



Article

Do economic sanctions impair target economies?

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Abstract

While the International Relations literature has long debated whether or not economic sanctions are an effective foreign policy tool, it neglects to empirically examine the damage sanctions impose on target economies. This study presents two theoretical explanations about the impact of sanctions on target countries' economies, and collects extensive empirical data to test such theoretical connections in three areas: international trade; foreign direct investment; and foreign portfolio investment. A cross-national, time-series data analysis of 133 countries during the period from 1970 to 2005 reveals that regardless of the number of senders, the type of sanctions or the level of anticipated costs to the target and the sender, economic coercion damages none of the economic conditions of the target. This finding suggests that if the objective is to maximize economic pain in the sanctioned country, a sanctioning country should think twice before choosing economic coercion as its primary non-military strategy.

Keywords

Economic sanctions, international trade, foreign direct investment, foreign portfolio investment

Introduction

The efficacy of economic sanctions as a tool of foreign policy is a controversial issue among scholars, policy makers, and journalists. Some contend that measures of economic coercion can damage the wealth of the target to the extent that rogue leaders will be forced to alter their undesirable foreign policy behavior (see Choi, 2014; Choi and Luo, 2013; Kaempfer and Lowenberg, 1988). In this context, economic coercion may serve as a substitute for, or a complement, to military coercion (see

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Galtung, 1967; Kaempfer and Lowenberg, 1988). Others call attention to the ineffectiveness of economic sanctions, asserting that because the demands of the sender are hard to meet, economic sanctions are destined to fail as a useful foreign policy tool (see Drury, 1998; Hufbauer et al., 2008; Kaempfer and Lowenberg, 1998).

While the debate about how economic sanctions affect the foreign policy behavior of the target continues, the current literature pays little attention to another critical issue: the degree of economic pain. The literature tends to discuss sanction effectiveness while neglecting to assess to what degree sanctions actually impair target economies. Of course, the assessment of economic hardships may be viewed as unnecessary if sanctions are imposed due largely to the target's political duplicity. Nonetheless, the issue is salient for those who try to better understand how sanctions affect the economic conditions of the target in the first place. The current empirical study is very much a first-cut analysis that examines the degree of economic damage inflicted on target countries. Accordingly, this research on economic pain marks a significant departure from previous studies whose main focus was whether sanctions are effective in changing the foreign policy behavior of rogue states. Of significant value is this study's introduction of state-of-the-art statistical models based on cross-national, time-series data as an effort to evaluate the impact of economic sanctions on three economic indicators of the target country: international trade; foreign direct investment (FDI); and foreign portfolio investment. This study also offers political and economic explanations of why economic sanctions are unlikely to damage target economies. Its data analysis of 133 countries for the years 1970–2005 shows that economic sanctions have no relation to these three economic activities of target countries, whether the sanctions are imposed by the US or a multilateral coalition, and whether the sanctions are embargo, financial, or severe cost type, etc. This means that economic sanctions as a primary non-military strategy will not likely lead to the intended severity of economic pains in the target country.

Literature review

By highlighting the importance of sanction severity as a causal factor, several previous studies have supported the argument for the effectiveness of economic sanctions. For example, Lektzian and Souva (2007: 850) maintain that 'if economic sanctions are severe enough, they will harm a target state's economy' (see also Bapat and Morgan, 2009; Drezner, 2000; Kaempfer and Lowenberg, 1998; Miers and Morgan, 2002; Peksen, 2009). Other factors considered to contribute to successful sanction outcomes include high economic costs to the target, regime type, issue salience, and sanction type (see Ang and Peksen, 2007; Bapat and Morgan, 2009; Drezner, 2000; Drury, 1998). Recent studies argue for the salience of smart sanctions, such as financial sanctions, travel bans, asset freezes, and arms embargoes, because researchers believe that sanctions are used as a means of persuasion rather than punishment so that the absolute level of economic costs may not matter as much as the costs in relation to demands in targeted areas (Drezner, 2011; Tostensen and Bull, 2002). Along this line, some studies examine how smart sanctions penalize a particular group of individuals, companies, and organizations within target countries, and ask which types of sanctions are most effective (e.g. Peksen, 2009; Wood, 2008).

However, studies of sanction ineffectiveness suggest that bans on trade, investment, and lending fall short of putting pressure on the political leadership of the target country. This contention has been confirmed consistently, whether a study examines one case (Galtung, 1967), several cases (Doxey, 1972), or multiple cases (Hufbauer et al., 2008). In particular, Morga et al. (2009) demonstrate that only 34 percent of all sanction episodes successfully achieve their set political goals. Whether their research program is similar to Morga et al. (2009) or takes a different route of inquiry (Drury, 1998), other studies also find that economic coercion is an ineffective foreign

policy tool (Morgan and Bapat, 2003; Whang, 2011). It is also worth noting that several recent reports by journalists raise serious doubts about the effectiveness of (smart) sanctions. For example, in relation to economic sanctions imposed on Russia following conflict in Crimea and Ukraine, *The Economist* (February 14, 2015) asserts that ‘by letting Russian-linked firms sidestep them through well-timed share transfers, the West may be weakening one of the most powerful tools it has in its dealings with Russia.’ In his *Washington Post* article, Adam Taylor (April 28, 2014) also points out the ineffectiveness of smart sanctions and claims that ‘the early assessment of these targeted sanctions is that they are quite useful in signaling displeasure and as tangible signs of support for international norms... Their utility in changing objectionable behavior is more questionable.’

