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Abstract

Although international sanctions are a widely used instrument of coercion, their economic effects are still not well-understood. This study uses a novel dataset and an event study approach to evaluate the economic consequences of international sanctions, thereby visualizing pre-treatment and treatment dynamics in countries subject to sanctions. Our analysis focuses on the effects of sanctions on GDP growth as well as on various transmission channels through which sanctions suppress economic activity. We document a significant negative effect of sanctions on the growth rate of GDP and its components (consumption and investment) as well as on trade and foreign direct investment. Given that sanctions exert their adverse effect over the first years of a sanction episode and that sanctioned countries fail to recover during or immediately after the episode, we demonstrate the usefulness of sanctions as a political instrument of coercion. Long-lasting sanctions regimes, however, may not provide the political incentives needed to force additional concessions.

Keywords: Economic growth; event study; foreign influence; international sanctions; transmission channels.

1 Introduction

International sanctions are one of the most widely used instruments of coercion in international politics. Since the end of World War II, Aidt et al. (2021) count more than 1,400 incidents of states being threatened with or targeted by sanctions. The use of sanctions has dramatically increased since the end of the Cold War with the US-China trade war being the most recent escalation between economic superpowers. Sanctions are supposed to inflict economic harm in order to force the target country to change its policies. In fact, Hufbauer et al. (2009) show that sanctions are more likely to be successful the harder the target country's economy is hit. Thus, detailed knowledge of the economic effects of sanctions is essential to understanding if and how sanctions are able to achieve their goals and what is the price paid by target country populations.

The limited empirical evidence concerning the economic effects of international sanctions on target countries suggests that sanctions trigger financial crises (Hatipoglu and Peksen 2018; Peksen and Son 2015) and reduce income per capita (Neuenkirch and Neumeier 2015). Reductions in trade (Afesorgbor 2019; Crozet and Hinz 2020; Felbermayr et al. 2020b; Gutmann et al. 2022), international capital flows (Besedeš et al. 2017), and foreign direct investment (Biglaiser and Lektzian 2011; Mirkina 2018) are likely transmission channels, but both can be undermined by sanction busters (Barry and Kleinberg 2015; Early 2015; Haidar 2016, 2017; Lektzian and Biglaiser 2013). Recent evidence from Iran shows that sanctions can successfully target politically connected entities within a country (Draca et al. 2023). The effect of sanctions on the informal economy appears to be ambiguous (Early and Peksen 2019; Farzanegan and Hayo 2019). Sanctions can also be costly to the sender country, as illustrated by the sanctions against Russia after its illegal annexation of Crimea in 2014 (Bělín and Hanousek 2021; Crozet and Hinz 2020; Gullstrand 2020; Kholodilin and Netšunajev 2019) or against China after the Tiananmen Square Incident in 1989 (Webb 2020).

In contrast to their economic effects, the political and humanitarian consequences of sanctions are by now well-understood. International sanctions worsen the target government's respect for human rights (Adam and Tsarsitalidou 2019; Gutmann et al. 2020; Lee et al. 2022; Peksen and Drury 2009; Wood 2008) as well as the health situation and life ex-

pectancy of the target state's population (Allen and Lektzian 2013; Gutmann et al. 2021). Vulnerable segments of society are hit the hardest (Afesorgbor and Mahadevan 2016; Ghomi 2022; Gutmann et al. 2021; Neuenkirch and Neumeier 2016; Peksen 2016) and, unsurprisingly, the conformity of international sanctions with international law standards is frequently drawn into question (Douhan 2020; Early and Schulzke 2019; Steinbach et al. 2023). While the humanitarian consequences of international sanctions may often be side effects of a blunt policy instrument, the damage to the target country's economy is calculated (Eaton and Engers 1992).

This study conducts a comprehensive analysis of the economic effects of international sanctions based on a panel-data event study design. The main goal of our study is to systematically evaluate the growth effects of sanctions, including their effects on different components and proximate causes of GDP. Our research design has the advantage that empirical estimates can be plotted in intuitive graphs based on a straightforward econometric approach. These graphs show dynamic post-treatment effects and allow testing the identifying assumption of parallel pre-event trends in the treatment and control group (Schmidheiny and Siegloch 2023). In this sense, we are providing new evidence that the measured economic effects of sanctions are causal and not mere correlations. Another added value is that we can pinpoint the timing of economic effects over the course of a sanction episode. A similar empirical approach is used by Berger et al. (2013) to show that CIA interventions during the Cold War increased trade flows from the US to target countries.

The event study approach advances our understanding of the causal treatment effects of sanctions. We employ it not only to economic growth rates, but also to a range of potential transmission channels, which are studied as alternative dependent variables. Unlike previous studies that might have focused on one of these dependent variables, we evaluate the transmission channels based on a uniform empirical framework that ensures a reasonable identification of causal effects, which are comparable among each other and cannot result from carefully selected model specifications. Moreover, we employ a novel dataset of international sanctions with unprecedented data quality as well as country- and time-coverage (Felbermayr et al. 2020a; Kirikakha et al. 2021). This dataset features far more cases than any other sanctions database. In sum, we are providing new and compelling evidence for

the economic effects of sanctions that lends itself to a causal interpretation. Our evidence is not limited to measuring the effect on income per capita, but we are also trying to illustrate how this effect is brought about.

Our key results are as follows: We document a significant negative effect of international sanctions on GDP growth and its components (consumption and investment) as well as on trade and foreign direct investment. Our findings can be interpreted as causal, since we do not observe an economic downturn in the years before the imposition of sanctions, indicating that the adverse economic effects we measure mark a significant deviation from the country's pre-trend. The estimated effects are economically relevant, as an average target country's GDP per capita, for instance, declines by 2.8 percent over the first two years of a sanction episode and it does not recover, even within the first three years after sanctions are lifted.[1] Additional panel difference-in-differences (DiD) estimations reveal that the adverse economic effects were particularly prevalent during the Cold War and that they are driven by US unilateral sanctions and financial sanctions. Finally, governments react politically to sanctions and specifically democracies increase the share of their total government expenditures that is spent on the military.

The remainder of this article is structured as follows. Section 2 provides some theoretical considerations regarding the economic effects of sanctions. Section 3 describes our empirical approach, which closely follows the event study design of Schmidheiny and Siegloch (2023) and complements it with standard panel DiD estimations to evaluate effect heterogeneity. Moreover, we discuss the data employed in our empirical analysis with an emphasis on the novel sanctions dataset collected by Felbermayr et al. (2020a) and Kirikakha et al. (2021). In Section 4, we present our empirical results and discuss them in light of the extant evidence in the literature. We start by evaluating the growth effects of sanctions, before moving on to potential transmission channels. Section 5 concludes.

[1] It should be noted, however, that the harmful economic effects of sanctions stand in stark contrast to the limited empirical evidence for their ability to bring about policy changes (Peksen 2019).

2 Theoretical Considerations

To explain how sanctions affect economic activity, we start our argument from a simple Solow growth model (Solow 1956; Swan 1956). Accordingly, the growth rate of income per capita in the steady state would be determined solely by technological progress. However, sanctions force a deviation from the equilibrium growth path by exogenously increasing the costs of consumption and investment by private and government actors and by increasing economic uncertainty, which reduces the growth rate of GDP per capita relative to the steady-state equilibrium without sanctions (see also Neuenkirch and Neumeier 2015).

Hypothesis 1. *Sanctions reduce the growth rate of GDP per capita.*

Hypothesis 2. *Sanctions reduce the growth rates of consumption, investment, and government expenditures.*

Discussing the effects of international sanctions in the categories of a closed economy model obviously neglects the mechanics of sanctions. Typically, they aim directly at impeding the international exchange of goods and services as well as flows of aid and capital (Felbermayr et al. 2020a; Felbermayr et al. 2021).

Hypothesis 3. *Sanctions reduce inflows of foreign aid and foreign direct investment as well as the growth rate of international trade.*

Thus far, we have described the domestic and transnational economic implications of sanctions, but their economic effects cannot be separated completely from the political goals of the policy instrument. Sanctions are frequently intended to destabilize political systems and governments (Marinov 2005). Political instability, protests or strikes can be triggered by sanctions and are among the most important predictors of coups d'état (Gassebner et al. 2016). Governments can protect themselves against coups by shifting resources to the military and buying its loyalty (e.g., Besley and Robinson 2010; Leon 2014).[2] Sanctions may also create an incentive to prioritize military spending, if they are used as an instrument of economic warfare in order to weaken the target state's military capabilities (Cappella-Zielinski et al. 2017; Garoupa and Gata 2002; Nordhaus et al. 2012). It has been argued that

[2]Escribà-Folch (2012) shows that military dictatorships increase their military budget — and specifically military wages and salaries — in response to sanctions. Empirical evidence for Iran, however, indicates that military expenditures declined under international sanctions (Dizaji and Farzanegan 2021; Farzanegan 2022).

democracies and non-democracies differ in their use of military spending to address internal and external threats (see, e.g., Elbadawi and Keefer 2014; Garfinkel 1994; Whitten and L. K. Williams 2011). Consequently, an empirical analysis should account for the possibility that the effect of sanctions on military expenditures differs between political systems.

Hypothesis 4. *Sanctions increase the share of governments' budget that they spend on the military.*

What about the dynamic effects of economic sanctions (see, e.g., Dai et al. 2021)? Arguably, one of two patterns may emerge. The first one is a swift adjustment after the imposition of sanctions that clearly deviates from the pre-sanction dynamics. These effects should fade out as sanction-busting states and black market participants exploit opportunities for arbitrage and thereby mitigate some of the damage caused by sanctions. However, the effects might also be sustained, if senders continuously expand the scope of sanctions and make sure they are rigorously enforced. Overall, we expect that sanctions are most effective in the first years after their imposition. This is consequential due to a technical feature of our empirical approach. We are examining the effect of sanctions on the *growth rates* of GDP and its components. Hence, any detrimental effect during the first years that is not reversed thereafter implies a permanent shift towards a lower growth path.

Hypothesis 5. *The detrimental effect of sanctions is strongest in the first years of a sanction episode.*

The second possible pattern is an adjustment that already sets in shortly before sanctions are imposed. This concerns particularly the final year before a sanction episode starts, when the imposition is already foreseeable, for example after the conclusion of investigations or political negotiations. Malani and Reif (2015) show that changes in outcomes before the adoption of a new policy can be explained by anticipation effects, which arise naturally out of many theoretical models.[3] Here, we focus on situations in which states were threatened with sanctions and in which the imposition of sanctions, therefore, may be anticipated. The high volatility and reactivity of foreign direct investment (FDI) and official development

[3]Biglaiser and Lektzian (2011) find evidence for anticipation effects among US investors ahead of US-imposed sanctions. Dube et al. (2011) provide complementary evidence regarding the effect of US-backed coups on stock prizes of partially nationalized multinational companies. Top-secret pre-coup authorizations accounted for a larger share of stock price increases than the coup events themselves.

assistance (ODA) suggest that they may decline already in response to sanction threats and in anticipation of the actual implementation of sanctions (Bulíř and Hamann 2008; Lensink and Morrissey 2006).

