.0
RMSE	0.24	0.24	0.22	0.21
SEs Clustered	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)
Fixed-Effects	Dyad	Dyad	Dyad	Dyad

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; Driscoll-Kraay standard errors.

Table 1: Including only partial or total acquiescence by the target to sender demands as successful (a maximalist definition).

kicks in (i.e. becomes significant) once the number of prior sanctions exceeds three. There are 67 cases where there are four or more prior sanctions in the dyad, spread across 15 individual dyads which are likely to be driving the observed effect to a large extent.

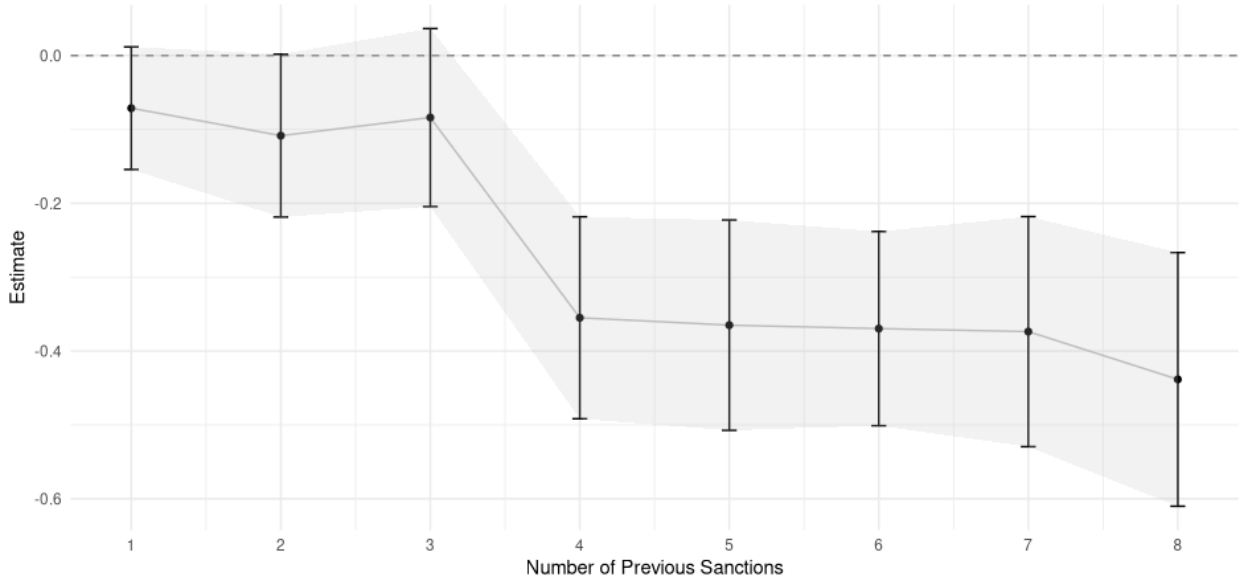

Figure 8: Dynamics of the effect; bars and shaded area indicate 95% confidence intervals.

"Minimalist" definition of success

Next, I consider a minimalist definition of success, meaning sanctions episodes are considered successful if they lead to full or partial acquiescence of the target, or render a negotiated settlement possible. Extending the definition of "success" to include negotiated settlements, the effect remains negative, but it falls below statistically significant even at the 10% level once certain covariates are included (Table 2).

Again, in Figure 9, I run the same factor regression as for Figure 8, only changing the dependent variable to include negotiated settlements as successful. This time, effects only really become negative and significantly different from zero once the number of prior sanctions episodes exceeds six; only four cases from one dyad (USA-India) match this criterion.

Overall, this suggests that the operationalization of the dependent variable - substantially meaning the definition of success - matters greatly. While I observe significant negative effects

