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The Economic Effects of International
Sanctions: An Event Study

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The Economic Effects of International Sanctions: An Event Study*

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The Economic Effects of International Sanctions: An Event Study

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.

JEL Codes: F43, F51, F52, F53, G28, K33, O19, O43, O47.

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) 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). 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 (Bělin 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; Peksen and Drury 2009; Wood 2008) as well as the health situation and life expectancy 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; 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; Gutmann et al. 2018). 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. 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 2020). 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 led to an increase in 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 in 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 an unprecedented data quality as well as time- and country-coverage (Felbermayr et al. 2020a; Kirilakha et al. 2021). This dataset features far more cases than any other sanctions database.

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 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 (2020) and complements it with standard panel difference-in-differences 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 Kirilakha 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.

2 Theoretical Considerations

To explain how sanctions affect economic activity, we start our argument from a simple Solow growth model. 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.

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

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

¹It 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).

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.

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). As it has been argued that democracies and nondemocracies 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? 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

²Escribà-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 2021).

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 assistance (ODA) suggests that they may decline already in response to sanction threats and in anticipation of the actual implementation of sanctions.

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

³Biglaiser 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.

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 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:

$$y_{i,t} = \beta_{no}D_{no,i,t} + \sum_{j=1}^3 \beta_{pre,-j}D_{pre,i,t-j} + \sum_{j=1}^{11+} \beta_{sanc,j}D_{sanc,i,tj} + \sum_{j=1}^3 \beta_{post,+j}D_{post,i,t+j} + \gamma X_{i,t} + \alpha_i + \tau_t + \epsilon_{i,t} \quad (1)$$

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 tar-

⁴A 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.

getting 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. $X_{i,t}$ is a vector of 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 difference-in-differences estimations based on the following specification:

$$y_{i,t} = \beta_{no}D_{no,i,t} + \sum_{s=1}^k \beta_{sanc}^s D_{sanc,i,t}^s + \gamma X_{i,t} + \alpha_i + \tau_t + \epsilon_{i,t} \quad (2)$$

$D_{no,i,t}$, $X_{i,t}$, 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

⁵Note 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.

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 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.

The choice of our control variables ($X_{i,t}$) 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 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. 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.

Our indicators for international sanctions come from the novel Global Sanctions Database (Felbermayr et al. 2020a; Kirilakha 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.⁷ The databases by Morgan et al. (2014) and Weber and Schneider (2020) 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

⁶For 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.

⁷The number of Chinese and Russian sanctions in the database is too small for a meaningful analysis.

or the leadership of an international organization or alliance proposes or threatens that the body adopt sanctions against the target.

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.⁸ Sanction threats (but no sanctions) were in place in 747 country-years. Tables A3 and A4 in Appendix A provide a detailed overview of the countries included in our dataset, the number of observations in each sanction category, as well as the pre- and post-event trend indicators.

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 difference-in-differences 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 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 based on the event study design and the panel difference-in-differences estimations. Still, one may object that there could be differences across countries in our treatment

⁸Eleven 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 .

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 an indicator that identifies country-years with sanction threats. Our results for this extension (available on request) also 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. Hence, we consider a causal interpretation of our findings presented in the following subsections justified.

4.2 Results for GDP growth and its main components

Figure 1 plots the coefficient estimates for the growth rate of GDP 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.⁹ The reference point 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.¹⁰ 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

⁹Note 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.

¹⁰Note 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).

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 significantly 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.