Hypothesis 6. *Sanction threats reduce inflows of foreign aid and foreign direct investment.*

3 Estimation approach and data

3.1 Estimation approach

Identifying the causal effect of international sanctions on economic activity is challenging (Felbermayr et al. 2021). Sanctions are typically imposed on countries that are characterized by unstable political and social conditions (Gutmann et al. 2021; Jing et al. 2003). This implies that countries subject to sanctions could have exhibited a poor economic performance even if sanctions had not been imposed. We combine two strategies to tackle this problem. First, we adopt an event study design that captures trends up to three years before and after each sanction episode. Thereby, we can test whether macroeconomic conditions in sanctioned countries are already on a downward trajectory before the imposition of sanctions, which allows us to disentangle the treatment effect of sanctions from their selection effect. Second, we compare the economic performance of sanctioned countries to the performance of countries that are threatened with sanctions (rather than to countries that are neither sanctioned nor threatened with sanctions).[4] Arguably, the social, political, and economic situation in countries threatened with the imposition of sanctions should be more comparable to the situation in countries that are actually under sanctions (see also our sixth hypothesis). This design choice ensures that we evaluate the consequences of international sanctions by comparing sanctioned countries to what comes closest to a counterfactual.

Of course, sanction threats are not a perfect counterfactual to imposed sanctions and one could argue that we either over- or underestimate the actual consequences of sanctions. On the one hand, sanction threats may already damage the economy of the target country (Walentek et al. 2021). On the other hand, the escalation from sanction threats to sanctions

[4] A threat must be formulated by a representative of a state or an international organization and it must declare that sanctions against the target state are a possibility. Threats may, e.g., be initiated as verbal statements or by drafting legislation.

does not happen at random and one could speculate that sanctioned countries are worse off in the first place when compared to those who are only threatened with sanctions. Nevertheless, the strength of our empirical approach is the combination of the event study design with using sanction threats as counterfactuals, because this allows us to evaluate the parallel trends assumption, given our definition of treatment and counterfactual.

Our empirical model is specified as follows:

$$\begin{aligned} y_{i,t} &= \beta_{no} D_{no,i,t} + \sum_{j=1}^{3} \beta_{pre,-j} D_{pre,i,t-j} + \sum_{j=1}^{11+} \beta_{sanc,j} D_{sanc,i,tj} + \sum_{j=1}^{3} \beta_{post,+j} D_{post,i,t+j} \\ &\quad + \gamma_1 X_{i,t}^{pol} + \gamma_2 X_{i,t-1}^{econ} + \alpha_i + \tau_t + \epsilon_{i,t} \end{aligned} \tag{1}$$

The unit of analysis is the country-year. $y_{i,t}$ is one of our macroeconomic indicators of interest measured for country i in year t and serves as the dependent variable. All indicators and data sources are presented in Section 3.2. Our event study indicators $D_{sanc,i,tj}$ are dummy variables that equal 1 if a sanction episode was in place for the j-th consecutive year targeting country i. We include individual dummies for each of the first ten years in which a country was subject to sanctions within an episode ($t1$ to $t10$) and we summarize the average effect of sanctions after the first ten years in one dummy variable ($t11+$). $D_{pre,t-j}$ and $D_{post,t+j}$ are dummy variables, one of which equals 1 in one of the three years before or after a sanction episode. Their inclusion allows us to assess the economic condition in a sanctioned country before sanctions became effective and after they have been lifted. $D_{no,i,t}$ is a dummy that is equal to 1 in case country i was neither subject to sanctions nor to a sanction threat in year t. The inclusion of this dummy variable ensures that our event study indicators measure the effect of sanctions on the target country's economy relative to countries threatened with sanctions. $X_{i,t}^{pol}$ and $X_{i,t-1}^{econ}$ are vectors of political and economic control variables, α_i and τ_t are country- and year-fixed effects, and $\epsilon_{i,t}$ is the error term.

We complement our event study analysis with standard panel DiD estimations based on the following specification:

$$y_{i,t} = \beta_{no} D_{no,i,t} + \sum_{s=1}^{k} \beta_{sanc}^{s} D_{sanc,i,t}^{s} + \gamma_1 X_{i,t}^{pol} + \gamma_2 X_{i,t-1}^{econ} + \alpha_i + \tau_t + \epsilon_{i,t} \tag{2}$$

$D_{no,i,t}$, $X_{i,t}^{pol}$, $X_{i,t-1}^{econ}$, α_i, τ_t, and $\epsilon_{i,t}$ are defined as in Eq. (1). Depending on the specification, we employ four different sets of dummies $D_{sanc,i,t}^{s}$. In the first specification, we estimate the average treatment effect of sanctions and employ a binary dummy variable that takes the value 1 in each year in which the respective country is subject to sanctions. In the second specification, we test whether the impact of sanctions was different during the Cold War era as opposed to the period after 1991 when targeted sanctions became increasingly popular.[5] In the third specification, we estimate the effects of sanctions imposed by different senders. 56% of the sanction country-years in our sample (see also Table A4 in Appendix A) are unilateral sanctions imposed by the US. Hence, we include one dummy for US unilateral sanctions and one dummy identifying any other sanctions. In the fourth specification, we distinguish between four non-disjunctive types of sanctions, that is, arms and military assistance sanctions, financial sanctions, trade sanctions, and other sanctions. In all four specifications, the reference category are years in which a country was subject to sanction threats, but not to sanctions.

Eqs. (1) and (2) are estimated with ordinary least squares and standard errors are clustered at the country level.

3.2 Data

We employ eight different dependent variables ($y_{i,t}$). These include the per capita growth rates of real GDP, private consumption, investment, government expenditures, and trade (the sum of exports and imports). In addition, we use the natural logarithm of FDI and ODA.[6] Finally, we explore whether sanctions affect the composition of government expenditures by studying the share of government expenditures that is spent on the military. All macroeconomic variables (including the controls) are winsorized at the 2.5% and 97.5% percentile to mitigate the influence of outliers.

[5] Note that 256 of the 324 country-years subject to sanctions during the Cold War era are US unilateral sanctions. After 1991, US unilateral sanctions account for only 399 of the 852 sanctioned country-years.

[6] For these two variables, growth rates do not reveal meaningful results due to their very high volatility, even after a winsorization at the 2.5% and 97.5% percentile. It has to be noted that we apply a "log + 1" transformation to our FDI and ODA variables before including these in our regression analysis, so that our dependent variables take on the value zero in the absence of FDI or ODA inflows. That way, we avoid truncation and make sure that our FDI and ODA indicators capture effects along both the intensive and the extensive margin. See also Table A1 in Appendix A.

The choice of our control variables broadly follows Neuenkirch and Neumeier (2015). First, we consider covariates that are standard in economic growth equations: the log of real GDP per capita, population growth, investment as a percentage of GDP, and trade openness (imports plus exports divided by GDP). We lag these variables in $X_{i,t-1}^{econ}$ by one year to mitigate problems of reverse causality. In addition, we account for the main reasons for the imposition of international sanctions and include indicators for the protection of human rights in a country, the level of democracy, and the occurrence of major and minor conflicts in $X_{i,t}^{pol}$. A list of all control variables along with their definitions and data sources can be found in Table A1 in Appendix A. Table A2 shows descriptive statistics.[7]

Our indicators for international sanctions come from the novel Global Sanctions Database (Felbermayr et al. 2020a; Kirikakha et al. 2021). We limit our analysis to sanctions by the most active senders, i.e., the European Union, the United Nations, and the United States.[8] The databases by Morgan et al. (2014) and Weber and Schneider (2022) are used to identify country-years in which states were threatened with the imposition of sanctions by one of our three senders. A "threat" presupposes that a member of a government body or the leadership of an international organization or alliance proposes or threatens that the body adopt sanctions against the target.[9]

Our dataset covers 158 countries over the period 1960–2016. It comprises 6,140 observations for which data is available for all control variables. 92 countries and a total of 1,176 country-years in our dataset were exposed to sanctions.[10] Sanction threats (but no sanctions) were in place in 747 country-years. Tables A3 and A4 in Appendix A provide a de-

[7] Note that some macroeconomic conditions are less favorable in sanctioned countries than in countries subject to threats (or non-sanctioned countries). This does not come as a surprise, since the descriptive statistics reflect a combination of the selection and the treatment effect. In our estimations, we are accounting for a potential selection effect by testing for parallel trends before the imposition of sanctions. Hence, we are confident that the differences in the descriptive statistics can be attributed to the treatment.

[8] We discuss the effects of sanctions by China and Russia as part of our robustness tests in Section 4.5.

[9] The threat variable only takes a non-zero value if no sanction is imposed against the targeted country later within the same year. Put differently, a threat is only recorded in the year(s) before an actual sanction episode, if there is any, or in countries that are not sanctioned after all. According to this definition, 39 of the 128 sanction episodes (30.5%) are preceded by a threat.

[10] Eleven countries (Afghanistan, Cuba, Democratic Republic of Congo, Haiti, Iraq, Lebanon, Liberia, Libya, Myanmar, South Sudan, and Yugoslavia) were subject to sanctions throughout all country-years for which we have complete data. Hence, the sanctions indicators are absorbed by the country-fixed effects in these cases. Nevertheless, the inclusion of these countries in our sample leads to a more efficient estimation of the vector of parameters γ. As part of our robustness tests, we re-estimate Eq. (2) using a sample that consists only of observations subject to sanctions or threats. The results (available on request) are qualitatively similar to the baseline results in Table B1 in Appendix B. However, the drop in the number of observations and the loss of some clusters lead to larger standard errors.

tailed overview of the countries in our dataset, the number of observations in each sanction category, as well as the pre- and post-event trend indicators. Figure A1 shows the frequency of US unilateral sanctions and other sanctions each year. The use of sanctions increases over time and it is particularly the category "other sanctions" that strongly increases since the end of the Cold War. This is consistent with fewer sanctions being vetoed in the United Nations Security Council (UNSC) after 1991 and also with a growing role of the EU in foreign policy.

4 Empirical results

4.1 Presentation and interpretation of results

Our main empirical results are based on the event study design described in Eq. (1). We graphically illustrate the coefficient estimates of our event study indicators and the corresponding confidence intervals in Figures 1–3, which facilitates a straightforward interpretation of our empirical findings. The results for the panel DiD specifications (binary sanctions indicator, heterogeneous sanction effects for the pre- and post-Cold War era, different sender indicators, and different sanction type indicators; cf. Eq. (2)) can be found in Tables B1–B4 in Appendix B. These tables include additional information on our control variables and a more precise quantification of average effect sizes. To save space, we do not discuss the results for the control variables in detail. The coefficient estimates for major conflicts, however, serve as a point of reference to put the size of the effect of sanctions into perspective.

Our results in Figures 1–3 are not indicative of a significant downward trajectory before the imposition of sanctions. This finding supports a causal interpretation of our empirical results from the event study design and the panel DiD estimations. In other words, they provide empirical support for the critical parallel trends assumption. Still, one may object that there could be differences across countries in our treatment group during the pre-treatment period. In particular, countries that were subject to sanction threats before sanctions were actually imposed might be more prone to anticipation effects than non-threatened countries. This group of countries could also drive the overall results. Consequently, we interact the pre-trend dummies with a dummy that identifies country-years with sanction threats. Our

results for this extension (available on request) provide no evidence for a downward trajectory of countries threatened with sanctions before the actual imposition of sanctions. This is an important insight, because if countries facing sanction threats before the imposition of sanctions experience adverse economic effects only after sanctions are imposed, then this largely rules out a direct effect of unobserved correlates of sanctions on economic outcomes beyond what is captured by our control variables.

4.2 Results for GDP growth and its main components

Figure 1 plots the coefficient estimates for the growth rate of GDP per capita and its main components alongside 95% confidence bands. The pre-treatment years ("pre-trend") are labeled −3, −2, and −1 and the post-treatment years ("post-trend") +1, +2, and +3. The effect of sanctions on the dependent variable during the first, second, …, eleventh-plus year of a sanction episode is labeled 1, 2, …, 11+ on the horizontal axis.[11] The point of comparison for all these effects are country-years characterized by sanction threats, but not sanctions.