The controversial nature of the sanction strategy has heightened scholarly interest in understanding the effect of sanctions on economic conditions such as the commerce and FDI of target countries. For example, several researchers have examined the relationship between sanctions and trade volume in the presence of third-party trade interaction with target countries (e.g. Drezner, 2000; Early, 2009). Three studies have specifically addressed the consequences of economic sanctions initiated by the US: the first being Caruso’s (2007) study exploring how US economic sanctions affect trade flows in target countries; and the second and third being the works of Biglaiser and Lektzian (2011) and Lektzian and Biglaiser (2013), which analyze the impact of US sanctions on US FDI inflows and global FDI, respectively. However, given their exclusive focus on the US, the generality of these studies may be called into question, although not belying their importance. Global studies are necessary to ascertain with certainty whether earlier findings apply more universally. More importantly, these studies, too, overlook the relationship between different types of sanctions and the increase or decrease in levels of economic activity in sanctioned countries.

Overall, most existing studies tend to identify whether or not sanction initiators achieve their foreign policy goals, but they rarely provide evidence for how much damage has been incurred in the sanctioned economies. The current study contends that it is difficult to connect the dots between sanctions and foreign policy outcomes without an appreciation of how sanctions actually affect the economic well-being of target countries; for this reason, it looks at several different categories of sanctions (e.g. US sanctions, multilateral sanctions, economic embargo, financial pressure, and severe cost sanctions) and links them directly to the performance of the target economy in three important areas: international trade; foreign direct investment; and foreign portfolio investment.

Economic sanctions and target economies

The following section offers economic and political perspectives on why sanctions are unlikely to hurt target economies.

Economic explanations of no economic pains

For sanctions to be effective, sanctioning countries should be capable of preventing the target from redirecting its economic transactions to other suppliers and markets. That is, the flexibility of capital, commodities, and the efficiency of world markets significantly impede the negative impact of sanctions on target economies. Kaempfer and Lowenberg (1992: 21) make a similar argument: ‘as long as both the demand for and the supply of internationally traded goods is sufficiently elastic, little economic hardship will be induced in the target country by sanctions.’ Gardner and Kimbrough (1990) also suggest that ‘in a world of homogeneous goods and commodities with high substitution elasticity, only a sender with more than half the productive capability of a certain good has the ability to influence the terms of trade’ (quoted in Drezner, 2000).

Although some studies claim that economic severity is not a necessary condition for the success of a sanction, the primary assumption of most existing studies is that target governments are likely to change their foreign policy behavior only when faced with high economic costs. Yet there are few power brokers capable of inflicting such high levels of economic damage to target countries (Drezner, 2000). Indeed, Hufbauer et al. (2008: 105) point out that 'costs to target countries averaging merely three percent of GNP may seem small.' Their study also maintains that sender countries are likely to yield to the demands of domestic trade groups and have limited capacities to keep the sanctioned country from seeking alternative economic resources. In the face of these political and economic obstacles, a sanctioning country may find it very difficult to continue to exert costs exceeding three percent of the target's gross national product (GNP).

In addition to limitations arising from the economic capacities of sanctioning and sanctioned countries, the behavior of businesses is another deciding factor in the success or failure of sanctions. Business firms are rational actors whose primary goal, even under the pressure of economic sanctions, is profit-seeking. Businesses are more concerned with their own corporate profits than with supporting the foreign policy objectives of sanctioning countries. As long as the target market is lucrative enough for trade and investment in the long run, even firms which originate from the sanctioning country have incentives not to abide by sanction laws. In fact, Morgan and Bapat (2003: 78) contend that 'if the national firm places a high value on its trade with the target state, the firm may choose to violate sanctions regardless of threats from the sender government.' Three detailed explanations are presented below as to why sanctions do not engender economic pain.

First, it is not easy for firms to quickly pull their assets or facilities out of a host country after they have already invested large amounts of FDI (Liu, 1997). Most FDI are mobile *ex ante*, but relatively immobile *ex post* (Vernon, 1971). It is costly to relocate or liquidate the investment if they have already invested larger amounts of production facilities in sanctioned countries (Jensen and McGillivray, 2005).¹ Thus, if profit-seeking firms do not consider the honoring of economic sanctions to be imperative, it is likely that they will act in accordance with their long-term expectations of the market potential in the host country. In other instances, foreign firms may attempt to renegotiate contracts when their bargaining leverage has improved instead of relinquishing these opportunities altogether (Gatignon and Anderson, 1988).