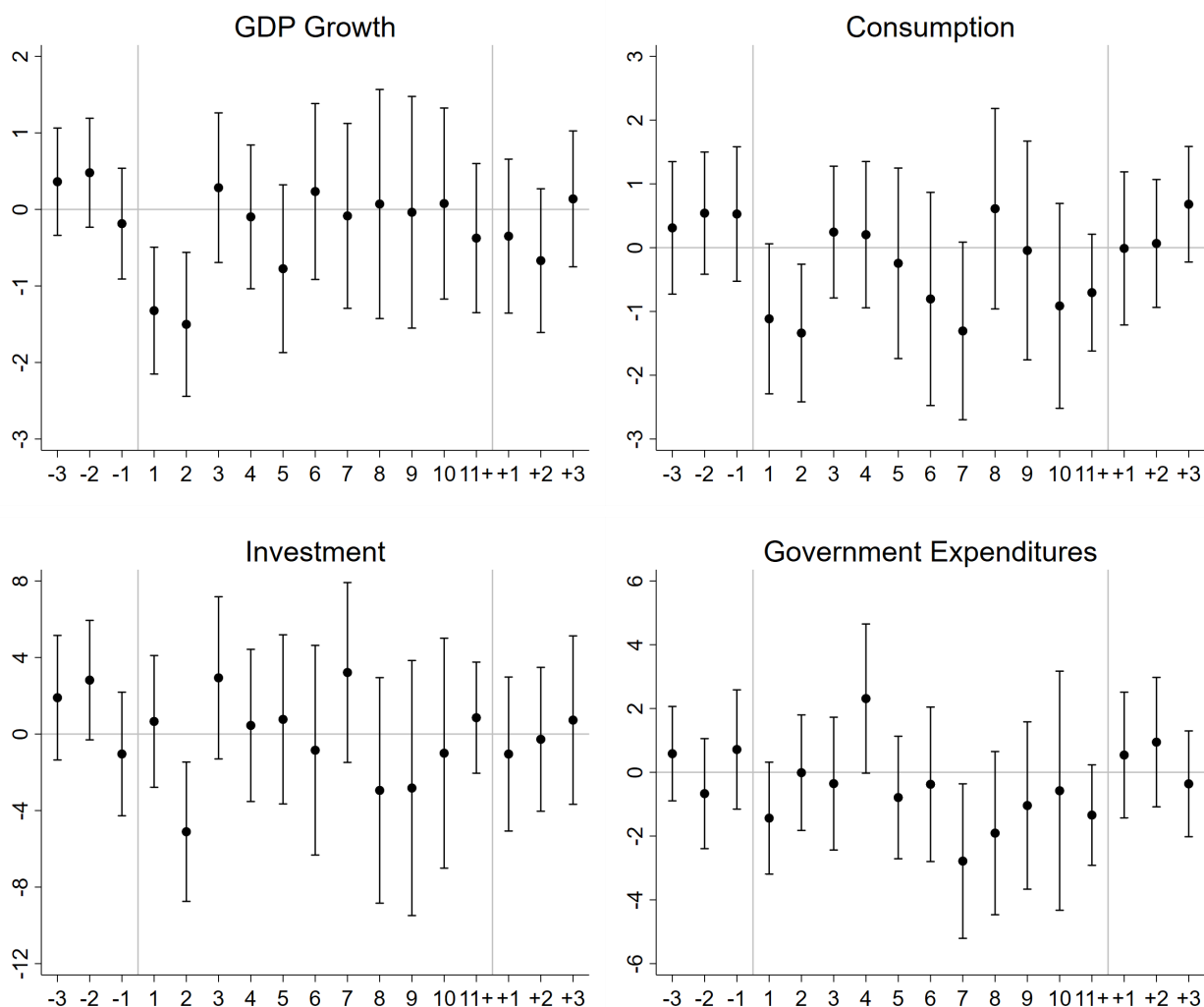
The effect pattern of sanctions on consumption growth, which constitutes the largest component of GDP, resembles that for GDP growth. Sanctions are detrimental to consumption during the second year (-1.34 pp) and — when applying 90% confidence bands — also during the first (-1.12 pp, p-value: 6.3%) and 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).¹¹ To put these numbers into perspective, one can again compare them to the effects of major conflicts (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.

Finally, sanctions do not lead to a clear-cut reduction in the growth rate of government expenditures. The only significant effect is found during 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).

¹¹Studying 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.

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



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

To sum up, we find that sanctions seem to harm economic growth via reducing domestic consumption and investment.¹² 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 hypothesis (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.¹³