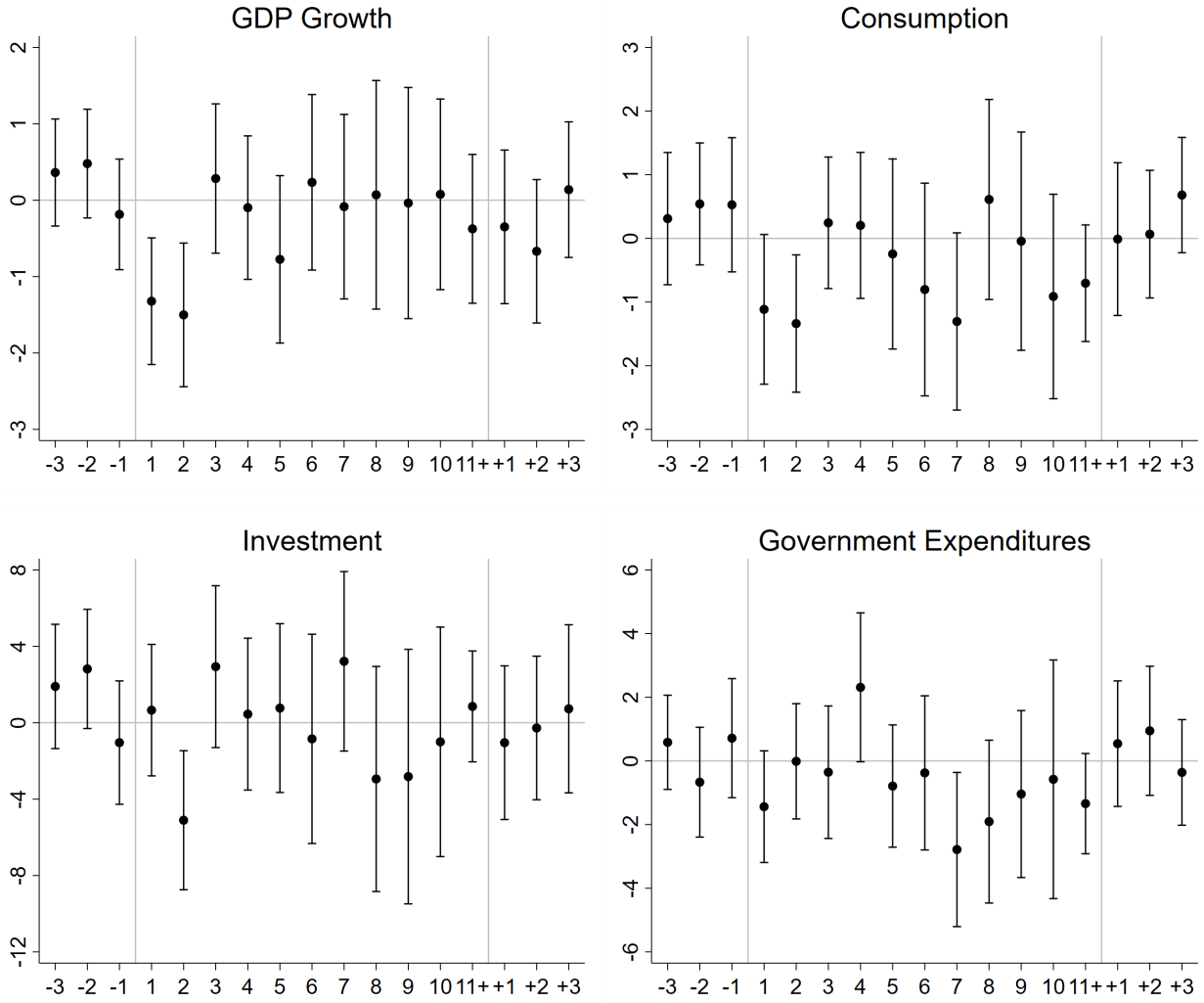
Our findings indicate that international sanctions lead to a reduction of GDP growth during the first (−1.32 pp) and second year (−1.50 pp) of a sanction episode. Both coefficients are significant at the 1% level.[12] There is no indication of a recovery in GDP growth rates, even during the first three years after the sanctions have been lifted. From a theoretical point of view, this is not surprising. If economic sanctions disrupt economic processes and supply chains, lifting sanctions will not have a symmetric positive effect, because economic processes and trade relationships have to be reorganized. Hence, our results suggest that sanctioned countries are pushed to a lower growth path and remain there. The adverse effect of sanctions on GDP growth rates translates into a 2.82 percent drop in the target country's GDP per capita over the first two years, highlighting the economic relevance of the effect. This effect was mainly prevalent during the Cold War era with an average annual negative effect of −1.40 pp (see Table B2) and appears to be driven by financial sanctions (−1.20 pp, see Table B4). These average effects are smaller than those of major conflicts, which range in size from −2.12 pp to −2.19 pp. The fact that Cold War sanctions were sig-

[11] Note that the estimated effect of sanctions in the year 2 or later is based only on those sanction episodes that last for sufficiently many years.

[12] Note that the coefficients for the first and second year of a sanction episode are also significantly different from the coefficient estimate of the final pre-trend year ($F(1,157) = 7.30^{**}$ and $F(1,157) = 6.07^{*}$, respectively).

nificantly more costly to their target countries than post-Cold War sanctions is not surprising in light of the continuously increasing use of targeted sanctions after the Cold War. The pronounced effect of financial sanctions is also plausible, as access to major financial markets and service providers is often more difficult to substitute than access to goods, services, or military equipment from particular countries. The average effect of sanctions measured here is smaller than, for example, the one to two pp decrease in GDP pc growth found by Neuenkirch and Neumeier (2015). One reason for this is our reliance on more post-Cold War data.

Figure 1: Effects of International Sanctions on GDP Growth and its Main Components



Notes: Effects of sanctions over time (1, 2, …, 11+) alongside pre-trend (−3, −2, −1) and post-trend (+1, +2, +3). The dependent variables are the growth rates of GDP, private consumption, investment, and government expenditures (all per capita). Countries subject to sanction threats are the reference category. 95% confidence bands are indicated by whiskers. Additional results of panel DiD estimations can be found in Tables B1–B4 in Appendix B.

The effect pattern of sanctions on consumption growth, which constitutes the largest component of GDP, resembles that for GDP growth. Sanctions are detrimental to consumption during the second year (−1.34 pp) and – when applying 90% confidence bands – also during the first (−1.12 pp, p-value: 6.3%) and seventh year (−1.31 pp, p-value: 6.6%). On average, sanctions reduce consumption growth by −0.75 pp (see Table B1). Again, the effect was most pronounced during the Cold War era (−1.46 pp, see Table B2) and appears to be driven by US unilateral sanctions (−0.79 pp, see Table B3) and financial sanctions (−0.92 pp, see Table B4).[13] To put these numbers into perspective, one can again compare them to the effects of major conflicts on consumption (between −1.98 pp and −2.00 pp).

The negative effect of sanctions on investment is significant only during the second year (−5.11 pp) of a sanction episode. While this effect sets in later than the effects on consumption and growth, it is exceptionally large. For comparison, the *average* negative effect of major conflicts on investment ranges between −4.17 pp and −4.38 pp. One possible interpretation is that the effect of sanctions on investment is on the one hand more heterogeneous than that on consumption (and therefore less precisely estimated), but on the other hand, it is potentially more dramatic.

Finally, sanctions do not lead to a clear-cut reduction in the growth rate of government expenditures. The only significant effect is found in the seventh year of a sanction episode (−2.78 pp). However, we do find a significant reduction in government expenditures due to financial sanctions (−1.29 pp, see Table B4).

To sum up, we find that sanctions seem to harm economic growth via reducing domestic consumption and investment.[14] The results are consistent with previous research showing an adverse effect of sanctions on income per capita (Neuenkirch and Neumeier 2015) and confirm our first and second hypotheses (except for government expenditures). The fact that these effects are observable over the first two years of a sanction episode is consistent with our fifth hypothesis.[15]

[13] Studying the effects of sanctions in a panel of 30 developing countries over a 20-year period, K. Williams (2021) finds only weak evidence for a negative effect on household consumption.

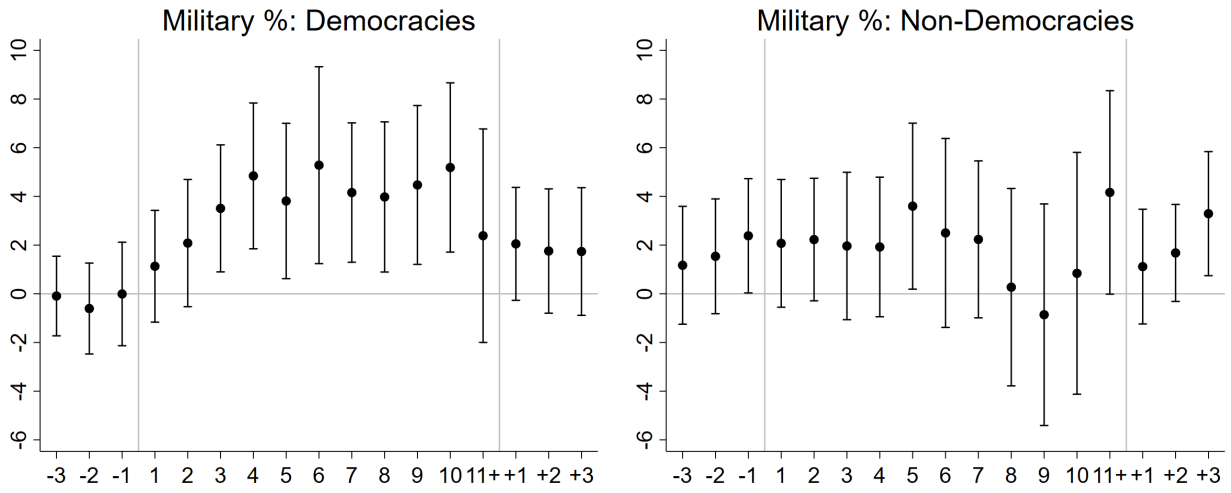
[14] Note that the results are robust to omitting country-fixed effects, year-fixed effects, or both.

[15] Note that our dataset includes only 27 country-years where sanctions have been lifted after one or two years, respectively. In an extension (available on request), we differentiate between these short-lasting sanctions and those that last for at least three years. We find that the detrimental effects during the first two years of a sanction episode are driven by longer-lasting sanctions.

4.3 Results for military expenditures

Next, we analyze the effect of sanctions on the composition of government expenditures. We focus on the share of government spending on the military for data availability reasons[16] and because this spending category is of particular relevance to understanding how governments defend themselves against external economic pressure campaigns.

Figure 2: Effects of International Sanctions on the Composition of Government Expenditure



Notes: Effects of international sanctions over time (1, 2, ..., 11+) alongside pre-trend (−3, −2, −1) and post-trend (+1, +2, +3). The dependent variable is the share of government expenditures spent on the military. Countries subject to sanction threats are the reference category. 95% confidence bands are indicated by whiskers. Additional results of panel DiD estimations can be found in Tables B1–B4 in Appendix B.