Second, when businesses from a sanctioning country withdraw from the market of the sanctioned country, opportunities are open for other firms. Sanctions are intended to cause economic disruption, as supplies of goods and services become increasingly scarce. This uncertainty of circumstances may increase public demand, thus drastically increasing commodity prices. What appears to be an economic challenge actually creates a favorable business environment for those foreign firms that did not previously have close economic ties with the sanctioned country. For example, when a country is placed under economic embargo, it can import daily necessities at higher prices through third-party countries. Lektzian and Biglaiser (2013) maintain that US-imposed sanctions produce a potential benefit to corporations from other countries because they force US firms to disinvest, thereby encouraging non-US firms to fill the vacuum. For example, when President Carter imposed a grain embargo against the Soviet Union in 1980 in retaliation for its military occupation of Afghanistan, it was unsuccessful due to the profit-seeking behavior of grain-exporting firms from non-sanctioning countries (Paarlberg, 2015). Thus, sanction measures fail to seriously disrupt the economy of the target country because business priorities undercut the efficacy of economic sanctions.

Third, it is believed that the overall amount of imports and exports by foreign firms is also unlikely to be affected by sanctions. Although the sender is capable of exiting its business firms from the target's market, alternative suppliers in the globalization of modern business will easily make up for the lost value of trade with the target (see Bapat and Kwon, 2015). Furthermore, profit-seeking firms are likely to follow their long-term expectations of the market potential in the

target rather than sanction imperatives. In the case of US economic sanctions on Iran, several American firms doing business with Iran actually refused to comply with US sanctions laws because of their enormous profits from Iran's oil field infrastructure (see Bapat and Kwon, 2015).

Political explanations of no economic pains

Because political leaders in sanctioned countries are usually able to manipulate national economic policy for the sake of political benefit, they can use their authority to increase trade volume even under economic sanctions and to entice foreign investment from other countries. Accordingly, the success of economic sanctions seems to be largely dependent on the ability of the target government to counterbalance the economic pressure imposed by sender countries. For example, when the US government tried to limit foreign aid, including economic and military assistance, to Panama and to freeze Panamanian assets in US banks in December 1987, Noriega successfully minimized the sanction shocks by reducing government spending by more than 50 percent, and by dramatically decreasing its investment spending in such things as infrastructure improvements and repairs. The US sanctions instead led to a business loss of US firms in Panama rather than punishing the Noriega regime (United States General Accounting Office, 1989). In the end, Noriega's ability to make such economic adjustments kept Panama surprisingly resilient.

An effective policy tool that can be utilized by political leaders in sanctioned states is tax incentives. Tactics such as lowering corporate income tax, property tax, and sales tax allow rogue leaders to incentivize foreign businesses and attract investment despite sanctions. Low tax rates are one of the key factors in explaining the location choices of multinational corporations (Schmenner, 1981). The mobility of factors of production and the price elasticity of demand for output help to explain the importance of this tax incentive. Although there is no definitive consensus on the connection between competitive tax incentives and economic performance, political leaders in sanctioned countries often utilize tax incentives in order to induce foreign investment and commercial exchange. Policy changes of this type diminish the effectiveness of economic sanctions.

Furthermore, domestic trading groups or political organizations may play a crucial role in sanction politics (Milner, 2002). Indeed, more than 50 percent of all world trade is currently conducted within regional trade arrangements such as the EU, NAFTA, ASEAN, APEC, and MERCOSUR (Serra et al., 1997). Intraregional trade flows trigger economic regionalism, which may make it difficult for sanctioning countries to inflict severe economic damage on the target country because political leaders are likely to turn to their trade bloc members when they are sanctioned by non-member countries, thereby preventing or minimizing economic hardships.

Of course, there are also a number of country-specific factors which may help sanctioned governments attract foreign investment and trade. This is possible because the decisions of multinational corporations to invest abroad (FDI) or to transfer goods and services across countries are often based on country-specific factors rather than the political influence of sanctioning countries (Jensen, 2003). Specifically, existing studies identify four key political factors that affect the investment decisions of these firms, and thus undercut the effectiveness of economic sanctions: (1) a country's regime type (Jensen, 2003; Li and Resnick, 2003); (2) policy change or leadership change (Choi and Samy, 2008; Tsebelis, 1995); (3) domestic political stability (Campos and Nugent, 2002); and (4) international disputes (Biglaiser and DeRouen, 2007). These features may work in favor of the leaders of sanctioned countries who are willing to utilize political resources to minimize sanction damages.

The discussion of economic and political explanations of sanction-induced pains above leads to the following hypothesis:

Hypothesis₁: Economic sanctions are unlikely to hurt target economies.