	Success Incl. negotiated settlements			
	(1)	(2)	(3)	(4)
Prior Sanctions	-0.084***	-0.041	-0.061*	-0.038
	(0.022)	(0.031)	(0.034)	(0.035)
CINC - Sender$_{t-1}$		2.465***		2.660*
		(0.944)		(1.478)
CINC - Target$_{t-1}$		1.582		6.395
		(3.712)		(5.558)
Post-Cold War		-0.134		-0.129
		(0.084)		(0.092)
Formal Alliance$_{t-1}$		0.222		0.217
		(0.152)		(0.230)
Polyarchy - Sender$_{t-1}$		1.087**		1.424*
		(0.518)		(0.740)
Polyarchy - Target$_{t-1}$		-0.393		-0.184
		(0.276)		(0.290)
Log (GDP) - Sender$_{t-1}$			0.200	0.090
			(0.202)	(0.170)
Log (GDP) - Target$_{t-1}$			-0.224**	-0.145
			(0.109)	(0.125)
Trade Dependence - Target$_{t-1}$			1.077**	0.794
			(0.452)	(0.531)
Num.Obs.	766	657	535	534
R2	0.604	0.605	0.598	0.611
R2 Adj.	0.254	0.251	0.272	0.283
R2 Within	0.061	0.121	0.115	0.147
R2 Within Adj.	0.059	0.103	0.103	0.118
AIC	1051.5	886.3	674.8	665.5
RMSE	0.30	0.30	0.29	0.29
SEs Clustered	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)
Fixed-Effects	Dyad	Dyad	Dyad	Dyad

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; Driscoll-Kraay standard errors.

Table 2: Including negotiated settlements as successful - a minimalist definition.

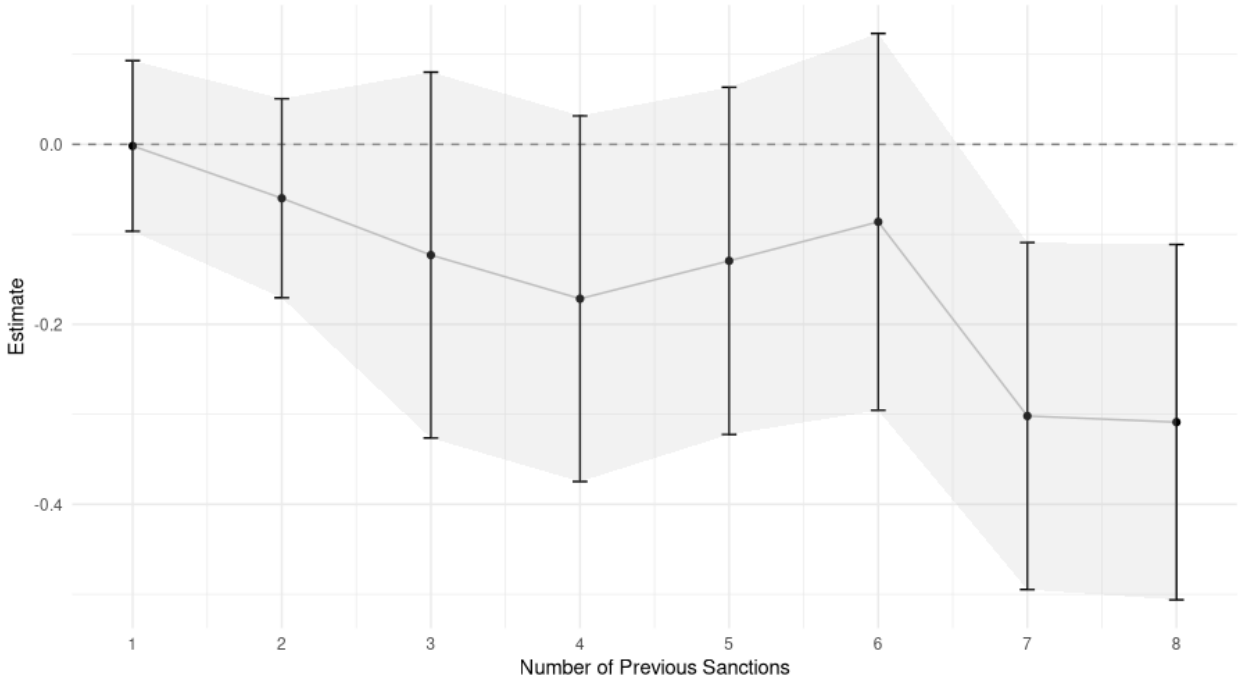

Figure 9: Dynamics of the effect when including negotiated settlements as successful; bars and shaded area indicate 95% confidence intervals.

for a maximalist definition of success, they largely disappear when negotiated settlements are included as successful.

