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Friends or Foes? Major Trading Partners and the Success of Economic Sanctions

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What is the relationship between international cooperation and the success of economic sanctions? Although it is commonly assumed that international cooperation is an important condition for the effectiveness of sanctions, empirical results have been mixed. We focus on the role of the sanctioned country's major trading partners and develop a theoretical model that shows how their actions can affect the probability of sanctions success by raising or decreasing resistance costs to the sanctioned country. We then derive hypotheses from the theoretical model and test them using fully structural estimation. The empirical results lend support to the theoretical expectation that the sanctioner is more likely to succeed if it has the support of the sanctioned country's major trading partners. We also find that international cooperation may be less crucial if sanctions are imposed by the sanctioned country's main trading partner because such sanctions have a higher probability of success.

What role does international cooperation play in the success of economic sanctions? A large body of sanctions literature has examined a variety of factors that contribute to the effectiveness of economic sanctions. Previous works have extensively explored sanctions costs to the sanctioning nation (that is, the sender) and/or the sanctioned nation (that is, the target), the impact of international organizations, trade linkages between the target and the sender, the target's stability, the length of the sanctions episode, the use of financial sanctions, and the levels of democracy in the sender and/or target nations (for example, Green 1983; Brady 1987; Hufbauer, Schott, and Elliott 1990; Miyagawa 1992; Alerassool 1993; Rowe 1993; Morgan and Schwebach 1995, 1997; Smith 1995; Dashti-Gibson, Davis, and Radcliff 1997; Drury 1998; Eaton and Engers 1999; Drezner 2000; Hart 2000; Nooruddin 2002; Lektzian and Souva 2003, 2007; Allen 2005). International cooperation has also been recognized as a factor important for the success of sanctions, but it has received less attention in the literature, and findings are mixed. Importantly, there is a striking disagreement between theoretical studies of international support for economic sanctions and their success, on one hand, and results of empirical analyses, on the other.

This article focuses- on the role of third states in shaping sanctions outcomes and addresses contradictory theoretical and empirical findings. We argue that the target's major trading partners can influence the probability of the target's

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compliance with the demands of the sender state. Our research builds on the extant economic sanctions literature discussing international cooperation as a necessary and/or sufficient condition for sanctions to achieve their goals. Martin (1993) emphasizes that without a sufficiently high level of international cooperation with the sanctioning state, the impact of economic sanctions is not profound, which undermines the sanctioner's ability to secure policy concessions from the target. Similarly, Elliott (1998) argues that globalization of economic exchanges increases the difficulty of making sanctions work. Globalization brings about a greater flexibility for the targeted state as it can turn to alternative suppliers of goods and services and send its exports to alternative markets—a potential sanctioner has to take into account its target's ability to utilize these outside options. The sanctioner can afford to disregard these alternative economic opportunities available to the target state only when the latter heavily depends on the sender for trade and, consequently, the sender is able to impose severe and immediate economic hardship on its target.

The relationship between the success of economic sanctions and international cooperation finds additional supporting evidence in a new branch of sanctions literature. Studies of targeted sanctions, that is, sanctions that focus on ''the system more narrowly, blocking weapons and military supplies without preventing civilian trade'' (Lopez and Cortright 2004:100), emphasize the dependence of sanctions effectiveness on the sender state's ability to impose economic isolation on its adversary (see, for instance, Wallensteen, Staibano, and Eriksson 2003; Biersteker 2004). Lopez and Cortright (2004) believe that international support for targeted sanctions is usually strong because these sanctions resolve the normative controversy regarding the civilian and humanitarian costs of economic sanctions. Thus, targeted sanctions work as an effective way to generate international consensus around the use of more humane coercive instruments; yet, it is the resulting cooperation of third countries that is the major cause of sanctions success.