Research design

The hypothesis above deals with the relationship between sanctions and economic conditions across countries and time; for this reason, this study employs cross-national, time-series data analysis. It includes a set of all sanction cases occurring during the time period from 1970 to 2005,² giving a total of 133 developing countries in the sample data.³ Since international trade and foreign investment are deemed important indicators of economic conditions, this study uses these variables to evaluate the economic records of target countries following the imposition of sanctions. Specifically, three different economic measures as dependent variables are used: (1) terms of trade (measured as the percentage of the export unit value indexes to the import unit value indexes, measured relative to the base year 2000); (2) net FDI inflows (measured as the natural log of total inflows minus outflows of investment in millions of US dollars—these reflect the lasting management interest (10 percent or more of voting stock) of a foreign investor); and (3) foreign portfolio investment (measured as the natural log of the sum of portfolio net equity inflows and net bonds in millions of US dollars).⁴ While the sanction data are collected from the Threat and Imposition of Sanctions (TIES) data,⁵ economic indicators are garnered from the World Bank's (2012) *World Development Indicators* (WDI).

To ensure the robustness of this study's findings, the main independent variable—economic sanctions—is measured in several different ways. The data analysis includes an all sanctions variable as the first predictor, and then disaggregates the sanction variable into four different measures according to the number of senders: (1) US sanctions; (2) US case sanctions; (3) unilateral sanctions; and (4) multilateral sanctions.⁶ Since studies of smart sanctions underline who, within the target state, pays the cost of sanctions, three typical types of smart sanctions are also considered: (1) finance sanctions; (2) asset freezes; and (3) travel bans.⁷ This study creates four additional sanction variables related to the anticipated economic costs to the target country: (1) severe cost sanctions; (2) major cost sanctions; (3) minor cost sanctions; and (4) expected costs to the target. These four variables are introduced in order to gauge the potential differences between sincere sanctions and insincere ones. That is, foreign policy decision makers may sometimes expect that sanctions will not work, but use them anyway for political purposes; in this case, it is irrelevant whether or not sanctions are capable of causing significant damage to the target economy. It is believed that, compared to minor cost sanctions, severe cost sanctions are sincere and so should, in theory, inflict a certain degree of economic damage to a target economy. It is also expected that economic loss may occur when the target country anticipates high costs of noncompliance. That is, if the sender can mobilize its economic entities to halt their business transactions with the target, the anticipated costs to the sender are likely to increase upon the imposition of sanctions (Bapat and Kwon, 2015). Put differently, if the sender is able to implement very high cost sanctions, it may be seen that sanctions inflict severe damage in target economies. In order to measure the effect of anticipated economic costs to the sender country, two additional sanction variables are included: (a) major cost sanctions; and (b) minor cost sanctions.

The *all sanctions* variable is coded as 1 if any economic coercive measures are imposed on a country in a given year and as 0 otherwise. The other sanction variables are sub-types of *all sanctions*. They are also dichotomous measures that take the value of 1 if economic sanctions are, respectively, imposed by the US alone (*US sanctions*), placed by a coalition that includes the US (*US case sanctions*), initiated by any individual country (*unilateral sanctions*), or imposed by multiple countries including international organizations such as the UN and the EU (*multilateral sanctions*), and as 0 otherwise. This study also creates dichotomous measures for finance sanctions including a freeze of all assets and the termination or reduction of foreign aid and loans, for asset freezes which indicates a seizure of all assets of the target states within the sanctioning state(s)⁷

territory, and for travel bans indicating a restriction of travel of an individual, group, or citizenry of the target country to enter the territory of the sender(s). Related to the level of anticipated target economic costs, *severe cost sanctions* are recorded if evidence existed at the time of implementation that the sender's sanctions had the potential to halt the functioning of the target economy; *major cost sanctions* are recorded if evidence existed at the time of implementation that the sender's sanctions would pose significant macroeconomic challenges to the health of the target economy; *minor cost sanctions* are recorded if no evidence existed at the time of implementation to support the contention that the health of the target economy would be impaired by the sanctions. It should be noted that the compilers of the original TIES data collected these variables to capture the potential costs of sanctions regardless of whether or not a monetary figure was available. However, the modal outcome for this data is no sanctions being imposed or imposed for less than a year. In these cases, what matters are the expectations of future costs, not the actual costs to date; thus, in order to measure the expected costs with some degree of sophistication, this study uses the total annual cost as a percentage of the target's GNP. These data are gathered from Hufbauer et al.'s sanction data (2008). This study also uses a dichotomous variable according to the two different levels of severity—*major cost sanctions* and *minor cost sanctions*—to the sender, as operationalized with the target cost variables. Note that severe cost sanctions to the sender are not available in the TIES and Hufbauer et al.'s data collections. And also, no expected costs to the sender are used because the continuous measure is not available in the existing datasets.