Robustness

In the previous section, I showed that there is a negative effect of repeated imposition of economic sanctions on their effectiveness. However, significance of the effect hinges on the operationalization of the dependent variable: if a maximalist threshold is used, meaning sanctions are only considered successful if the target partially or fully concedes to sender demands following the imposition of sanctions, effects are clearly significantly negative, even when controlling for various potential time-variant confounders. If negotiated settlements are considered as "successful", effects remain negative but cease being statistically significant once certain time variant covariates are accounted for. In the following section, I will probe the effect for a maximalist definition of success further to test its robustness. I will address (1) the time dimension and the potential confounding of the relationship by an unobserved

trend, and (2) whether the effect is mostly driven by US-imposed sanctions, given that the US imposed more than half of the sanctions in the data set.

Time dimension

Since the independent variable, the number of concluded prior sanctions episodes imposed by the same sender on the same target, can only vary in one direction - it can only increase - the relationship may potentially be confounded by an unobserved time trend.

Trends may be, for example, the increasing reliance on targeted, rather than conventional sanctions, which are associated with lower effectiveness (cf. e.g. Drezner, 2011; Morgan & Schwebach, 1997), or a changing perception of economic sanctions: increasingly, authors like Nossal (1989) began highlighting the expressive and punitive aspects of sanctions, as opposed to viewing them as coercive instruments. Both of these would seem to indicate that economic sanctions may have become less effective in extracting policy concessions over time due to unobserved trends.

To address this, I first attempt to show that the effect is distinguishable from at least a linear time trend by including a dyad specific linear trend λ_i in the model[11], now estimating

$$\text{success}_{i,t} = \alpha_i + \beta_1 \text{Prior Sanctions}_{i,t} + \beta_2 \lambda_i + C + \epsilon_{i,t}$$

Since a significant number of observations is dropped due to missing values in the controls, I also estimate a model including only the complete observations.

Results are shown in Table 3. As can be seen, the effect is indeed robust to including a dyad-specific linear time trend. However, a dyad-specific linear time trend may be too narrow of an assumption: if we follow the theoretical line of argument that either the content of sanctions, or the prerogatives for their imposition changed over time, we may expect an *overall* trend, and we may expect interaction effects, meaning we may expect the strength of the effect to vary over time. To approximate an overall trend, I include the year of imposition as a

[11]The idea of a unit-specific time trend coefficient is taken from Angrist and Pischke (2008), p. 178. Note that this linear trend is *not* equivalent to Prior Sanctions$_{i,t}$ + 1, since I consider prior *concluded* episodes, so the independent variable does not *necessarily* increase as soon as a new sanction is imposed.

	Success			
	Excl. negotiated settlements			
	All Obs.	All Obs.	Complete Obs.	Complete Obs.
Prior Sanctions		-0.069**	-0.098***	-0.076***
		(0.027)	(0.023)	(0.022)
Dyad-specific linear trend	-0.015**	0.009**	0.012***	0.005
	(0.007)	(0.004)	(0.004)	(0.004)
Num.Obs.	766	766	534	534
R2	0.622	0.632	0.634	0.667
R2 Adj.	0.288	0.306	0.344	0.384
R2 Within	0.014	0.041	0.097	0.177
R2 Within Adj.	0.011	0.036	0.091	0.146
AIC	751.4	732.0	388.1	356.4
RMSE	0.25	0.24	0.22	0.21
SEs Clustered	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)
Fixed-Effects	Dyad	Dyad	Dyad	Dyad
Controls	No	No	No	Yes

* p < 0.1, ** p < 0.05, *** p < 0.01; Driscoll-Kraay standard errors.

Table 3: The effect is distinguishable from a dyad specific linear time trend.

control[12], and to account for interaction, I include an interaction term (in a separate model). This means I estimate

$$(1)\ \text{success}_{i,t} = \alpha_i + \beta_1 \text{Prior Sanctions}_{i,t} + \beta_2 t + \epsilon_{i,t}$$

and

$$(2)\ \text{success}_{i,t} = \alpha_i + \beta_1 \text{Prior Sanctions}_{i,t} + \beta_2 t + \beta_3 \text{Prior Sanctions}_{i,t} \times t + \epsilon_{i,t}$$

To test whether the effect or the number of prior sanctions on the effectiveness of newly imposed ones can be distinguished from an overall linear time trend. The results in Table 4 indicate that the negative effects of both cancel each other out. While this may not conclusively show that the relationship between prior sanctions and effectiveness is confounded by a long-term trend, it at least cautions that, given the nature of the independent variable, the effects are not distinguishable. I include further models probing the time dimension using two-way fixed-effects (dyad & year, dyad & decade) in the appendix [13].