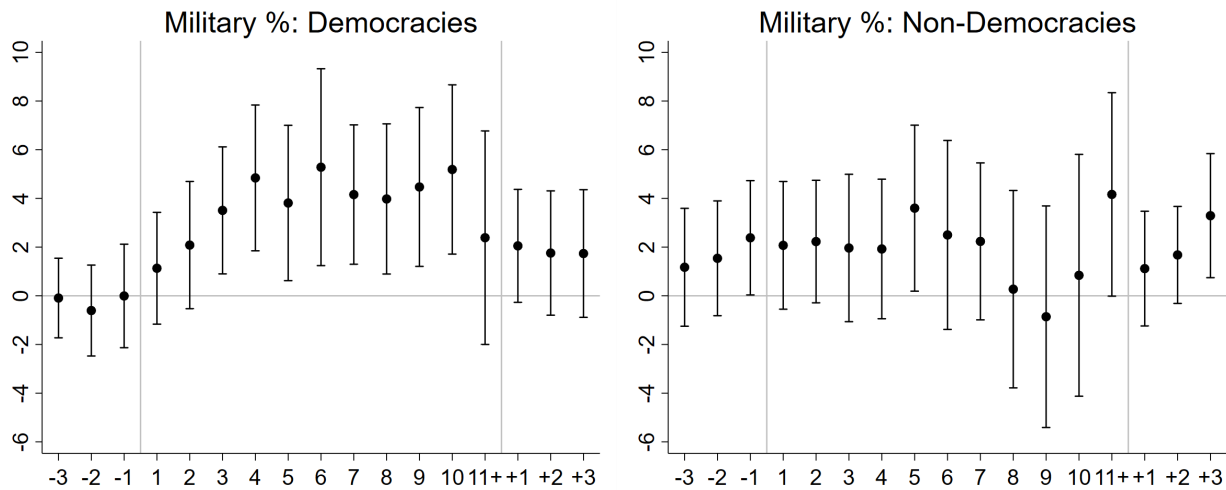
¹²Note that the results are robust to omitting country-fixed effects, year-fixed effects, or both.

¹³Note that our dataset includes only 27 country-years where sanctions have been lifted after one or two years, respectively. In an extension (results are 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 reasons¹⁴ 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: Figure shows the effects of international sanctions over time (1, 2, ..., 11+) alongside the pre-trend (-3, -2, -1) and the post-trend (+1, +2, +3). The dependent variable is the share of government expenditures spent on the military. The reference category is countries subject to sanction threats. 95% confidence bands are indicated by whiskers. Additional results of panel difference-in-differences 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

¹⁴For instance, the number of observations decreases to less than 3,000 if we analyze the effect of sanctions on governments' education expenditures.

non-democracies, we do not find convincing evidence that sanctions affect military spending. 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.

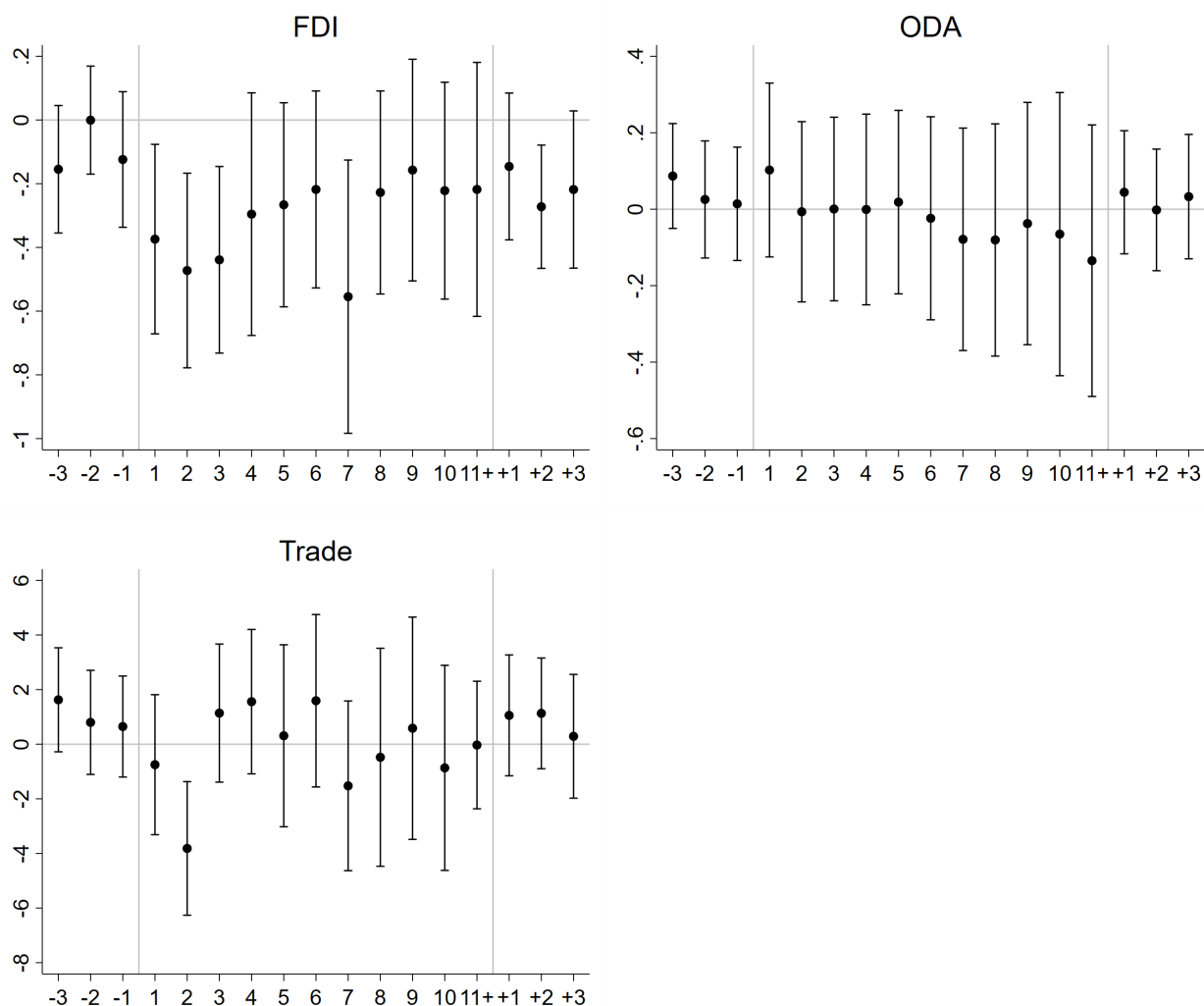
4.4 Results for cross-border transactions