In order to avoid omitted variable bias, this study includes eight control variables in its model: *democracy*; *regime durability*; *interstate war*; *civil war*; *economic size*; *economic development*; *economic growth*; and *population growth*. Regime type is an important factor that may affect the economic activity of a country. In particular, democratic political systems tend to enhance policy credibility, whether related to trade or foreign investment, by accommodating free trade, facilitating business-related regulations in a more efficient way, and protecting corporate property rights (Jensen, 2003; Li and Resnick, 2003). The *democracy* variable is a composite indicator of democratic institutions collected from Polity IV, ranging from -10 (most autocratic) to +10 (most democratic) (Marshall and Jaggers, 2007). It is expected that democracy is positively associated with trade, FDI, and portfolio flows. Previous studies also indicate that a stable institutional system is likely to improve economic performance (Przeworski and Limongi, 1993). To determine the effect of institutional stability on target economies, this study relies on a regime durability variable collected from Polity IV. It is operationalized as the number of years a country has gone without experiencing a regime change, which is measured as a three point shift in a country's Polity score for a given year (Marshall and Jaggers, 2007). It is expected that regime duration will be positively related to the performance of target economies.

Several studies maintain that an increased risk of international conflict or security issues creates an unfavorable economic environment, reducing flows of foreign capital and trade (e.g. Biglaiser and DeRouen, 2007; Souva and Prins, 2006). Thus, it is expected that a lower risk of interstate war will increase the rate of economic transactions. Likewise, the experience of civil war should have a negative impact on industry, as multinational corporations are less interested in doing business in conflict-prone countries (Li, 2006). Thus, both *interstate* and *civil war* should be negatively associated with the economic conditions of the target. The data for interstate and civil wars are garnered from the Armed Conflict Dataset of the International Peace Research Institute (PRIO) (Harbom et al., 2009). Both the interstate and civil war variables are coded as 1 if a country experienced an interstate war or a civil war with at least 25 battle-related deaths during the year, and as 0 otherwise.

In addition to the political factors discussed above, this study also controls for several economic factors. As Li and Resnick (2003: 192) point out, 'profit-maximizing foreign investors are attracted

to fast-growing economies to take advantage of future market opportunities.’ The *economic growth* variable captures how fast the target economy is growing. This variable is measured as the annual percentage change in GDP at market prices. Economic growth should attract more trade, FDI, and portfolio flows into the host countries. The *economic development* variable is measured by the natural log of real GDP per capita; this variable is projected to have a positive effect on the functioning of target economies. Since a larger market size should be conducive to the increase in economic performance, *economic size* is included in the model specification as the natural log of real GDP.⁸ A large population size may mean higher consumer demand for domestic products and services and a government that is more likely to focus on domestic rather than foreign markets; thus it is expected that *population growth* is negatively associated with trade and foreign capital. Data for these economic variables, which are in 2000 constant US dollars, comes from the World Bank’s *World Development Indicators* (2012). The descriptive summary statistics for each variable are presented in Table S1 (available at: ips.sagepub.com).

For hypothesis testing, this study employs panel corrected standard errors (PCSEs) with country-fixed effects. The diagnostic tests point to the presence of the first order correlation and heteroscedasticity in the cross-national, time-series data. As a result, PCSEs with AR(1) and robust error correction are an appropriate estimation method (Beck and Katz, 1995). This study considers country-fixed effects in order to capture the unique political and economic characteristics of each country; fixed-effects control for anything within a country that may impact or bias the predictor or outcome variables. All independent variables are lagged one year to assuage the concern of reverse causality. Because sanctions may create sustained effects on target economies over time, this study also conducts analyses by lagging and forwarding years of sanction imposition. That is, its models will include one-year and two-year forwarded sanction variables to see the *ex ante* impact of economic sanctions, the same year sanction variables to see the contemporaneous effect, and one-year and two-year lagged sanction variables to see the *ex post* impact of sanctions on trade, FDI, and portfolio flows.

Empirical results⁹

Table 1 shows how economic sanctions affect the economic records of target countries. Consistent with this study’s theoretical explanations, the results in Columns 1 through 3 indicate that the all sanctions variable has no significant effect on terms of trade, FDI, or portfolio flows.¹⁰ The coefficient on the all sanctions variable in Column 1 is not significantly different from zero, meaning that the imposition of economic sanctions has no bearing on trade activity in the target country. Furthermore, as shown in Columns 2 and 3, there is little evidence that sanction imposition has any impact on FDI inflows or portfolio investment. These findings indicate that economic coercion fails to cause any serious damage to target economies. Of the control variables, civil war, economic size, and economic development appear to be the most influential on the economic conditions of target countries.