Empirical studies yield mixed evidence for the hypothesized positive relationship between the level of international cooperation and the effectiveness of economic sanctions. Previous research shows that successful sanctions are associated with the lowest levels of cooperation among sanctioners (Hufbauer et al. 1990; van Bergeijk 1994; Bonetti 1998; Drezner 1999). Drezner (2000) attributes this finding to the lack of support from an international organization: multilateral sanctions without institutionalized support are plagued by bargaining and enforcement problems, which reduce the probability of sanctions success. Conversely, when multilateral measures do have such institutionalized backing, they are more effective than unilateral sanctions (see also Drury 1998).

Our approach differs from these theoretical and empirical studies in an important way. We distinguish two facets of international cooperation, that is, cooperation with the sanctioned state versus cooperation with the state imposing economic sanctions. Previous research focuses on third countries' restrictions on their trade with the target as an indicator of international cooperation. Although we agree that third countries' support for the sender is expressed in the form of decreasing trade exchanges with the target, we contend that *increasing* trade is also an indicator of international cooperation—cooperation with the target state. We treat these two different scenarios as parts of the same international cooperation continuum, and our main finding is that international support for economic sanctions is not the only factor that influences their effectiveness—international assistance to the target is an equally important success determinant.

This article proceeds as follows- The next section lays out the theoretical foundation for analyzing the impact of international cooperation on economic sanctions. We then derive a strategic discrete choice model consistent with the

structural assumptions of our theoretical model. After solving for equilibrium conditions, we describe our data. Following that, we present and discuss our empirical findings that confirm and gauge the impact that international cooperation has on the sanctioner's ability to force the target state into compliance. The final section concludes by identifying promising areas for future research.

Theoretical Model

We focus on the target's major trading partners because of the magnitude of their economic leverage over the target. Greater trade flows create greater economic vulnerability, and enable major trading partners to play a critical role during sanctions. Once the sender state employs sanctions, the target's trading partners face competing incentives that shape the decision to side with the target or support the sender. On one hand, economic sanctions may open a window of opportunity for trading partners that choose not to support the sender: they can reap economic gains from sanctions by increasing exports to or imports from the target while the sender and its supporters limit their trade exchanges with the target. If major trading partners increase their volume of trade with the target, or if there are ''black knight'' states that compensate for the economic losses imposed by the sender, sanctions are unlikely to be effective. On the other hand, the target's major trading partners may prefer to support sanctions. The decision to sever trade ties with the target may stem from the similarity in policy preferences of the trading partners and the sender state: the trading partners may wish to reverse the target's policy that they strongly oppose. In addition, the trading partners may choose to support the sender's coercive effort owing to their close relationship with the sender. Although we remain agnostic about which set of incentives prevails in each sanctions episode and for each country with significant trade links to the target, we argue that the target's major trading partners can influence the probability of sanctions success through their decision to cooperate with the sender or to support the target (Figure 1).

As states typically have significant trade links with more than one partner, we choose not to model third states as a strategic unitary actor involved in a given sanctions episode. Instead, the third state's influence on sanctions effectiveness can be analyzed in terms of economic costs borne by the sanctioned state. This approach mirrors the traditional way of thinking about the sender's actions and their ramifications for the target. As economic sanctions are restrictions imposed by the sender on trade relationships with the target with the goal of achieving certain political ends, such measures are in essence an economic form of ''cost imposition in international disputes'' (Morgan and Schwebach 1997:33). Although the use of sanctions is quite painless for most sanctioning countries, especially if compared with the deployment of military force (Baldwin 1999),[1] sanctions costs to target states can be prohibitively high. As a result, the target may be willing to comply on a certain policy issue in exchange for lifting costly restrictions on trade with the sender.