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.

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.

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



Notes: Figure shows the effects of international sanctions over time (1, 2, ..., 11+) alongside the pre-trend (-3, -2, -1) and the 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). The reference category is countries subject to sanction threats. 95% confidence bands are indicated by whiskers. Additional results of panel difference-in-differences estimations can be found in Tables B1–B4 in Appendix B.

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 (results are 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.¹⁵

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.

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

¹⁵Most 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).

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 difference-in-differences 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 very difficult to evade. 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 pre-trends 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.

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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; Kirilakha 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 2020).

Table A2: Descriptive Statistics

	All Observations		No Sanctions		Sanctions	
	Mean	N	Mean	N	Mean	N
GDP pc Growth	2.07	6137	2.09	4964	1.96	1173
Consumption pc Growth	2.13	5188	2.19	4156	1.9	1032
Investment pc Growth	3.85	5125	3.79	4095	4.08	1030
Gov. Exp. pc Growth	2.44	5045	2.41	4079	2.55	966
Military Exp. %	17.41	5386	16.61	4395	20.95	991
Log(FDI pc)	3.33	5517	3.42	4465	2.91	1052
Log(ODA pc)	2.95	4566	3.01	3552	2.74	1014
Trade pc Growth	4.13	5232	4.2	4188	3.83	1044
Lag[Log(GDP pc)]	8.18	6140	8.29	4964	7.71	1176
Lag(Population Growth)	1.77	6140	1.76	4964	1.83	1176
Lag(Investment/GDP)	23.14	6140	23.41	4964	22.01	1176
Lag(Trade/GDP)	68.98	6140	71.11	4964	60.02	1176
Human Rights	0.22	6140	0.44	4964	-0.70	1176
Polity2	2.14	6140	2.43	4964	0.89	1176
	X = 1	N	X = 1	N	X = 1	N
Major Conflict	243	6140	125	4964	118	1176
Minor Conflict	809	6140	536	4964	273	1176
Democracy	2944	6140	2534	4964	410	1176

Notes: Table shows the means and non-zero observations ($X = 1$) for all left-hand side variables and control variables. Columns 'N' show the number of observations in the full dataset, without 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
Sanction Senders		Sanctions Year 4	80
US Unilateral Sanctions	655	Sanctions Year 5	71
Other Sanctions	521	Sanctions Year 6	59
Sanction Types		Sanctions Year 7	48
Trade Sanctions	453	Sanctions Year 8	43
Arms / Military Sanctions	821	Sanctions Year 9	42
Financial Sanctions	764	Sanctions Year 10	39
Other Sanctions	355	Sanctions Year 11+	451
		Post-Trend +1 Year	101
		Post-Trend +2 Years	94
		Post-Trend +3 Years	88

Notes: Table shows the frequency of observations of the different sanctions indicators for which all control variables are available (see also Table A2). Total number of observations in dataset: 6,140. Sanction types are non-disjunctive.