Table S2 (available at: ips.sagepub.com) displays estimated results when sanctions are divided into four different subtypes: Columns 1 through 3 present the effect of US sanctions on the three economic indicators; Columns 4 through 6 show the results of US case sanctions; Columns 7 through 9 analyze the significance of unilateral sanctions; and Columns 10 through 12 pertain to multilateral sanctions. All of these variables (US, US case, unilateral, and multilateral sanctions) fail to achieve significance, indicating that none of these sanctions, regardless of the economic indicator, hinders the performance of target economies in a meaningful way.¹¹ It appears, then, that economic measures may not be the best non-military strategy for coercion if their main purpose is to impose economic hardships on the target country.

Table 1. The effect of all economic sanctions on macroeconomic performance, 1970–2005.

Variable	Panel corrected standard errors (PCSEs) with country-fixed effects		
	Trade	Foreign direct investment	Portfolio
All sanctions _{t-1}	0.278 (1.278)	0.007 (0.006)	0.028 (0.032)
Democracy _{t-1}	0.066 (0.199)	0.0002 (0.0005)	0.001 (0.004)
Regime durability _{t-1}	0.066 (0.081)	-0.00002 (0.0002)	0.0002 (0.001)
Interstate war _{t-1}	-0.808 (2.291)	-0.006 (0.011)	-0.004 (0.059)
Civil war _{t-1}	-4.721*** (1.681)	-0.009** (0.004)	0.0009 (0.022)
Economic size _{t-1}	-63.793*** (8.336)	0.050*** (0.017)	0.027 (0.046)
Economic development _{t-1}	71.910*** (10.907)	0.065*** (0.025)	0.048 (0.053)
Economic growth _{t-1}	-0.117 (0.076)	-0.0002 (0.0002)	-0.0001 (0.001)
Population growth _{t-1}	-0.026 (0.621)	-0.002 (0.002)	-0.003 (0.003)
Country fixed-effects		[suppressed]	
Constant	0 omitted	0 omitted	7.963*** (0.823)
Wald Chi ²	18218.71	1.52e+06	458.14
Prob > Chi ²	0.000	0.000	0.000
R ²	0.528	0.998	0.909
Observations	1978	3101	2150

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed tests.

Prais–Winsten regression with panel-corrected standard errors and AR(1) correction.

Controls for country-level fixed effects included but results suppressed; pairwise selection in the calculation of the PCSEs.

Numbers in parentheses are panels corrected standard errors.

Another set of empirical tests is conducted in order to evaluate the effects of three specific sanction policies—finance restriction, asset freezes, and travel bans. This analysis draws attention to the effects that smart sanctions may have on economic conditions in target countries. Smart sanctions are usually introduced to penalize the leaders of target countries without undermining the entire economy. However, because the results for smart sanctions in Table S3 (available at: <http://ips.sagepub.com>) are virtually the same as those for comprehensive sanctions in Table S2, the effectiveness of targeted sanctions is likewise called into question. The coefficients of the finance sanctions, asset freezes, and travel bans variables, it turns out, are not significantly different from zero, meaning that targeted sanctions are not necessarily an instrumental policy alternative to conventional sanctions.

Table S4 (available at: <http://ips.sagepub.com>) shows twelve statistical models that distinguish sincere sanctions from insincere ones according to the potential costs incurred by the target country:

(1) expected costs to the target; (2) severe cost sanctions; (3) major cost sanctions; and (4) minor cost sanctions. The results indicate that no sanction variables, including severe cost sanctions, emerge as significant predictors of the economic performance of the target country in a consistent manner.¹² Even when sanctioning countries intend to impose serious costs on the target it appears that the sanctions do not produce significant damage. Simply put, these types of economic sanctions, too, fail to impact the conditions of the target economy.

Table S5 (available at: <http://ips.sagepub.com>) displays the effect of anticipated sender economic costs on macroeconomic performance. Unfortunately, the overall results show no statistical evidence that the potential economic costs to the sender affect the health of the target's economy.

The results in Table 1 and the online Tables S2–S5 were obtained under the assumption that economic sanctions imposed at time $t-1$ would negatively affect target economies at time t . This assumption is now relaxed in order to explore the length of time a sanction may impose costs as well as how strongly they present themselves over time. It may be the case that the effects of sanctions can be seen not only in the year of imposition, but also in the previous and subsequent years. In this vein, Barber (1979) argues that when the constant pressure of economic sanctions is sustained over time, they become more effective. Accordingly, it is fair to posit that economic sanctions may prove more costly over time, generating an accumulation of economic damage in target countries, and thereby increasing pressure on rogue leaders to yield to the policy demands of sanctioning countries.¹³ This study tests this hypothesis by introducing the imposition of sanctions at times $t-2$, $t-1$, t , $t+1$, and $t+2$.

Table 2 displays the results of PCSEs models built to examine the impact of sanctions by sender type at five different time points. Even when time effects are taken into consideration, no supporting evidence was found for the connection between sanctions and any of the three economic indicators in a consistent manner. For example, multilateral sanctions have no relation to the economic conditions of target countries. While all sanctions, US sanctions, and unilateral sanctions are statistically significant at time $t+2$ with respect to FDI inflows, such a result is counterintuitive as a negative association between sanction variables and investment inflows was expected.