Figure 2 provides separate plots for democracies (as indicated by a polity2-score above 5) and non-democracies, because we expect differences in how these governments reallocate their expenditures under sanctions. The share of military spending in government spending increases in both democracies and non-democracies while sanctions are imposed. The effect on democracies is significant over the whole time horizon, with the exception of the first two years and after sanctions have been in place for more than ten years. The peak effect is found in the sixth year (5.28 pp). These effects can be interpreted causally, as there is no significant pre-trend in democracies. Moreover, our findings are consistent with the result of McLean and Whang (2021) that as sanction duration increases, military spending increases, although they do not test whether this effect differs between regime types. For non-democracies, we do not find convincing evidence that sanctions affect military spend-

[16]For instance, the number of observations decreases to less than 3,000 if we analyze the effect of sanctions on governments' education expenditures.

ing. The effect is only statistically significant during the fifth year (with an increase of 3.60 pp) and there is a significant pre-trend in the final year before sanctions are imposed. When considering all targeted countries jointly, the average effect amounts to an increase in military spending by 2.13 pp (see Table B1). This effect was particularly strong during the Cold War (5.70 pp, see Table B2) and, at the time, even larger than that of major conflicts (3.40 pp). Hence, our results only partially confirm our fourth hypothesis that sanctions lead governments to divert spending from civilian budget items towards military expenditures.

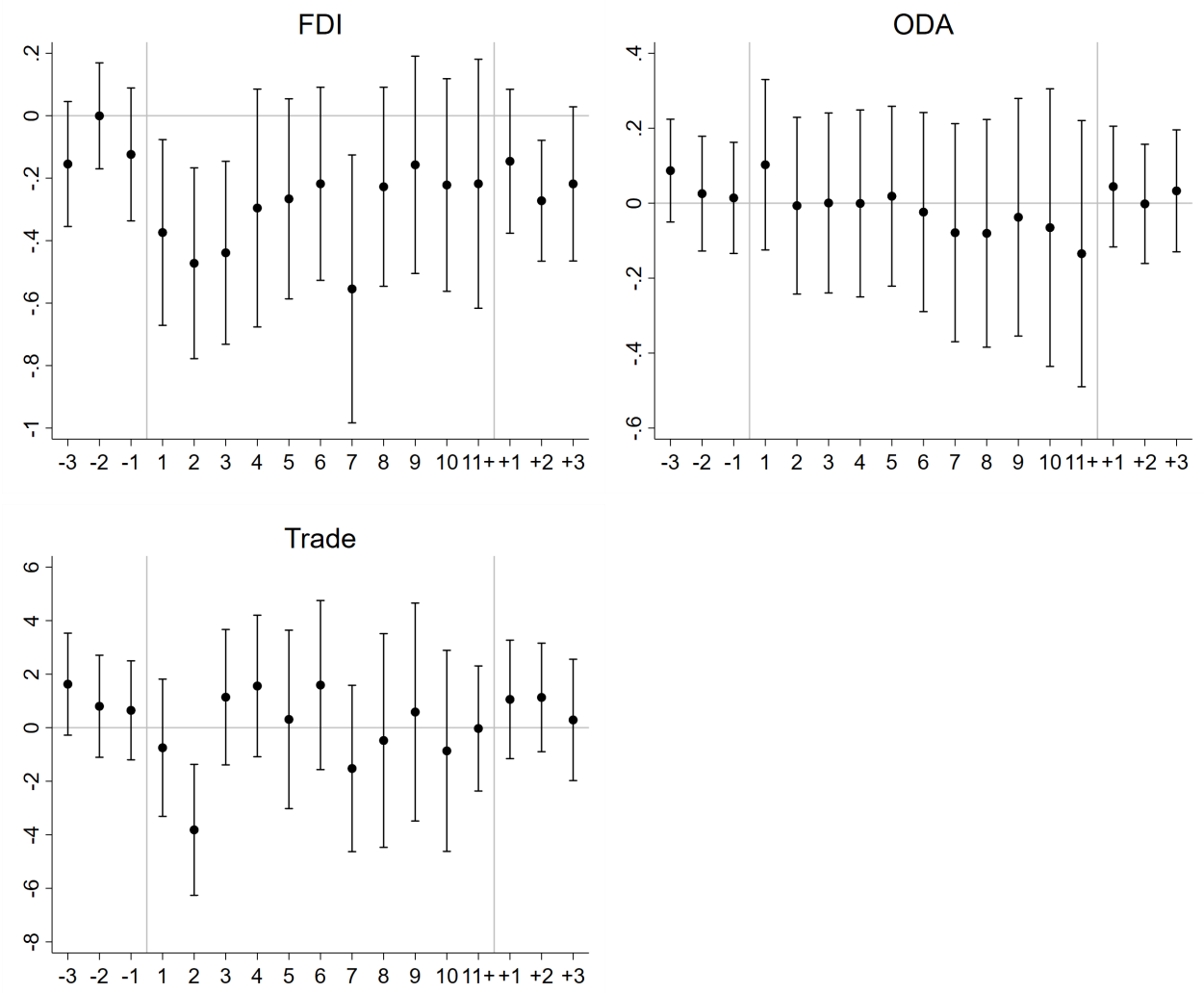
The effect on the share of military spending could arise because of a reallocation of resources or simply because overall government expenditures shrink while the absolute value of military spending stays constant. To inquire into the reason for the positive coefficient, we control for log-government expenditures per capita, lagged by one year, in Eq. (2). Our results indicate an even stronger effect of sanctions on the share of military expenditures once we control for overall government spending. In addition, a SUR estimation (see Section 4.5) indicates that the residuals of the equations for the growth rate of government spending and the share of military spending are independent of each other. Hence, our results indicate an actual reallocation of government resources towards military spending.

4.4 Results for cross-border transactions

Our third set of results concerns cross-border transactions. Figure 3 presents the effects of sanctions on FDI, ODA, and trade. In general, one would expect negative effects of international sanctions on each of these outcomes, which is our third hypothesis. However, according to our sixth hypothesis, FDI and ODA might already respond to the mere threat of sanctions.

We find that international sanctions lead to a reduction in FDI during the first (−37.4%), second (−47.2%), third (−43.9%), and seventh (−55.5%) year of a sanction episode with an average effect of −26.8% (see Table B1). Yet again, this effect is driven by sanctions during the Cold War (−43.0%, see Table B2) and by US unilateral sanctions (−29.2%, see Table B3). For comparison, the average effect of major conflicts ranges between −34.0% and −34.9%, which is in a similar order of magnitude.

Figure 3: Effects of International Sanctions on FDI, ODA, and Trade



Notes: Effects of international sanctions over time (1, 2, …, 11+) alongside pre-trend (−3, −2, −1) and post-trend (+1, +2, +3). The dependent variables are the natural logarithms of FDI and ODA as well as the growth rate of trade (all per capita). Countries subject to sanction threats are the reference category. 95% confidence bands are indicated by whiskers. Additional results of panel DiD estimations can be found in Tables B1–B4 in Appendix B.

In contrast, we find no significant reduction of ODA during sanctions. Table B1, however, reveals that countries without sanctions or sanction threats receive 14.7% more development assistance than countries that are subject to sanction threats. As this estimate is only significant at the 10% level (p-value: 7.2%), we do not consider our sixth hypothesis to be supported by the data. Nevertheless, this result underlines our argument above that choosing sanction threats as a reference category yields conservative estimates in the sense that economic and political actors may already react to the mere threat of sanctions in ways that can harm the economy.

Sanctions have a detrimental effect on the volume of total trade in the second year of a sanction episode (−3.82 pp). The average negative effect of sanctions during the Cold War was −2.90 pp (see Table B2), which is comparable to the effect of major conflicts (between −2.76 pp and −2.88 pp). A more detailed analysis (available on request) shows that the negative effect on overall trade is driven by a reduction in the growth rate of imports in the second year of a sanction episode. Since (decreasing) imports are subtracted in national accounting, this result gives additional weight to the negative effect on GDP growth. Put differently, the effect on domestic absorption is stronger than indicated by the results for the GDP growth rate alone.

Summing up our third set of results, we find, in line with the literature (Mirkina 2018), that the imposition of sanctions leads to a reduction in FDI. However, unlike Biglaiser and Lektzian (2011), who show that US investors divest ahead of US sanctions, we do not find an anticipation effect or any significant pre-trend in FDI. Surprisingly, we do not find an effect of sanctions on ODA, although it has been shown that the US and other major sender countries use their influence, for example, in IMF lending decisions to prevent support for countries under international sanctions (Peksen and Woo 2018). Finally, we find a negative effect of sanctions on trade that is consistent with the previous literature (Afesorgbor 2019; Crozet and Hinz 2020; Felbermayr et al. 2020b). Again, a causal interpretation of our results appears plausible, since we do not detect any significant pre-trends.[17]

Overall, we find at least partial support for five of our six hypotheses. Hypotheses one and five are fully supported by the data. Hypotheses two and three are confirmed with the exception of government expenditure increases and a reduction in foreign aid, which we do not observe. While we cannot fully confirm our fourth hypothesis that all governments increase their (relative) military spending under sanctions, we find that this is indeed the case for democracies. Regarding our sixth hypothesis that FDI and ODA decline already when countries are threatened with sanctions, we find at most weak evidence for a reduction in development aid.

[17]Most previous studies have not accounted for such pre-trends. Crozet and Hinz (2020) do account for a possible anticipation effect and find a significant decline in trade during the three months before sanction imposition. See also Dai et al. (2021).

4.5 Robustness tests

As part of our robustness tests, we first address the fact that some of our dependent variables are correlated and re-estimate our regression equations using seemingly unrelated regression (SUR) techniques. We estimate SUR models for three groups of left-hand side variables: (i) income, consumption, and investment; (ii) government expenditures and the share of military expenditures; (iii) FDI, ODA, and trade. These three groups represent domestic economic activity, the public sector, and international transactions, respectively.[18] Table C1 in Appendix C shows the results. Indeed, independence can be rejected in the model for domestic economic activity and in the model for international transactions. However, the baseline results from Table B1 in Appendix B are robust to accounting for potentially correlated errors across equations within each group. If at all, the significance of the sanctions variable tends to be more pronounced due to the increased estimation efficiency. However, the underlying standard errors are not clustered at the country level, since this is not feasible in the SUR framework. Hence, the increased significance can partly be attributed to the use of less conservative standard errors.

Second, we examine the role of sanctions by China and Russia. Accordingly, we include an indicator for sanctions adopted by Russia (excluding those enacted by the UNSC) into Eq. (2). The number of country-years with Russian sanctions in place varies between 53 and 168, depending on the dependent variable. Table C2 in Appendix C shows the results. The coefficients of our original sanctions indicators and their standard errors remain virtually unchanged when including an indicator for Russian sanctions (cf. Table B1 in Appendix B).[19] Unfortunately, when it comes to Chinese sanctions — excluding those that are enacted by the UNSC, which are included independently in the estimations — the number

[18] Since SUR estimation requires that the estimation sample is balanced with respect to the left-hand side variables, our sample would shrink to 2,842 observations with 664 sanctioned observations and 392 threatened observations when considering all eight left-hand side variables at the same time. Accordingly, we estimate SUR models for three disjoint groups of dependent variables to avoid a huge drop in the number of observations.

[19] Arguably, the positive effect of Russian sanctions on trade can be explained by the composition of the group of sanctioned countries. Russian sanctions mainly comprise countermeasures against EU countries implemented in the aftermath of the illegal annexation of Crimea in 2014. Thus, countries subject to Russian sanctions are characterized by higher levels of trade than the "average country," in particular at the end of our sample period. Similarly, the sizeable, but insignificant negative coefficients for income, consumption, investment, government expenditures, and FDI can be explained by the higher level of development of the EU countries in the mid-2010s as compared to the average sample country and the resulting slower growth rates and lower level of FDI flows.

of country-years with sanctions in place is too small for a meaningful statistical analysis. Depending on the dependent variable, the number of non-zero observations varies between 5 and 32 with a maximum of five countries being subject to Chinese sanctions. 24 of the 32 country-years are sanctions against Canada, France, and Norway. Therefore, in addition to the low frequency of non-zero observations, there is also no overlap between US or EU sanctions and Chinese sanctions.