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

Notes: Table shows estimates of Eq. (2) and different dependent variables. Standard errors (in parentheses) are clustered at the country level. Models contain country-fixed effects and time-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** (0.384)	-2.022** (0.425)	-6.622** (1.431)	-1.429* (0.711)	-2.611 (1.792)	0.827** (0.114)	-0.565** (0.123)	-4.499** (0.682)
Lag(Population Growth)	-0.693** (0.173)	-0.686** (0.201)	-1.730** (0.605)	-0.713* (0.328)	0.330 (0.483)	-0.035 (0.059)	0.057 (0.040)	-0.929* (0.393)
Lag(Investment/GDP)	0.047** (0.017)	0.068** (0.020)	-0.568** (0.058)	0.036 (0.028)	0.143* (0.059)	0.020** (0.006)	0.005 (0.005)	-0.025 (0.035)
Lag(Trade/GDP)	0.016** (0.005)	0.015* (0.007)	0.070** (0.022)	0.022* (0.009)	-0.038* (0.015)	0.002 (0.002)	0.002 (0.002)	-0.033* (0.013)
Human Rights	0.275 (0.140)	0.239 (0.161)	0.877 (0.527)	0.318 (0.266)	-1.786** (0.491)	0.176** (0.058)	-0.042 (0.047)	0.382 (0.295)
Polity2	-0.009 (0.022)	-0.039 (0.029)	-0.068 (0.075)	-0.065 (0.041)	-0.294** (0.090)	-0.004 (0.009)	0.021* (0.008)	-0.067 (0.060)
Major Conflict	-2.124** (0.515)	-1.470** (0.424)	-4.171** (1.589)	-0.128 (1.171)	3.396* (1.718)	-0.340** (0.121)	-0.090 (0.114)	-2.757** (0.908)
Minor Conflict	-0.423 (0.263)	0.049 (0.296)	-0.671 (0.919)	0.883 (0.483)	1.587 (0.826)	-0.048 (0.091)	-0.091 (0.072)	-0.803 (0.586)
No Sanctions or Threats	-0.183 (0.213)	-0.255 (0.209)	-0.264 (0.669)	-0.550 (0.343)	0.319 (0.548)	-0.081 (0.086)	0.136 (0.082)	-0.112 (0.426)
Sanction Threats	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Sanctions (Cold War)	-1.395** (0.530)	-1.456** (0.540)	-2.980 (1.830)	-1.444 (0.908)	5.704** (1.339)	-0.430* (0.181)	-0.194 (0.141)	-2.900** (1.009)
Sanctions (After 1991)	-0.146 (0.339)	-0.454 (0.309)	0.868 (1.092)	-0.572 (0.488)	0.601 (0.988)	-0.211 (0.128)	0.030 (0.106)	0.228 (0.756)
Observations	6137	5188	5125	5045	5386	5517	4566	5232
Obs. w/ Sanctions	1173	1032	1030	966	991	1052	1014	1044

Notes: Table shows estimates of Eq. (2) and different dependent variables. Standard errors (in parentheses) are clustered at the country level. Models contain country-fixed effects and time-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** (0.405)	-2.040** (0.420)	-6.663** (1.396)	-1.451* (0.708)	-2.383 (1.831)	0.827** (0.115)	-0.561** (0.123)	-4.560** (0.671)
Lag(Population Growth)	-0.722** (0.169)	-0.711** (0.197)	-1.811** (0.600)	-0.736* (0.327)	0.491 (0.480)	-0.039 (0.059)	0.054 (0.039)	-1.003** (0.384)
Lag(Investment/GDP)	0.047** (0.017)	0.068** (0.020)	-0.569** (0.059)	0.036 (0.028)	0.137* (0.059)	0.020** (0.006)	0.005 (0.005)	-0.026 (0.036)
Lag(Trade/GDP)	0.016** (0.005)	0.014* (0.007)	0.067** (0.021)	0.021* (0.009)	-0.037* (0.015)	0.002 (0.002)	0.002 (0.002)	-0.035** (0.013)
Human Rights	0.308* (0.141)	0.258 (0.162)	0.997 (0.531)	0.330 (0.267)	-1.826** (0.488)	0.182** (0.058)	-0.032 (0.048)	0.468 (0.295)
Polity2	-0.010 (0.022)	-0.037 (0.030)	-0.066 (0.075)	-0.062 (0.041)	-0.310** (0.092)	-0.004 (0.009)	0.020* (0.008)	-0.065 (0.060)
Major Conflict	-2.163** (0.516)	-1.509** (0.415)	-4.378** (1.598)	-0.146 (1.177)	3.374 (1.745)	-0.348** (0.121)	-0.088 (0.114)	-2.879** (0.908)
Minor Conflict	-0.438 (0.264)	0.029 (0.301)	-0.740 (0.908)	0.898 (0.481)	1.444 (0.865)	-0.051 (0.091)	-0.090 (0.072)	-0.842 (0.587)
No Sanctions or Threats	-0.145 (0.214)	-0.220 (0.210)	-0.129 (0.677)	-0.529 (0.343)	0.237 (0.546)	-0.075 (0.085)	0.148 (0.081)	-0.008 (0.426)
Sanction Threats	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
US Unilateral Sanctions	-0.650 (0.330)	-0.786** (0.285)	-0.925 (1.062)	-0.710 (0.580)	1.195 (1.191)	-0.292* (0.127)	-0.082 (0.106)	-1.084 (0.683)
Other Sanctions	-0.325 (0.504)	-0.665 (0.539)	0.942 (1.757)	-1.056 (0.662)	3.791** (1.166)	-0.231 (0.152)	0.045 (0.132)	-0.106 (1.023)
Observations	6137	5188	5125	5045	5386	5517	4566	5232
Obs. w/ Sanctions	1173	1032	1030	966	991	1052	1014	1044