[12]While this may not be the most elegant solution, I could not come up with a better proxy given the

	Success Excl. negotiated settlements			
	(1)	(2)	(3)	(4)
Prior Sanctions	-0.053**		-0.020	-0.079
	(0.021)		(0.026)	(2.958)
Year of Imposition		-0.006***	-0.004	-0.004
		(0.002)	(0.003)	(0.003)
Prior Sanctions × Year of Imposition				0.000
				(0.001)
Num.Obs.	766	766	766	766
R2	0.632	0.635	0.636	0.636
R2 Adj.	0.306	0.313	0.313	0.311
R2 Within	0.039	0.049	0.051	0.051
R2 Within Adj.	0.036	0.046	0.046	0.044
AIC	731.9	723.9	723.8	725.8
RMSE	0.24	0.24	0.24	0.24
SEs Clustered	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)
Fixed-Effects	Dyad	Dyad	Dyad	Dyad
Controls	No	No	No	No

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; Driscoll-Kraay standard errors.

Table 4: The negative effect of prior sanctions and of the year of imposition cancel each other out.

US imposed sanctions versus non-US imposed

Lastly, given that a disproportionate amount of the sanctions in the data set have been imposed by the US, I test whether the effect is the same for US imposed and non-US imposed sanctions episodes. Since near precisely half of all sanctions in the data set used for the analysis have been imposed by the United States (386 of 766, or 50.4%), it seems natural to assume that if "overusing" sanctions has a negative effect, it is likely to be largely driven by the United States and its prolific use of economic sanctions. Results shown in Table 5 indicate that this seems to be the case indeed. A persistently statistically significant negative effect can only be observed for economic sanctions imposed by the United States (models 1-3). This finding has somewhat ambivalent implications: taken together with Figure 8, this suggests that effects are not only driven by a small number of influential cases, but also largely by only one sender. However, before concluding that this means findings are not representative of the whole sanctions universe, it should be remembered that the US is by far the most prolific sender, and thus investigating sanctions to a large extend implies investigating US imposed sanctions and their dynamics.

	US imposed			Non-US imposed		
	Success Excl. negotiated settlements					
	All Obs.	Complete Obs.	Complete Obs.	All Obs.	Complete Obs.	Complete Obs.
Prior Sanctions	-0.060** (0.023)	-0.078*** (0.017)	-0.073*** (0.024)	0.005 (0.058)	-0.066 (0.058)	-0.117** (0.052)
Num.Obs.	386	293	293	380	241	241
R2	0.472	0.493	0.511	0.838	0.875	0.927
R2 Adj.	0.239	0.267	0.271	0.556	0.685	0.797
R2 Within	0.053	0.097	0.129	0.000	0.051	0.447
R2 Within Adj.	0.050	0.093	0.098	-0.007	0.041	0.383
AIC	425.3	275.3	276.8	123.0	-66.7	-179.0
RMSE	0.31	0.28	0.28	0.15	0.11	0.09
SEs Clustered	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)
Fixed-Effects	Dyad	Dyad	Dyad	Dyad	Dyad	Dyad
Controls	No	No	Yes	No	No	Yes

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; Driscoll-Kraay standard errors.

Table 5: US imposed versus non-US imposed sanctions.

relative elusiveness of the potential trends.

[13] I am not sure they are a good fit given the underlying data and what I am trying to estimate here, but I still wanted to include them for consideration.

Conclusion

I examined whether the repeated imposition of economic sanctions makes them less effective, by estimating the effect of the number or prior sanctions episodes on the effectiveness of newly imposed ones within sender-target dyads in an unbalanced panel. I argued that repeatedly imposing sanctions against the same target state incentivizes the target to engage in various, often long-term, adaptation strategies, making it less vulnerable to sanctions in the long run, and thus less likely to concede to future sanctions. I observe a negative effect of the number of prior, concluded sanctions episodes on the ability of newly imposed sanctions to extract political concessions. Results are, however, not robust to changing operationalizations of the dependent variable, and are subject to certain particularizations.

With regard to the operationalization of the dependent variable, effects are only persistently negative if only partial or total acquiescence by the target state to sender demands following the imposition is considered successful. Extending the definition of success to include the facilitation of negotiated settlements as "successful" (a "minimalist" definition), effects remain negative but largely cease being statistically significant when controlling for various potential time-variant confounders.