Third countries that have important trade relationships with the target can increase compliance incentives or make deadlock (DL) more attractive by altering the target's resistance costs. Third countries may choose to allow goods from

[1] Sanctions costs to the sender—measured as the difference between the sender's pre-sanctions and post-sanctions trade, divided by the sender's gross domestic product (GDP) in the pre-sanctions year—are on average less than 1% of GDP. Therefore, the cost of sanctions to the sender is in general very low, in particular when compared with the cost of military coercion. One could argue that our cost measure excludes the symbolic aspects of sanctions. Although we recognize the importance of the symbolic effects (see, for instance, Whang [2010b] for an analysis of domestic symbolic use of sanctions), we focus on the material costs of sanctions. Our operationalization of third-party support captures how much trading partners exploit economic opportunities opened by sanctions and is based on material measures, that is, trade statistics.

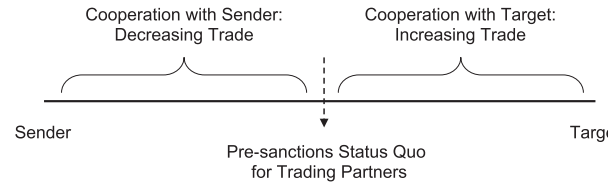

Fig 1. Two Facets of International Cooperation

the targeted state to be sold in their domestic markets or offer their own goods and services as a replacement for reduced imports from the sender state. These actions can weaken or even completely undermine the sender's efforts because the costs to the target will be lowered and its compliance will become less likely. If, on the contrary, major trading partners cooperate with the sender and limit their trade with the target, they impose additional economic costs on the target and, consequently, induce compliance in cases when sanctions without international support would have failed.

We study the effect of international cooperation on sanctions success using a stylized two-country game of economic sanctions. Figure 2 displays the structure of the game. In this strategic choice model, one country (the sender) demands concessions from another country (the target) on a certain policy issue. The sender begins the game by deciding whether to employ economic sanctions or to accept the status quo (SQ). If the sender accepts the SQ, this choice eliminates the need for the target to determine its course of action, that is, it can continue implementing its controversial policy without any penalty. This outcome gives the target country its highest possible payoff. The sender does not receive any concessions, but does not bear any costs either.[2] If the sender chooses to impose sanctions, the target moves next. The target state has two options: it can cooperate with the sanctioner by giving up its policy (CD: concede), which will allow the target to avoid a costly confrontation with the sanctioner. Otherwise, the target finds itself in a DL situation, in which the sanctioner prevails with probability p. In addition to the possibility of losing the conflict and being forced into compliance, the target also pays the cost of economic sanctions (K_T). The target's DL payoff is then $p \cdot 0 + (1-p) \cdot 1-K_T = (1-p)-K_T$. The sender receives its highest payoff when the target concedes because the sender's demands are satisfied without the risk of a standoff. In the case of the target's resistance, the sender

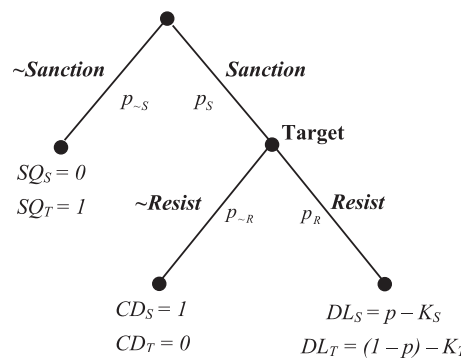

Fig 2. Game Tree of Underlying Sanctions Model

(*Notes.* X_{SQ_S} = {Constant, Issue salience}; X_{CD_S} = {Constant}; X_{DL_S} = {Sender democracy, Sender cost}; X_{DL_T} = {Constant, Capability ratio, Target democracy, Black knights, Top5 cooperation (or Top1 cooperation), Sender trade status}.)

[2] From the SQ outcome, the sender gets its payoff $SQ_S = 0$, whereas the target receives $SQ_T = 1$.

wins with probability p, but it also bears the cost of the economic confrontation with the target (K_S). Thus, the sender receives $p \cdot 1 + (1-p) \cdot 0 - K_S = p - K_S$ in the DL situation.