Notes: Table shows estimates of Eq. (2) and different dependent variables. Standard errors (in parentheses) are clustered at the country level. Models contain country-fixed effects and time-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** (0.348)	-2.130** (0.429)	-6.815** (1.446)	-1.547* (0.721)	-2.255 (1.812)	0.810** (0.117)	-0.584** (0.122)	-4.654** (0.683)
Lag(Population Growth)	-0.734** (0.168)	-0.720** (0.197)	-1.845** (0.604)	-0.747* (0.324)	0.484 (0.476)	-0.044 (0.058)	0.049 (0.040)	-1.022** (0.385)
Lag(Investment/GDP)	0.047** (0.017)	0.069** (0.020)	-0.567** (0.059)	0.036 (0.029)	0.135* (0.059)	0.021** (0.006)	0.005 (0.005)	-0.026 (0.036)
Lag(Trade/GDP)	0.015** (0.005)	0.014* (0.007)	0.067** (0.021)	0.021* (0.009)	-0.037* (0.016)	0.002 (0.002)	0.002 (0.002)	-0.035** (0.013)
Human Rights	0.285* (0.138)	0.242 (0.162)	0.970 (0.530)	0.346 (0.263)	-1.846** (0.487)	0.179** (0.060)	-0.038 (0.047)	0.463 (0.296)
Polity2	-0.009 (0.022)	-0.037 (0.030)	-0.062 (0.075)	-0.064 (0.041)	-0.305** (0.092)	-0.003 (0.009)	0.020* (0.008)	-0.064 (0.059)
Major Conflict	-2.189** (0.512)	-1.519** (0.415)	-4.329** (1.598)	-0.157 (1.152)	3.490* (1.739)	-0.349** (0.123)	-0.091 (0.114)	-2.875** (0.923)
Minor Conflict	-0.433 (0.261)	0.025 (0.301)	-0.701 (0.907)	0.863 (0.472)	1.532 (0.871)	-0.051 (0.090)	-0.086 (0.072)	-0.842 (0.597)
No Sanctions or Threats	-0.214 (0.200)	-0.205 (0.201)	-0.142 (0.659)	-0.456 (0.323)	-0.056 (0.521)	-0.028 (0.078)	0.120 (0.071)	0.132 (0.427)
Sanction Threats	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Arms / Military Sanctions	0.444 (0.452)	-0.266 (0.348)	0.217 (1.297)	-0.027 (0.591)	1.262 (1.178)	-0.127 (0.138)	0.125 (0.108)	0.045 (0.760)
Financial Sanctions	-1.195** (0.333)	-0.918* (0.378)	-1.322 (1.159)	-1.290* (0.606)	1.332 (1.076)	-0.162 (0.126)	-0.192 (0.104)	-1.270 (0.697)
Trade Sanctions	-0.083 (0.413)	0.178 (0.451)	0.627 (1.586)	0.130 (0.875)	-0.868 (1.319)	0.013 (0.153)	-0.109 (0.126)	0.368 (1.030)
Other Sanctions	-0.487 (0.510)	-0.122 (0.596)	1.302 (1.720)	0.477 (0.758)	1.428 (1.503)	-0.005 (0.180)	0.036 (0.109)	1.037 (1.074)
Observations	6137	5188	5125	5045	5386	5517	4566	5232
Obs. w/ Sanctions	1173	1032	1030	966	991	1052	1014	1044

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