To check the robustness of these findings, this study also examines the impact of smart sanctions at the five time points on the economic performance of the target country. The results in Table S6 (available at: <http://ips.sagepub.com>) show that the negative effects of smart sanctions on target economies are almost nil. Table S7 (available at: <http://ips.sagepub.com>) displays the results with respect to the effects of expected, severe, major, and minor cost sanctions to the target; the results do not substantially deviate from those in Table S4 (available at: <http://ips.sagepub.com>). Although the time factor is considered here, it appears that sincere sanctions operationalized as severe cost sanctions are not sufficiently significant to hurt the targeted economies. Severe cost sanctions appear to have a significant and negative impact on FDI *only* at the time of the sanction imposition, and the effect of major cost sanctions does not last across the entire times that were examined. Interestingly, minor cost sanctions significantly and positively affect FDI inflows only for the time period $t-2$. When looking at the expected costs variable, no evidence was seen that the increasing costs in the target via the existing sanctions reduce terms of trade and distract foreign firms' investment decisions; expected costs exert a positive and significant effect on terms of trade at time $t+2$, and on FDI inflows at times $t-2$ and $t-1$. Table S8 (available at: <http://ips.sagepub.com>) displays the effect of anticipated sender economic costs and target economies, by sanction time. Again, the results show no significant impact over the five different time periods. In summary, this study demonstrates that sanctions exert no substantial dampening effect on target economic conditions, regardless of who is sending the sanctions and how much severe sanction costs it imposes to the target and the sender.

Table 2. Sender type and target economies, by sanction time.

		Sanction t-2	Sanction t-1	Sanction t	Sanction t+1	Sanction t+2
All sanctions	Trade	2.633* (1.404)	0.278 (1.278)	1.491 (1.283)	-0.990 (1.355)	1.253 (1.449)
	Foreign direct investment	0.017*** (0.006)	0.007 (0.006)	0.004 (0.005)	0.0005 (0.005)	0.009* (0.005)
	Portfolio investment	0.032 (0.037)	0.028 (0.032)	0.010 (0.032)	0.050 (0.031)	-0.027 (0.033)
US sanctions	Trade	1.686 (1.787)	0.081 (1.500)	1.813 (1.538)	-0.546 (1.594)	0.888 (1.632)
	Foreign direct investment	0.017* (0.009)	0.011 (0.007)	0.006 (0.007)	0.001 (0.007)	0.011 (N/A)
	Portfolio investment	0.035 (0.053)	0.036 (0.044)	0.021 (0.042)	0.070 (0.043)	-0.043 (0.044)
US case sanctions	Trade	1.043 (1.639)	-1.297 (1.452)	1.222 (1.425)	-0.340 (1.487)	0.966 (1.565)
	Foreign direct investment	0.009 (0.008)	0.007 (0.007)	0.0005 (0.006)	-0.001 (0.006)	0.012** (0.006)
	Portfolio investment	0.022 (0.043)	0.029 (0.037)	0.002 (0.036)	0.054 (0.035)	-0.035 (0.037)
Unilateral sanctions	Trade	2.869* (1.563)	0.698 (1.389)	2.288 (1.418)	-1.374 (1.503)	0.897 (1.559)
	Foreign direct investment	0.028*** (0.008)	0.010 (0.007)	0.007 (0.007)	-0.001 (0.007)	0.011 (N/A)
	Portfolio investment	0.047 (0.046)	0.033 (0.040)	0.019 (0.040)	0.062 (0.040)	-0.029 (0.043)
Multilateral sanctions	Trade	1.161 (1.619)	0.492 (1.807)	-0.894 (1.776)	-1.231 (1.816)	1.997 (2.002)
	Foreign direct investment	0.008 (0.009)	-0.007 (0.009)	0.002 (0.009)	0.005 (0.008)	0.008 (0.008)
	Portfolio investment	0.002 (0.049)	0.010 (0.046)	0.028 (0.044)	0.023 (0.046)	0.0002 (0.047)

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed tests. Prais–Winsten regression with panel-corrected standard errors and AR(1) correction; pairwise selection in the calculation of the panel corrected standard errors. Numbers in parentheses are panels corrected standard errors; N/A is panels corrected standard errors that are not reported because variance matrix is non-symmetric or highly singular.

Conclusion

Unlike previous studies of economic sanctions, the current study examines the effect of sanctions that could produce economic costs in the target, which is an understudied area in the sanction literature. Its empirical results show that, for the most part, sanctions fail to put significant stress on the economic conditions of target countries. This study's failure to find empirical evidence for the sanction and economic condition connection suggests that multinational corporations do not necessarily 'rally round the flag,' but instead conduct business as usual with sanctioned countries because they are profit-seeking entities rather than politically motivated organizations. More importantly, this study's results indicate that major sanctioning countries such as the US should think harder

about designing new sanction measures if they intend to use economic coercion as a foreign policy tool in place of military intervention, and if they seriously consider crippling the economic conditions of a target country.