Finally, we apply entropy balancing (Hainmueller 2012) as another robustness test for the baseline panel DiD specification. We match sanctioned and non-sanctioned observations using the control variables described in Section 3.2 plus year-fixed effects.[20] Entropy balancing generates an almost perfect covariate balance between the treatment group and the weighted control group. We obtain the average treatment effect on the treated by using the estimated weights in a weighted least squares regression that includes the control variables, country-, and year-fixed effects as explanatory variables. The results using entropy balancing can be found in the lower panel of Table C3 in Appendix C. These results are qualitatively and quantitatively very similar to those for the panel DiD estimations where the threatened countries have been excluded (upper panel of Table C3). Hence, the results based on entropy balancing — together with those of the event study approach — support a causal interpretation of our findings.

5 Conclusion

We have conducted the so far most comprehensive analysis of the macroeconomic consequences of international sanctions. Our event study design is more conservative and yet more informative than the model specifications commonly used in the sanctions literature.

We document a significant negative effect of international sanctions on GDP growth and its components (consumption and investment) as well as on trade and foreign direct investment. Our results are not indicative of a significant downward trajectory before the imposition of sanctions. Hence, we are confident that our findings can be interpreted causally. The effects are of economic relevance, as we document, for instance, a drop of 2.82 percent

[20] Matching the sanctioned and "threatened" observations is impossible (even when using entropy balancing) because of the lower number of observations in the potential control group than in the treated group and the resulting problems in achieving covariate balance.

in the target country's GDP per capita during the first two years of a sanction episode and find no indication of a recovery thereafter. Additional panel DiD estimations reveal that the most economically harmful sanctions were imposed during the Cold War, by the United States, and in the form of financial sanctions. Cold War sanctions might have been more harmful because more recent sanctions are often targeted towards a smaller group of politically influential individuals or firms. US sanctions are particularly harmful because of their extraterritorial application, the global importance of the US economy, the dominance of the Dollar as a global currency, and because unilateral sanctions require less political consensus than sanctions by the United Nations and can therefore cause collateral damage with less political resistance. Financial sanctions are known for being particularly harmful because they are difficult to evade with some exceptions being documented by Besedeš et al. (2017) and Efing et al. (2018). Finally, governments react politically to sanctions and specifically democracies shift expenditures towards the military when being sanctioned. This can be considered an unintended consequence of international sanctions that has so far been ignored in the sanctions literature.

Anticipation effects in the context of international sanctions clearly remain an important phenomenon to be studied in future research, even though we do not find significant pretrends in our event study design. This will require more precise data on when incidents took place that motivated sanctions and on the timing of the discussion about imposing sanctions. International news archives might be able to provide such information. Of course, this also requires macroeconomic data measured at a higher frequency than that utilized in this study.

References

Adam, A., and S. Tsarsitalidou. 2019. "Do sanctions lead to a decline in civil liberties?" *Public Choice* 180 (3-4): 191–215.

Afesorgbor, S. K. 2019. "The impact of economic sanctions on international trade: How do threatened sanctions compare with imposed sanctions?" *European Journal of Political Economy* 56:11–26.

Afesorgbor, S. K., and R. Mahadevan. 2016. "The impact of economic sanctions on income inequality of target states". *World Development* 83:1–11.

Aidt, T. S., F. Albornoz, and E. Hauk. 2021. "Foreign influence and domestic policy". *Journal of Economic Literature* 59 (2): 426–487.

Allen, S. H., and D. J. Lektzian. 2013. "Economic sanctions: A blunt instrument?" *Journal of Peace Research* 50 (1): 121–135.

Barry, C. M., and K. B. Kleinberg. 2015. "Profiting from sanctions: Economic coercion and US foreign direct investment in third-party states". *International Organization* 69 (4): 881–912.

Bělín, M., and J. Hanousek. 2021. "Which sanctions matter? Analysis of the EU/Russian sanctions of 2014". *Journal of Comparative Economics* 49 (1): 244–257.

Berger, D., W. Easterly, N. Nunn, and S. Satyanath. 2013. "Commercial imperialism? Political influence and trade during the Cold War". *American Economic Review* 103 (2): 863–896.

Besedeš, T., S. Goldbach, and V. Nitsch. 2017. "You're banned! The effect of sanctions on German cross-border financial flows". *Economic Policy* 32 (90): 263–318.

Besley, T., and J. A. Robinson. 2010. "Quis custodiet ipsos custodes? Civilian control over the military". *Journal of the European Economic Association* 8 (2-3): 655–663.

Biglaiser, G., and D. J. Lektzian. 2011. "The effect of sanctions on U.S. foreign direct investment". *International Organization* 65 (3): 531–551.

Bulíř, A., and A. J. Hamann. 2008. "Volatility of development aid: From the frying pan into the fire?" *World Development* 36 (10): 2048–2066.

Cappella-Zielinski, R., B. O. Fordham, and K. E. Schilde. 2017. "What goes up, must come down? The asymmetric effects of economic growth and international threat on military spending". *Journal of Peace Research* 54 (6): 791–805.

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

Dai, M., G. J. Felbermayr, A. Kirilakha, C. Syropoulos, E. Yalcin, and Y. V. Yotov. 2021. "Timing the impact of sanctions on trade". In van Bergeijk 2021, 411–437.

Dizaji, S. F., and M. R. Farzanegan. 2021. "Do sanctions constrain military spending of Iran?" *Defence and Peace Economics* 32 (2): 125–150.

Douhan, A. 2020. *Negative impact of unilateral coercive measures: Priorities and road map*. Report of the Special Rapporteur on the negative impact of unilateral coercive measures on the enjoyment of human rights. United Nations Human Rights Council.

Draca, M., J. Garred, L. Stickland, and N. Warrinnier. 2023. "On target? Sanctions and the economic interests of elite policymakers in Iran". *Economic Journal* 133 (649): 159–200.

Dube, A., E. Kaplan, and S. Naidu. 2011. "Coups, corporations, and classified information". *Quarterly Journal of Economics* 126 (3): 1375–1409.

Early, B. R., ed. 2015. *Busted sanctions: Explaining why economic sanctions fail*. Stanford: Stanford University Press.

Early, B. R., and D. Peksen. 2019. "Searching in the shadows: The impact of economic sanctions on informal economies". *Political Research Quarterly* 72 (4): 821–834.

Early, B. R., and M. Schulzke. 2019. "Still unjust, just in different ways: How targeted sanctions fall short of just war theory's principles". *International Studies Review* 21 (1): 57–80.

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

Efing, M., S. Goldbach, and V. Nitsch. 2018. "Freeze! Financial sanctions and bank responses". *CESifo Working Paper* 7424.

Elbadawi, I. A., and P. Keefer. 2014. "Democracy, democratic consolidation and military spending". *ERF Working Paper* 848.

Escribà-Folch, A. 2012. "Authoritarian responses to foreign pressure: Spending, repression, and sanctions". *Comparative Political Studies* 45 (6): 683–713.

Fariss, C. J. 2019. "Yes, human rights practices are improving over time". *American Political Science Review* 113 (3): 868–881.

Farzanegan, M. R. 2022. "The effects of international sanctions on Iran's military spending: A synthetic control analysis". *Defence and Peace Economics* 33 (7): 767–778.

Farzanegan, M. R., and B. Hayo. 2019. "Sanctions and the shadow economy: Empirical evidence from Iranian provinces". *Applied Economics Letters* 26 (6): 501–505.

Felbermayr, G., A. Kirilakha, C. Syropoulos, E. Yalcin, and Y. V. Yotov. 2020a. "The Global Sanctions Data Base". *European Economic Review* 129:103561.

Felbermayr, G., T. C. Morgan, C. Syropoulos, and Y. V. Yotov. 2021. "Understanding economic sanctions: Interdisciplinary perspectives on theory and evidence". *European Economic Review* 135:103720.

Felbermayr, G., C. Syropoulos, E. Yalcin, and Y. V. Yotov. 2020b. "On the heterogeneous effects of sanctions on trade and welfare: Evidence from the sanctions on Iran and a new database". mimeo.

Garfinkel, M. R. 1994. "Domestic politics and international conflict". *American Economic Review* 84 (5): 1294–309.

Garoupa, N. R., and J. E. Gata. 2002. "A theory of international conflict management and sanctioning". *Public Choice* 110 (1/2): 41–65.

Gassebner, M., J. Gutmann, and S. Voigt. 2016. "When to expect a coup d'état? An extreme bounds analysis of coup determinants". *Public Choice* 169 (3): 293–313.

Ghomi, M. 2022. "Who is afraid of sanctions? The macroeconomic and distributional effects of the sanctions against Iran". *Economics and Politics* 34 (3): 395–428.

Gleditsch, N. P., P. Wallensteen, M. Eriksson, M. Sollenberg, and H. Strand. 2002. "Armed conflict 1946-2001: A new dataset". *Journal of Peace Research* 39 (5): 615–637.

Gullstrand, J. 2020. "What goes around comes around: The effects of sanctions on Swedish firms in the wake of the Ukraine crisis". *World Economy* 43 (9): 2315–2342.

Gutmann, J., M. Neuenkirch, and F. Neumeier. 2022. "Do China and Russia undermine US sanctions? Evidence from DiD and event study estimation". *CESifo Working Paper 10100*.

— . 2020. "Precision-guided or blunt? The effects of US economic sanctions on human rights". *Public Choice* 185 (1-2): 161–182.

— . 2021. "Sanctioned to death? The impact of economic sanctions on life expectancy and its gender gap". *Journal of Development Studies* 57 (1): 139–162.

Haidar, J. I. 2016. "Sanctions and export deflection". In *The New Palgrave Dictionary of Economics*, ed. by M. Vernengo, E. P. Caldentey, and B. J. Rosser. London: Palgrave Macmillan.

— . 2017. "Sanctions and export deflection: Evidence from Iran". *Economic Policy* 32 (90): 319–355.

Hainmueller, J. 2012. "Entropy balancing for causal effects: A multivariate reweighting method to produce balanced samples in observational studies". *Political Analysis* 20 (1): 25–46.

Hatipoglu, E., and D. Peksen. 2018. "Economic sanctions and banking crises in target economies". *Defence and Peace Economics* 29 (2): 171–189.

Hufbauer, G. C., J. J. Schott, K. A. Elliott, and B. Oegg, eds. 2009. *Economic sanctions reconsidered*. Third Edition. Washington: Peterson Institute.

Jing, C., W. H. Kaempfer, and A. D. Lowenberg. 2003. "Instrument choice and the effectiveness of international sanctions: A simultaneous equations approach". *Journal of Peace Research* 40 (5): 519–535.

Kholodilin, K. A., and A. Netšunajev. 2019. "Crimea and punishment: The impact of sanctions on Russian economy and economies of the Euro area". *Baltic Journal of Economics* 19 (1): 39–51.

Kirikakha, A., G. J. Felbermayr, C. Syropoulos, E. Yalcin, and Y. V. Yotov. 2021. "The Global Sanctions Data Base (GSDB): An update that includes the years of the Trump presidency". In van Bergeijk 2021, 62–106.

Lee, H., D. Lektzian, and G. Biglaiser. 2022. "The effects of economic sanctions on foreign asset expropriation". *Journal of Conflict Resolution*. Forthcoming.

Lektzian, D. J., and G. Biglaiser. 2013. "Investment, opportunity, and risk: Do US sanctions deter or encourage global investment?" *International Studies Quarterly* 57 (1): 65–78.