As the target's major trading partners[3] are not modeled as a third actor in this game, we assume that the impact of their actions filters through sanctions costs to the target. Therefore, K_T is a function of international assistance to the target. Table 1 displays the effect of costs on sanctions outcomes. When the sender restricts its trade relationship with the target, other countries can use this opportunity to benefit from increased trade exchanges with the sanctioned state. If the target's largest trading partners offer the target alternative markets for its exports and substitute the sender's reduced imports with the trading partners' goods and services, the punishment becomes less severe, that is, K_T is reduced. If, however, the target's trading partners choose to cooperate with the sender and close their markets to the target, the costs of sanctions are magnified, possibly surpassing the costs that a single sender could impose on the target and making the sanctioned state more likely to choose compliance rather than resistance at its decision node. As a result of the third country influence, it may become rational for the target to acquiesce (that is, the acquiescence condition $p \geq 1 - K_T$ is satisfied). In that case, instead of observing an SQ or a DL situation, we expect successful sanctions. Only when the sender is the target's largest trading partner, international cooperation with the sanctions may play a less important role. In this case, the sender can impose significant economic losses on the target state regardless of the level of support from other countries.

International assistance to the target may come not only from the third countries that exchange the largest volumes of goods and services with the target before sanctions are imposed, but also from less significant trading partners that can strengthen their economic links with the target during sanctions and thus can help to ease the pressure of economic sanctions. For such countries (so-called ''black knights''), economic sanctions present a lucrative opportunity that they may be quick to exploit: for instance, sanctions can allow companies from third countries to enter a market previously dominated by companies of the sender country. Even well-coordinated economic sanctions may be more likely to fail if too many black knights interfere and significantly lower the target's costs from economic sanctions.

The actions of the sender and target and the sanctions outcomes summarized in Table 1 also depend on the assessment of the sender's ability to prevail in the conflict between the two countries (p). This parameter can be operationalized as the capability ratio of the two countries, and determines which country is more likely to win in a DL. Note that the DL outcome only occurs when $p < 1 - K_T$ and $p \geq K_S$, that is, sanctions costs are sufficiently low relative to the expected gains from the conflict. When costs are high, DLs do not occur for one of the following reasons: The sender may choose not to use sanctions when the probability that the sender will win in a DL is too low and, therefore, the target is expected to resist successfully. Alternatively, the target may prefer to offer concessions rather than find itself in a costly standoff.

Table 1. Effect of Costs on Outcomes

Target's concessions condition	*Sender's sanctions condition*	*Equilibrium outcome*
$p \geq 1 - K_T$	For all $p \in [0, 1]$	CD
$p < 1 - K_T$	$p \geq K_S$	DL
$p < 1 - K_T$	$p < K_S$	SQ

[3] Note that the sender is excluded from this group of states even if it accounts for a large share of the target's foreign trade.

We formulate the following testable hypotheses based on the theoretical argument:

Hypothesis 1: *Economic sanctions should be less likely to succeed when the target's largest trading partners increase their trade with the target after sanctions initiation.*

Hypothesis 2: *As the number of black knights increases, the target should be less likely to concede.*

Hypothesis 3: *Economic sanctions should be more likely to succeed if they are imposed by the target's largest trading partner.*

Econometric Representation of the Underlying Theoretical Model

To test the hypotheses derived from the theoretical discrete choice model, we use a fully structural estimation based on the equilibrium probabilities of the sanctions game (Signorino 1999, 2003; Smith 1999; Lewis and Schultz 2003; Sartori 2003; Wand 2006; Bas, Signorino, and Walker 2008; Esarey, Mukherjee, and Moore 2008; Whang 2010a). Our statistical model incorporates the strategic interaction between the country imposing economic sanctions and the target of economic coercion. The benefit of this approach is that when the countries' payoffs are inferred directly from their choices, rather than from outcomes, the analysis gives a better understanding of the micro-level causal mechanisms that generated the observed outcomes. Clearly specified causal links indicate what factors affect each country's payoffs and how changes in the payoffs shape sanctions outcomes.