Although this study's empirical analysis demonstrates that sanctions do not succeed in imposing an economic burden on the sanctioned countries, there are some existing studies that show successful sanction cases. How are these two seemingly contradictory findings to be reconciled? Compared to previous studies, the current research is more comprehensive and up-to-date in terms of the use of sanction types, economic indicators, sample countries and years. This study is also data-driven rather than a few cases-driven. The differences in the scope and methods may have produced the null results in this empirical study. However, it is worth noting that this study's findings are, in general, in line with the assessment of Hufbauer et al. (2008), one of the most authoritative works on economic sanctions. In their case book, *Economic Sanctions Reconsidered*, Hufbauer et al. find that only 13 cases out of more than 200 sets of sanctions since 1914 were instrumental in achieving the stated goals of the sender.

Although this study has put forward a few theoretical mechanisms (political and economic), it does not specifically test the effects of these causal mechanisms because they are not the main focus of this study. Future research should look at the direct impact of these individual theoretical claims. Given that this study's empirical analysis aims to show whether sanctions are related to the welfare of target economies rather than why it is the case, future research should explore the latter in detail. Further study could lead to an increased knowledge about sanction politics regarding the link between some of the theoretical claims and the empirical regularities.

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Notes

1. The cost of exit varies across industries.
2. The study period is determined by data availability such as sanctions and economic variables.
3. Appendix 1 (available at: <http://ips.sagepub.com>) shows a list of sample countries.
4. Given that economic pressures also inflict economic hardships on average citizens, this study tested their impact on individual suffering in terms of income inequality, inflation rate, and unemployment rate. The results do not show supporting evidence, so they are not reported here to save space.
5. This study also used Hufbauer et al.'s (2008) sanction episodes for empirical tests. Because the results are similar to those of the TIES data, they are not reported to save space.
6. The US sanctions variable is included in order to assess the unique position of the US as the economic hegemon.
7. See Tostensen and Bull (2002); Drezner (2011).
8. The correlation between economic size and economic development is 0.56, which is not close to the conventional threshold of 0.80 for collinearity (see Gujarati, 2003). When multicollinearity diagnostic tests such as variance inflation factors, R^2 statistic, and condition index were performed, no indication of severe multicollinearity among independent variables was found.
9. In order to avoid any possible bias emerging from outlying countries, this study has examined the residuals of each statistical model presented in the result tables. It was found that Russia is a potential outlier

for trade, China is for FDI, and South Africa is for portfolio. In this study's robustness tests, each of the three countries per model for re-estimation was dropped in order to make sure that there is no outlier bias in the data analysis. It was found that the re-estimated results are virtually the same as those reported in the study: sanctions produce no economic hardships on target economies.

10. Because the FDI and portfolio investment models explain much of the variability of the response data around its mean, their R^2 is higher than trade's. Note that R^2 is a statistical measure of how close the data are to the fitted regression line. Given the fact that the R^2 statistics are quite high across models, it is believed that all the models are well-specified. Time dummies in all the models were tested, but the results are very similar to those reported in the study: sanctions do not impair target economies.
11. It is believed that because multilateral sanctions involve some of the sample countries, but not all of them, those countries that are not part of multilateral sanction coalitions are presented with a good opportunity for a great deal, and thus they have enormous incentives to step in. As Kaempfer and Lowenberg (1998) point out, the price changes for commodities are more likely to occur rapidly under multilateral sanctions than under unilateral sanctions, thereby creating a great business opportunity for non-sanctioning countries. If the sender restricts the target's import activity, the import prices of products will increase above the world price in the target's domestic market. This will encourage firms from other non-sanctioning countries to step in to benefit from the increased commodity price in the target. Conversely, if the exports of the target country are restricted, exporting firms in the target will be willing to lower prices to keep existing customers and to even attract new ones, thereby increasing the opportunity for non-sanctioning countries to buy products in the target cheaply. In addition, rapid commodity price changes make it hard for multilateral coalitions to enforce cooperation among members, because they have an enormous incentive to deviate from the sanction effort to pursue their own economic benefits (Miers and Morgan, 2002). Models that include two differentiated sanction variables have also been tested: sanctions imposed by UN and by EU. The results indicate that neither UN nor EU sanctions have a significant effect on three economic indicators.
12. Interestingly, the coefficient for the expected costs of sanctions to the target shows a positive significance, indicating it is related to an increase, not decrease, of FDI inflows.
13. Multinational corporations run their own economic research institutes where they obtain up-to-date information on future political and economic risks of their investments or subscribe to outside economic think tanks. For example, Samsung owns the Samsung Economic Research Institute that employs more than 100 researchers who provide timely analyses on macroeconomic development, global issues, technology and industry trends, public policy, human resources, and management issues.

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