Lensink, R., and O. Morrissey. 2006. "Foreign direct investment: Flows, volatility, and the impact on growth". *Review of International Economics* 14 (3): 478–493.

Leon, G. 2014. "Loyalty for sale? Military spending and coups d'etat". *Public Choice* 159 (3/4): 363–383.

Malani, A., and J. Reif. 2015. "Interpreting pre-trends as anticipation: Impact on estimated treatment effects from tort reform". *Journal of Public Economics* 124:1–17.

Marinov, N. 2005. "Do economic sanctions destabilize country leaders?" *American Journal of Political Science* 49 (3): 564–576.

McLean, E. V., and T. Whang. 2021. "Economic sanctions and government spending adjustments: The case of disaster preparedness". *British Journal of Political Science* 51 (1): 394–411.

Mirkina, I. 2018. "FDI and sanctions: An empirical analysis of short- and long-run effects". *European Journal of Political Economy* 54:198–225.

Morgan, T. C., N. Bapat, and Y. Kobayashi. 2014. "Threat and imposition of economic sanctions 1945-2005: Updating the TIES dataset". *Conflict Management and Peace Science* 31 (5): 541–558.

Neuenkirch, M., and F. Neumeier. 2015. "The impact of UN and US economic sanctions on GDP growth". *European Journal of Political Economy* 40:110–125.

— . 2016. "The impact of US sanctions on poverty". *Journal of Development Economics* 121:110–119.

Nordhaus, W., J. R. Oneal, and B. Russett. 2012. "The effects of the international security environment on national military expenditures: A multicountry study". *International Organization* 66 (3): 491–513.

Peksen, D. 2016. "Economic sanctions and official ethnic discrimination in target countries, 1950-2003". *Defence and Peace Economics* 27 (4): 480–502.

— . 2019. “When do imposed economic sanctions work? A critical review of the sanctions effectiveness literature”. *Defence and Peace Economics* 30 (6): 635–647.

Peksen, D., and A. C. Drury. 2009. “Economic sanctions and political repression: Assessing the impact of coercive diplomacy on political freedoms”. *Human Rights Review* 10 (3): 393–411.

Peksen, D., and B. Son. 2015. “Economic coercion and currency crises in target countries”. *Journal of Peace Research* 52 (4): 448–462.

Peksen, D., and B. Woo. 2018. “Economic sanctions and the politics of IMF lending”. *International Interactions* 44 (4): 681–708.

Schmidheiny, K., and S. Siegloch. 2023. “On event studies and distributed-lags in two-way fixed effects models: Identification, equivalence, and generalization”. *Journal of Applied Econometrics*. Forthcoming.

Solow, R. M. 1956. “A contribution to the theory of economic growth”. *Quarterly Journal of Economics* 70 (1): 65–94.

Steinbach, A., J. Gutmann, M. Neuenkirch, and F. Neumeier. 2023. “Economic sanctions and human rights: Quantifying the legal proportionality principle”. *Harvard Human Rights Journal*. Forthcoming.

Swan, T. W. 1956. “Economic growth and capital accumulation”. *Economic Record* 32 (2): 334–361.

van Bergeijk, P. A., ed. 2021. *Research handbook on economic sanctions*. Cheltenham and Northampton: Edward Elgar.

Walentek, D., J. Broere, M. Cinelli, M. M. Dekker, and J. M. B. Haslbeck. 2021. “Success of economic sanctions threats: Coercion, information and commitment”. *International Interactions* 47 (3): 417–448.

Webb, C. 2020. “Re-examining the costs of sanctions and sanctions threats using stock market data”. *International Interactions* 46 (5): 749–777.

Weber, P. M., and G. Schneider. 2022. “Post-Cold War sanctioning by the EU, the UN, and the US: Introducing the EUSANCT dataset”. *Conflict Management and Peace Science* 39 (1): 97–114.

Whitten, G. D., and L. K. Williams. 2011. "Buttery guns and welfare hawks: The politics of defense spending in advanced industrial democracies". *American Journal of Political Science* 55 (1): 117–134.

Williams, K. 2021. "Do international sanctions reduce household and government consumption in developing countries?" *South African Journal of Economics* 89 (2): 196–217.

Wood, R. M. 2008. "'A hand upon the throat of the nation': Economic sanctions and state repression, 1976-2001". *International Studies Quarterly* 52 (3): 489–513.

Appendix A: Background on Dataset

Table A1: Variable Definitions and Sources

Log(GDP pc); **GDP pc Growth**. Natural logarithm of real GDP per capita in 2010 US dollars; growth rate of real GDP per capita. *Source*: World Bank.

Consumption pc Growth. Growth rate of final consumption expenditures per capita in 2010 US dollars. *Source*: World Bank.

Investment pc Growth; **Investment/GDP**. Growth rate of gross capital formation per capita in 2010 US dollars; investment to GDP ratio. *Source*: World Bank.

Gov. Exp. pc Growth. Growth rate of general government final consumption expenditures per capita in 2010 US dollars. *Source*: World Bank.

Log(FDI pc + 1). Natural logarithm of net inflows of foreign direct investment per capita (values < 0 are set to 0 in original series). *Source*: World Bank.

Log(ODA pc + 1). Natural logarithm of net official development assistance received per capita (values < 0 are set to 0 in original series). *Source*: World Bank.

Trade pc Growth; **Trade/GDP**. Growth rate of total trade (sum of exports and imports of goods and services) per capita in 2010 US dollars; trade openness. *Source*: World Bank.

Military Exp. %. Share of government expenditures spent on the military. *Source*: World Bank.

Population Growth. Growth rate of total population. *Source*: World Bank.

Human Rights. Latent human rights protection scores with higher values indicating a better protection. *Source*: Fariss (2019).

Polity2; **Democracy**. Democracy indicator that ranges from strongly democratic (+10) to strongly autocratic (−10); binary democracy indicator for polity2-scores between 6 and 10. *Source*: Polity5 Dataset.

Major Conflict; **Minor Conflict**. Armed conflicts resulting in at least 1,000 battle-related deaths in a given year; conflicts resulting in between 25 and 999 battle-related deaths. *Source*: UCDP/PRIO Armed Conflict Dataset (Gleditsch et al. 2002).

Sanctions. Binary indicator for country-years with sanctions in place. *Source*: Global Sanctions Data Base, Version 2 (Felbermayr et al. 2020a; Kirikakha et al. 2021).

Threats. Binary indicator for country-years with sanction threats in place but no actual sanctions. *Source*: TIES Dataset (Morgan et al. 2014) and EUSANCT (Weber and Schneider 2022).

Table A2: Descriptive Statistics

	All Observations		**No Sanctions**		**Threats**		**Sanctions**	
	Mean	N	Mean	N	Mean	N	Mean	N
GDP pc Growth	2.07	6137	2.08	4217	2.16	747	1.96	1173
Consumption pc Growth	2.13	5188	2.17	3451	2.25	705	1.90	1032
Investment pc Growth	3.85	5125	3.92	3390	3.20	705	4.08	1030
Gov. Exp. pc Growth	2.44	5045	2.47	3386	2.11	693	2.55	966
Military Exp. %	17.41	5386	16.62	3678	16.56	717	20.95	991
Log(FDI pc)	3.33	5517	3.34	3741	3.86	724	2.91	1052
Log(ODA pc)	2.95	4566	3.07	3079	2.63	473	2.74	1014
Trade pc Growth	4.13	5232	4.21	3477	4.19	711	3.83	1044
Lag[Log(GDP pc)]	8.18	6140	8.20	4217	8.78	747	7.71	1176
Lag(Population Growth)	1.77	6140	1.81	4217	1.48	747	1.83	1176
Lag(Investment/GDP)	23.14	6140	23.37	4217	23.60	747	22.01	1176
Lag(Trade/GDP)	68.98	6140	72.46	4217	63.48	747	60.02	1176
Human Rights	0.22	6140	0.46	4217	0.37	747	-0.70	1176
Polity2	2.14	6140	1.86	4217	5.71	747	0.89	1176
	X=1	N	X=1	N	X=1	N	X=1	N
Major Conflict	243	6140	91	4217	34	747	118	1176
Minor Conflict	809	6140	447	4217	89	747	273	1176
Demoracy	2944	6140	1998	4217	536	747	410	1176

Notes: Mean values and non-zero observations ($X = 1$) for all LHS variables and control variables. Columns '*N*' show the number of observations in the full dataset, without sanctions in place, with threats (but no sanctions) in place, and with sanctions in place. All macroeconomic variables (including the controls) are winsorized at the 2.5% and 97.5% percentile.

Table A3: List of Countries

Afghanistan (0/3), Albania (36/0), Algeria (43/12), Angola (13/3), Argentina (42/13), Armenia (26/0), Australia (55/0), Austria (45/1), Azerbaijan (15/11), Bahrain (36/0), Bangladesh (45/0), Belarus (9/17), Belgium (46/0), Benin (44/11), Bhutan (36/0), Bolivia (41/5), Botswana (51/0), Brazil (48/7), Bulgaria (25/11), Burkina Faso (55/0), Burundi (46/9), Cambodia (12/11), Cameroon (44/7), Canada (43/3), Cape Verde (9/0), Central African Republic (43/12), Chad (52/0), Chile (33/22), China (9/46), Colombia (37/18), Comoros (36/0), Congo (50/5), Costa Rica (39/16), Cote d'Ivoire (37/18), Croatia (15/6), Cuba (0/46), Cyprus (11/30), Czech Republic (25/1), Democratic Republic of Congo (0/22), Denmark (50/0), Dominican Republic (48/7), Ecuador (45/10), Egypt (46/9), El Salvador (42/9), Equatorial Guinea (11/0), Eritrea (10/10), Estonia (23/0), Ethiopia (5/0), Finland (46/0), France (32/23), Gabon (46/0), Gambia (38/12), Georgia (26/0), Germany (45/1), Ghana (48/0), Greece (45/10), Guatemala (23/32), Guinea (16/14), Guinea-Bissau (36/7), Guyana (51/0), Haiti (0/28), Honduras (53/2), Hungary (25/0), India (11/44), Indonesia (27/28), Iran (19/36), Iraq (0/9), Ireland (29/17), Israel (33/13), Italy (46/0), Jamaica (44/6), Japan (46/0), Jordan (36/4), Kazakhstan (24/0), Kenya (43/9), Kosovo (9/0), Kuwait (20/0), Kyrgyz Republic (26/0), Laos (16/5), Latvia (21/0), Lebanon (0/12), Lesotho (26/0), Liberia (0/16), Libya (0/10), Lithuania (21/0), Luxembourg (46/0), Macedonia (26/0), Madagascar (50/5), Malawi (48/5), Malaysia (55/0), Mali (42/2), Mauritania (51/4), Mauritius (40/0), Mexico (55/0), Moldova (7/14), Mongolia (35/0), Montenegro (11/0), Morocco (50/0), Mozambique (25/0), Myanmar (0/8), Namibia (27/0), Nepal (50/1), Netherlands (47/0), New Zealand (46/0), Nicaragua (38/17), Niger (47/8), Nigeria (14/21), Norway (46/0), Oman (48/0), Pakistan (27/28), Panama (51/4), Papua New Guinea (31/0), Paraguay (49/5), Peru (40/15), Philippines (40/15), Poland (21/0), Portugal (42/4), Qatar (16/0), Romania (20/6), Russia (23/4), Rwanda (38/17), Saudi Arabia (48/0), Senegal (51/0), Sierra Leone (22/14), Singapore (52/0), Slovak Republic (24/0), Slovenia (26/0), Solomon Islands (10/0), South Africa (19/36), South Korea (50/5), South Sudan (0/6), Spain (46/0), Sri Lanka (47/8), Sudan (16/28), Suriname (5/0), Swaziland (46/0), Sweden (52/3), Switzerland (46/0), Tajikistan (23/0), Tanzania (23/3), Thailand (47/8), Timor (15/0), Togo (30/25), Tunisia (45/6), Turkey (44/11), Turkmenistan (19/0), Uganda (34/0), Ukraine (22/3), United Arab Emirates (15/0), United Kingdom (46/0), United States (46/0), Uruguay (50/5), Uzbekistan (9/10), Venezuela (44/10), Vietnam (8/22), Yugoslavia/Serbia (0/21), Zambia (6/0), Zimbabwe (17/20).