The main advantage of using fully structural estimation to test hypotheses regarding interdependent choices is that this method internalizes the mechanism that generated the data. The decision structure of our theoretical model assumes a specific sequence of actions; therefore, the choices made by the countries send the game down specific paths, which lead to some sanctions outcomes, but not others. Standard techniques such as multinomial logit or any of its variants do not reflect the basic structure of the sanctions game, and hence are vulnerable to misspecification problems, which may make inferences based on such techniques invalid (Signorino and Yilmaz 2003). A strategic statistical model, on the other hand, is consistent with the strategic interaction story as the functional relationship of the dependent and independent variables is derived directly from the underlying theory.

In general, fully structural estimation takes the following steps: First, we construct an underlying game-theoretic model, where players, a sequence of actions, outcomes, payoffs, and an information structure are well defined. The previous section developed such a model. Second, we solve for the equilibrium conditions of the strategic model, finding the equilibrium probability of each outcome in the game. Third, assuming that observable (mean) payoffs are a linear combination of explanatory variables, we assign regressors for each payoff. Fourth, we construct a log-likelihood function based on these payoffs and outcome probabilities. Finally, we estimate regression coefficients that best explain the data, that is, maximize the log-likelihood function.

Figure 3 depicts the same strategic situation as in the underlying theoretical model, but now uncertainty—defined as payoff perturbations—is added to each utility, and the resulting utility is then expressed as a linear function of regressors. Panel (a) of Figure 3 displays the theoretical model of sanctions with uncertainty regarding utilities. We assume that all true utilities of the countries consist of observable (mean) components and private components (ε), where

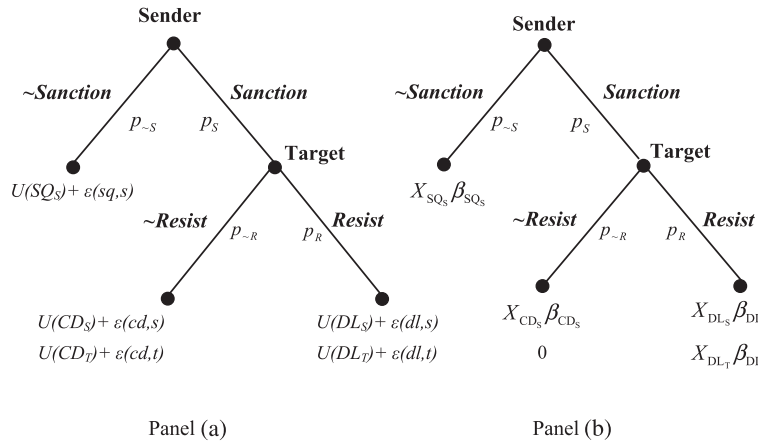

FIG 3. Econometric Representation of the Underlying Theoretical Model
(*Notes*. Panel (a) displays the theoretical model of economic sanctions with uncertainty regarding utilities. We assume that the players' true utilities consist of observable [mean] components and private components (ε), where all ε's are distributed normally with mean zero. Then, panel (b) rewrites the observable components of the utilities as linear combinations of covariates. For simplification, we drop the private components (ε). Restrictions apply owing to identification problems. X_{SQ_S} = {Constant, Issue salience}; X_{CD_S} = {Constant}; X_{DL_S} = {Sender democracy, Sender cost}; X_{DL_T} = {Constant, Capability ratio, Target democracy, Black knights, Top5 cooperation (or Top1 cooperation), Sender trade status}.)

the ε's are independently and identically distributed $N(0, \sigma^2)$. For instance, the sender's true utility for the SQ is: $U(\mathrm{SQ_S}) + \varepsilon(\mathrm{sq}, s)$, where $U(\mathrm{SQ_S})$ is the observable mean component and $\varepsilon(\mathrm{sq}, s)$ is the unobservable stochastic component.[4]