Regarding particularizations, the effect is driven by (1) a handful of influential cases where sanctions are imposed disproportionately often (i.e. cases with more than four prior, concluded sanctions episodes), and (2) sanctions imposed by the United States. I test the robustness of the effect to the presence of unobserved time trends, with mixed results. While the effect is robust to and distinguishable from dyad-specific linear time trends, there may be more complex trend and interaction dynamics in the time dimension that could confound this effect - I neither conclusively prove nor disprove this. Further, I only considered sanctions' *coercive* value for evaluating their effectiveness, largely neglecting their value as a signal or punishment. While the empirical approach taken also imposes certain restrictions on the interpretation of the findings, it should be highlighted that results largely point in the same direction, showing negative effects across the board - although not all of them statistically significant.

Theoretically speaking, the findings highlight necessities for more research in several critical avenues. For one, there is a necessity to finally settle key theoretical debates, especially what it means for sanctions to be "successful". This issue is tied deeply into competing views of what sanctions are even supposed to accomplish, and why states impose them. There is also a necessity to investigate adaptation mechanisms at a broader scale, moving beyond qualitative work which focuses almost exclusively on a handful of prominent cases, which are unlikely to be representative of economic sanctions and adaptation mechanisms as a whole (cf. Attia & Grauvogel, 2022). Further, investigating the economic mechanisms of adaptation and repeated use in more detail empirically could prove extraordinarily fruitful for our understanding of economic sanctions. Lastly, given the large number of alternative data sources, there is of course always the possibility of, and need for, cross validation.

To conclude, while I can not show a "smoking gun", I nevertheless offer at least circumstantial evidence that economic sanctions may become less effective if used repeatedly against the same target.

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Appendix

	Success Excl. negotiated settlements			
	(1)	(2)	(3)	(4)
Prior and Ongoing Sanctions	-0.015**	-0.005	-0.006	-0.009
	(0.007)	(0.006)	(0.009)	(0.008)
CINC - Sender		2.374**		4.181***
		(1.046)		(1.137)
CINC - Target		0.199		4.886
		(3.200)		(4.547)
Post Cold War		-0.019		-0.013
		(0.062)		(0.065)
Formal Alliance		0.196*		0.201*
		(0.118)		(0.104)
Polyarchy - Sender		0.348		0.470
		(0.458)		(0.457)
Polyarchy - Target		-0.288		-0.278
		(0.177)		(0.195)
Log (GDP) - Sender			0.031	0.025
			(0.254)	(0.203)
Log (GDP) - Target			-0.145	0.021
			(0.179)	(0.151)
Trade Dependence - Target			0.421	-0.004
			(0.341)	(0.317)
Num.Obs.	766	657	535	534
R2	0.622	0.622	0.627	0.658
R2 Adj.	0.288	0.284	0.325	0.368
R2 Within	0.014	0.102	0.070	0.154
R2 Within Adj.	0.011	0.084	0.057	0.125
AIC	751.6	605.7	408.8	369.2
RMSE	0.25	0.24	0.23	0.22
SEs Clustered	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)
Fixed-Effects	Dyad	Dyad	Dyad	Dyad

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; Driscoll-Kraay standard errors.

Table 6: Allowing overlap; also counting overlapping sanctions as prior.

	Success					
	Excl. negotiated settlements					
	(All Obs.)	(All Obs.)	(Complete Obs.)	(Complete Obs.)	(Complete Obs.)	(Complete Obs.)
Prior Sanctions	-0.028	-0.021	-0.072***	-0.039	-0.088***	-0.061**
	(0.028)	(0.023)	(0.023)	(0.024)	(0.023)	(0.026)
Num.Obs.	766	766	534	534	534	534
R2	0.649	0.746	0.668	0.766	0.690	0.777
R2 Adj.	0.328	0.438	0.395	0.493	0.419	0.500
R2 Within	0.005	0.003	0.037	0.010	0.103	0.056
R2 Within Adj.	0.003	0.000	0.034	0.006	0.072	0.020
AIC	707.1	567.4	345.3	251.9	325.4	242.7
RMSE	0.24	0.20	0.21	0.18	0.21	0.17
SEs Clustered	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)	Yes (Dyad)
Fixed-Effects	Dyad, Decade	Dyad, Year	Dyad, Decade	Dyad, Year	Dyad, Decade	Dyad, Year
Controls	No	No	No	No	Yes	Yes

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; Driscoll-Kraay standard errors.

Table 7: Models with two-way fixed-effects (dyad & decade, dyad & year). For the last model, the Post-Cold War dummy was removed because of collinearity.

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