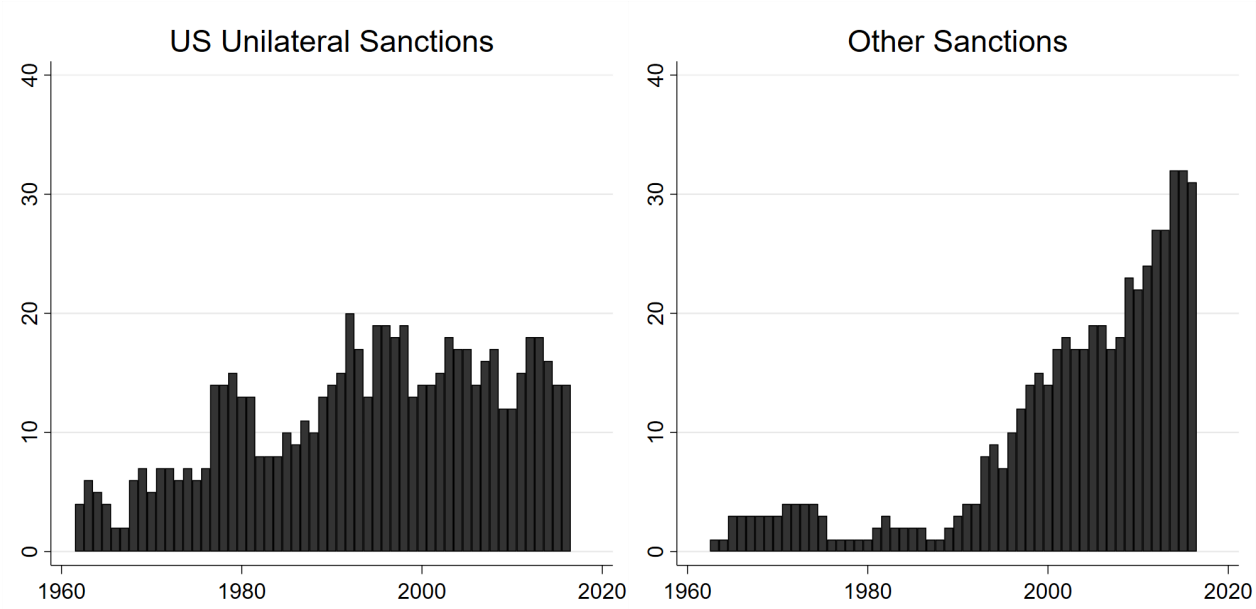
Notes: First figure in parentheses is the number of years for a country without sanctions in place. Second figure indicates the number of years with sanctions against that country.

Table A4: Frequency of Sanctions

Sanctions in General		**Sanctions over Time**	
No Sanctions or Threats	4217	Pre-Trend −3 Years	117
Sanction Threats	747	Pre-Trend −2 Years	118
Sanctions	1176	Pre-Trend −1 Year	127
Sanction Era		Sanctions Year 1	128
Cold War	324	Sanctions Year 2	115
After 1991	852	Sanctions Year 3	100
		Sanctions Year 4	80
Sanction Senders		Sanctions Year 5	71
US Unilateral Sanctions	655	Sanctions Year 6	59
Other Sanctons	521	Sanctions Year 7	48
		Sanctions Year 8	43
Sanction Types		Sanctions Year 9	42
Trade Sanctions	453	Sanctions Year 10	39
Arms / Military Sanctions	821	Sanctions Year 11+	451
Financial Sanctions	764		
Other Sanctions	355	Post-Trend +1 Year	101
		Post-Trend +2 Years	94
		Post-Trend +3 Years	88

Notes: Frequency of observations of the different sanctions indicators for which all control variables are available (see also Table A2). Total number of observations in the dataset: 6,140. Sanction types are non-disjunctive. The category "other sanctions" (521 observations) comprises UN sanctions where the US and the EU are by definition co-senders (220 observations), US & EU joint sanctions without a resolution by the UNSC (194 observations), and EU sanctions without the US (107 observations).

Figure A1: Frequency of Sanctions over Time



Notes: Number of non-zero observations for US unilateral sanctions and other sanctions per year in our sample (i.e., all control variables for a given country in a given year are available).

Appendix B: Results of Panel Difference-in-Differences Estimations

Table B1: Average Treatment Effects of International Sanctions

	GDP Gr.	Cons. Gr.	Inv. Gr.	Exp. Gr.	Milit. %	Log(FDI)	Log(ODA)	Trade Gr.
Lag[Log(GDP pc)]	−2.679**	−2.043**	−6.697**	−1.443*	−2.499	0.826**	−0.566**	−4.600**
	(0.415)	(0.422)	(1.405)	(0.710)	(1.805)	(0.115)	(0.123)	(0.676)
Lag(Population Growth)	−0.728**	−0.712**	−1.833**	−0.733*	0.452	−0.040	0.052	−1.019**
	(0.170)	(0.197)	(0.600)	(0.327)	(0.475)	(0.058)	(0.040)	(0.387)
Lag(Investment/GDP)	0.048**	0.068**	−0.566**	0.036	0.139*	0.020**	0.005	−0.025
	(0.017)	(0.020)	(0.058)	(0.028)	(0.060)	(0.006)	(0.005)	(0.035)
Lag(Trade/GDP)	0.016**	0.014*	0.067**	0.021*	−0.037*	0.002	0.002	−0.035**
	(0.005)	(0.007)	(0.021)	(0.009)	(0.015)	(0.002)	(0.002)	(0.013)
Human Rights	0.301*	0.256	0.961	0.335	−1.874**	0.180**	−0.036	0.449
	(0.138)	(0.160)	(0.525)	(0.267)	(0.492)	(0.058)	(0.047)	(0.291)
Polity2	−0.010	−0.037	−0.062	−0.063	−0.302**	−0.004	0.020*	−0.064
	(0.022)	(0.030)	(0.075)	(0.041)	(0.091)	(0.009)	(0.008)	(0.060)
Major Conflict	−2.161**	−1.504**	−4.305**	−0.160	3.449	−0.348**	−0.090	−2.839**
	(0.518)	(0.417)	(1.606)	(1.175)	(1.753)	(0.122)	(0.116)	(0.897)
Minor Conflict	−0.433	0.035	−0.669	0.884	1.538	−0.050	−0.090	−0.808
	(0.264)	(0.299)	(0.901)	(0.481)	(0.870)	(0.091)	(0.073)	(0.583)
No Sanctions or Threats	−0.146	−0.221	−0.144	−0.525	0.202	−0.075	0.147	−0.014
	(0.214)	(0.209)	(0.678)	(0.343)	(0.552)	(0.085)	(0.081)	(0.427)
Sanction Threats	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Sanctions	−0.526	−0.746*	−0.281	−0.829	2.132*	−0.268*	−0.034	−0.743
	(0.298)	(0.305)	(1.016)	(0.512)	(0.962)	(0.116)	(0.100)	(0.654)
Observations	6137	5188	5125	5045	5386	5517	4566	5232
Obs. w/ Sanctions	1173	1032	1030	966	991	1052	1014	1044

Notes: Estimates of Eq. (2) and different dependent variables. Standard errors (in parentheses) are clustered at the country level. Models contain country- and year-fixed effects. ** and * indicate significance at the 1% and 5% level.

Table B2: Average Effects During Different Eras

	GDP Gr.	**Cons. Gr.**	**Inv. Gr.**	**Exp. Gr.**	**Milit. %**	**Log(FDI)**	**Log(ODA)**	**Trade Gr.**
Lag[Log(GDP pc)]	−2.693**	−2.022**	−6.622**	−1.429*	−2.611	0.827**	−0.565**	−4.499**
	(0.384)	(0.425)	(1.431)	(0.711)	(1.792)	(0.114)	(0.123)	(0.682)
Lag(Population Growth)	−0.693**	−0.686**	−1.730**	−0.713*	0.330	−0.035	0.057	−0.929*
	(0.173)	(0.201)	(0.605)	(0.328)	(0.483)	(0.059)	(0.040)	(0.393)
Lag(Investment/GDP)	0.047**	0.068**	−0.568**	0.036	0.143*	0.020**	0.005	−0.025
	(0.017)	(0.020)	(0.058)	(0.028)	(0.059)	(0.006)	(0.005)	(0.035)
Lag(Trade/GDP)	0.016**	0.015*	0.070**	0.022*	−0.038*	0.002	0.002	−0.033*
	(0.005)	(0.007)	(0.022)	(0.009)	(0.015)	(0.002)	(0.002)	(0.013)
Human Rights	0.275	0.239	0.877	0.318	−1.786**	0.176**	−0.042	0.382
	(0.140)	(0.161)	(0.527)	(0.266)	(0.491)	(0.058)	(0.047)	(0.295)
Polity2	−0.009	−0.039	−0.068	−0.065	−0.294**	−0.004	0.021*	−0.067
	(0.022)	(0.029)	(0.075)	(0.041)	(0.090)	(0.009)	(0.008)	(0.060)
Major Conflict	−2.124**	−1.470**	−4.171**	−0.128	3.396*	−0.340**	−0.090	−2.757**
	(0.515)	(0.424)	(1.589)	(1.171)	(1.718)	(0.121)	(0.114)	(0.908)
Minor Conflict	−0.423	0.049	−0.671	0.883	1.587	−0.048	−0.091	−0.803
	(0.263)	(0.296)	(0.919)	(0.483)	(0.826)	(0.091)	(0.072)	(0.586)
No Sanctions or Threats	−0.183	−0.255	−0.264	−0.550	0.319	−0.081	0.136	−0.112
	(0.213)	(0.209)	(0.669)	(0.343)	(0.548)	(0.086)	(0.082)	(0.426)
Sanction Threats	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Sanctions (Cold War)	−1.395**	−1.456**	−2.980	−1.444	5.704**	−0.430*	−0.194	−2.900**
	(0.530)	(0.540)	(1.830)	(0.908)	(1.339)	(0.181)	(0.141)	(1.009)
Sanctions (After 1991)	−0.146	−0.454	0.868	−0.572	0.601	−0.211	0.030	0.228
	(0.339)	(0.309)	(1.092)	(0.488)	(0.988)	(0.128)	(0.106)	(0.756)
Observations	6137	5188	5125	5045	5386	5517	4566	5232
Obs. w/ Sanctions	1173	1032	1030	966	991	1052	1014	1044

Notes: Estimates of Eq. (2) and different dependent variables. Standard errors (in parentheses) are clustered at the country level. Models contain country- and year-fixed effects. ** and * indicate significance at the 1% and 5% level.

Table B3: Average Effects of Different Sanction Senders

	GDP Gr.	**Cons. Gr.**	**Inv. Gr.**	**Exp. Gr.**	**Milit. %**	**Log(FDI)**	**Log(ODA)**	**Trade Gr.**
Lag[Log(GDP pc)]	−2.680**	−2.040**	−6.663**	−1.451*	−2.383	0.827**	−0.561**	−4.560**
	(0.405)	(0.420)	(1.396)	(0.708)	(1.831)	(0.115)	(0.123)	(0.671)
Lag(Population Growth)	−0.722**	−0.711**	−1.811**	−0.736*	0.491	−0.039	0.054	−1.003**
	(0.169)	(0.197)	(0.600)	(0.327)	(0.480)	(0.059)	(0.039)	(0.384)
Lag(Investment/GDP)	0.047**	0.068**	−0.569**	0.036	0.137*	0.020**	0.005	−0.026
	(0.017)	(0.020)	(0.059)	(0.028)	(0.059)	(0.006)	(0.005)	(0.036)
Lag(Trade/GDP)	0.016**	0.014*	0.067**	0.021*	−0.037*	0.002	0.002	−0.035**
	(0.005)	(0.007)	(0.021)	(0.009)	(0.015)	(0.002)	(0.002)	(0.013)
Human Rights	0.308*	0.258	0.997	0.330	−1.826**	0.182**	−0.032	0.468
	(0.141)	(0.162)	(0.531)	(0.267)	(0.488)	(0.058)	(0.048)	(0.295)
Polity2	−0.010	−0.037	−0.066	−0.062	−0.310**	−0.004	0.020*	−0.065
	(0.022)	(0.030)	(0.075)	(0.041)	(0.092)	(0.009)	(0.008)	(0.060)
Major Conflict	−2.163**	−1.509**	−4.378**	−0.146	3.374	−0.348**	−0.088	−2.879**
	(0.516)	(0.415)	(1.598)	(1.177)	(1.745)	(0.121)	(0.114)	(0.908)
Minor Conflict	−0.438	0.029	−0.740	0.898	1.444	−0.051	−0.090	−0.842
	(0.264)	(0.301)	(0.908)	(0.481)	(0.865)	(0.091)	(0.072)	(0.587)
No Sanctions or Threats	−0.145	−0.220	−0.129	−0.529	0.237	−0.075	0.148	−0.008
	(0.214)	(0.210)	(0.677)	(0.343)	(0.546)	(0.085)	(0.081)	(0.426)
Sanction Threats	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
US Unilateral Sanctions	−0.650	−0.786**	−0.925	−0.710	1.195	−0.292*	−0.082	−1.084
	(0.330)	(0.285)	(1.062)	(0.580)	(1.191)	(0.127)	(0.106)	(0.683)
Other Sanctions	−0.325	−0.665	0.942	−1.056	3.791**	−0.231	0.045	−0.106
	(0.504)	(0.539)	(1.757)	(0.662)	(1.166)	(0.152)	(0.132)	(1.023)
Observations	6137	5188	5125	5045	5386	5517	4566	5232
Obs. w/ Sanctions	1173	1032	1030	966	991	1052	1014	1044

Notes: Estimates of Eq. (2) and different dependent variables. Standard errors (in parentheses) are clustered at the country level. Models contain country- and year-fixed effects. ** and * indicate significance at the 1% and 5% level.

Table B4: Average Effects of Different Sanction Types

	GDP Gr.	**Cons. Gr.**	**Inv. Gr.**	**Exp. Gr.**	**Milit. %**	**Log(FDI)**	**Log(ODA)**	**Trade Gr.**
Lag[Log(GDP pc)]	−2.856**	−2.130**	−6.815**	−1.547*	−2.255	0.810**	−0.584**	−4.654**
	(0.348)	(0.429)	(1.446)	(0.721)	(1.812)	(0.117)	(0.122)	(0.683)
Lag(Population Growth)	−0.734**	−0.720**	−1.845**	−0.747*	0.484	−0.044	0.049	−1.022**
	(0.168)	(0.197)	(0.604)	(0.324)	(0.476)	(0.058)	(0.040)	(0.385)
Lag(Investment/GDP)	0.047**	0.069**	−0.567**	0.036	0.135*	0.021**	0.005	−0.026
	(0.017)	(0.020)	(0.059)	(0.029)	(0.059)	(0.006)	(0.005)	(0.036)
Lag(Trade/GDP)	0.015**	0.014*	0.067**	0.021*	−0.037*	0.002	0.002	−0.035**
	(0.005)	(0.007)	(0.021)	(0.009)	(0.016)	(0.002)	(0.002)	(0.013)
Human Rights	0.285*	0.242	0.970	0.346	−1.846**	0.179**	−0.038	0.463
	(0.138)	(0.162)	(0.530)	(0.263)	(0.487)	(0.060)	(0.047)	(0.296)
Polity2	−0.009	−0.037	−0.062	−0.064	−0.305**	−0.003	0.020*	−0.064
	(0.022)	(0.030)	(0.075)	(0.041)	(0.092)	(0.009)	(0.008)	(0.059)
Major Conflict	−2.189**	−1.519**	−4.329**	−0.157	3.490*	−0.349**	−0.091	−2.875**
	(0.512)	(0.415)	(1.598)	(1.152)	(1.739)	(0.123)	(0.114)	(0.923)
Minor Conflict	−0.433	0.025	−0.701	0.863	1.532	−0.051	−0.086	−0.842
	(0.261)	(0.301)	(0.907)	(0.472)	(0.871)	(0.090)	(0.072)	(0.597)
No Sanctions or Threats	−0.214	−0.205	−0.142	−0.456	−0.056	−0.028	0.120	0.132
	(0.200)	(0.201)	(0.659)	(0.323)	(0.521)	(0.078)	(0.071)	(0.427)
Sanction Threats	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Arms / Military Sanctions	0.444	−0.266	0.217	−0.027	1.262	−0.127	0.125	0.045
	(0.452)	(0.348)	(1.297)	(0.591)	(1.178)	(0.138)	(0.108)	(0.760)
Financial Sanctions	−1.195**	−0.918*	−1.322	−1.290*	1.332	−0.162	−0.192	−1.270
	(0.333)	(0.378)	(1.159)	(0.606)	(1.076)	(0.126)	(0.104)	(0.697)
Trade Sanctions	−0.083	0.178	0.627	0.130	−0.868	0.013	−0.109	0.368
	(0.413)	(0.451)	(1.586)	(0.875)	(1.319)	(0.153)	(0.126)	(1.030)
Other Sanctions	−0.487	−0.122	1.302	0.477	1.428	−0.005	0.036	1.037
	(0.510)	(0.596)	(1.720)	(0.758)	(1.503)	(0.180)	(0.109)	(1.074)
Observations	6137	5188	5125	5045	5386	5517	4566	5232
Obs. w/ Sanctions	1173	1032	1030	966	991	1052	1014	1044

Notes: Estimates of Eq. (2) and different dependent variables. Standard errors (in parentheses) are clustered at the country level. Models contain country- and year-fixed effects. ** and * indicate significance at the 1% and 5% level. Sanction types are non-disjunctive.

Appendix C: Robustness Tests

Table C1: Results using SUR Estimation

	Model 1: Domestic Economic Activity			**Model 2: Public Sector**		**Model 3: International Transactions**		
	GDP Gr.	**Cons. Gr.**	**Inv. Gr.**	**Exp. Gr.**	**Milit. %**	**Log(FDI)**	**Log(ODA)**	**Trade Gr.**
No Sanctions or Threats	−0.307	−0.210	−0.219	−0.609	0.305	−0.056	0.031	0.728
	(0.165)	(0.204)	(0.684)	(0.330)	(0.274)	(0.059)	(0.034)	(0.600)
Sanction Threats	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Sanctions	−0.487*	−0.740**	−0.259	−1.083*	1.614**	−0.297**	−0.057	0.283
	(0.211)	(0.262)	(0.876)	(0.423)	(0.351)	(0.069)	(0.040)	(0.706)
Observations		5090			4640		3325	
Obs. w/ Sanctions		1011			861		813	
Test of Independence		$\chi^2(3) = 3259.2$**			$\chi^2(1) = 0.005$		$\chi^2(3) = 99.1$**	

Notes: Table shows estimates of Eq. (2) and different dependent variables using a seemingly unrelated estimation for three different groups: (i) GDP, consumption, and investment; (ii) government expenditure and the share of military expenditures; (iii) FDI, ODA, and trade. Standard errors are in parentheses. Models contain control variables, country-fixed effects, and year-fixed effects. ** and * indicate significance at the 1% and 5% level.

Table C2: Results Controlling for Russian Sanctions

	GDP Gr.	**Cons. Gr.**	**Inv. Gr.**	**Exp. Gr.**	**Milit. %**	**Log(FDI)**	**Log(ODA)**	**Trade Gr.**
No Sanctions or Threats	−0.142	−0.215	−0.138	−0.519	0.185	−0.073	0.146	−0.027
	(0.214)	(0.208)	(0.679)	(0.342)	(0.552)	(0.085)	(0.081)	(0.429)
Sanction Threats	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Sanctions	−0.514	−0.730*	−0.265	−0.812	2.091*	−0.262*	−0.034	−0.783
	(0.298)	(0.303)	(1.017)	(0.513)	(0.955)	(0.116)	(0.100)	(0.653)
RUS Sanct. (excl. UN)	−0.638	−0.783	−0.802	−0.841	2.534	−0.280	−0.035	2.038**
	(0.584)	(0.624)	(1.927)	(0.686)	(1.624)	(0.201)	(0.370)	(0.654)
Observations	6137	5188	5125	5045	5386	5517	4566	5232
Obs. w/ Sanctions	1173	1032	1030	966	991	1052	1014	1044
Obs. w/ RUS Sanctions	168	152	152	152	158	159	53	152

Notes: Table shows estimates of Eq. (2) and different dependent variables, controlling for Russian sanctions not enacted by the UNSC. Standard errors (in parentheses) are clustered at the country level. Models contain control variables, country-fixed effects, and year-fixed effects. ** and * indicate significance at the 1% and 5% level.

Table C3: Results using Entropy Balancing

Panel A: Panel Difference-in-Differences Estimations (w/o Threatened Observations)

	GDP Gr.	**Cons. Gr.**	**Inv. Gr.**	**Exp. Gr.**	**Milit. %**	**Log(FDI)**	**Log(ODA)**	**Trade Gr.**
Sanctions	−0.352	−0.547*	−0.283	−0.321	1.783	−0.190	−0.176*	−0.743
	(0.270)	(0.270)	(0.945)	(0.479)	(0.953)	(0.097)	(0.069)	(0.608)
Observations	5390	4483	4420	4352	4669	4793	4093	4521
Obs. w/ Sanctions	1173	1032	1030	966	991	1052	1014	1044

Panel B: Weighted Least Squares Estimations using Entropy Balancing

	GDP Gr.	**Cons. Gr.**	**Inv. Gr.**	**Exp. Gr.**	**Milit. %**	**Log(FDI)**	**Log(ODA)**	**Trade Gr.**
Sanctions	−0.369	−0.691*	−0.045	−0.390	1.748	−0.361**	−0.116	-0.775
	(0.298)	(0.313)	(0.946)	(0.458)	(1.033)	(0.101)	(0.066)	(0.744)
Observations	5390	4483	4420	4352	4669	4793	4093	4521
Obs. w/ Sanctions	1173	1032	1030	966	991	1052	1014	1044

Notes: Panel A shows estimates of Eq. (2) and different dependent variables using a sample without "threatened" observations. In Panel B, the estimates are the average treatment effect on the treated based on a weighted least squares regression. The weights are obtained by matching sanctioned and non-sanctioned observations using entropy balancing. Standard errors (in parentheses) are clustered at the country level. Models contain control variables, country-fixed effects, and year-fixed effects. ** and * indicate significance at the 1% and 5% level.