Given this setup and the assumption that both the sender and target make decisions that maximize their true utilities, we can derive equilibrium probabilities of the actions and outcomes of the sanctions game. To derive the action probabilities, let P_S denote the equilibrium probability that the sender imposes sanctions and P_R the equilibrium probability that the target resists the sender's demands after the sanctions are imposed. Then

$$P_R = \Phi\left[\frac{U(DL_T) - U(CD_T)}{\sqrt{2\sigma^2}}\right],$$

$$P_S = \Phi\left[\frac{P_R \cdot U(DL_S) + P_{\sim R} \cdot U(CD_S) - U(SQ_S)}{\sqrt{\sigma^2(P_R^2 + P_{\sim R}^2 + 1)}}\right],$$

where $\Phi(\cdot)$ denotes the standard normal cumulative density function, $P_{\sim\mathrm{S}} = 1 - P_\mathrm{S}$, and $P_{\sim\mathrm{R}} = 1 - P_{\sim\mathrm{R}}$. Finally, the equilibrium probability of each outcome is calculated as the product of the action probabilities along the corresponding path of the game tree:

$$P_{SQ} = p_{\sim\mathrm{S}},$$
$$P_{CD} = p_\mathrm{S} p_{\sim\mathrm{R}},$$
$$P_{DL} = p_\mathrm{S} p_\mathrm{R}.$$

Panel (b) of Figure 3 shows an empirical specification of the utilities, with the observable components of the utilities rewritten as a linear combination of

[4] In the empirical analysis we normalize the variance terms to 1, that is, $\sigma^2 = 1$.

covariates. For instance, the sender's utility for accepting the SQ is equal to $U(\mathrm{SQ_S}) + \varepsilon(\mathrm{sq}, s) = X_{\mathrm{SQ_S}}\beta_{\mathrm{SQ_S}} + \varepsilon(\mathrm{sq}, s)$. To simplify, we drop the private components (ε) from the figure.[5] Based on the equilibrium probabilities of the sanctions outcomes, outcome variables, and the specification of the utilities in terms of explanatory variables, we construct a log-likelihood function:

$$\ln L = \sum_{i=1}^{N} \left[y_{SQ,i} \ln P_{SQ,i} + y_{CD,i} \ln P_{CD,i} + y_{DL,i} \ln P_{DL,i} \right],$$

where $y_{\mathrm{SQ},i}, y_{\mathrm{CD},i}$, and $y_{\mathrm{DL},i}$ are binary outcome variables for SQ, CD, and DL, respectively. We use maximum likelihood estimation (MLE) to find the coefficients that maximize this log-likelihood function.

Data and Variables

The unit of analysis is a sanctions episode. The basic data set has 106 observations with sanctions initiation years ranging from 1948 to 1992 and is based on various sources.[6] To test our hypotheses, we created variables measuring the level of international support in each sanctions episode. For these data, we drew on the Direction of Trade Statistics data set of the International Monetary Fund (IMF 2009).

Outcome Variables

The binary outcome variables represent three mutually exclusive final outcomes: SQ, CD, and DL.[7] First, for the cases when sanctions are imposed and when two outcomes (CD and DL) are possible, we rely on the success coding from Hufbauer et al. (1990). If Hufbauer et al.'s success score is greater than or equal to 9, the outcome is coded as CD. The remaining cases are labeled as DL outcomes, in accordance with the underlying theoretical model.[8]

Second, to avoid selection bias, we include cases with SQ outcomes, that is, cases in which sanctions were not imposed. Almost all recent empirical studies of economic sanctions emphasize the importance of taking into account the sender's strategic choice of sanctions initiation when evaluating sanctions success, and consequently call into doubt the pessimistic view expressed in previous research regarding the effectiveness of economic sanctions as a foreign policy tool. Strategic selection issues have been addressed in a variety of ways. For example, Marinov (2005) uses a model with fixed effects picking up the ''average instability'' of each target country's government. Nooruddin (2002) estimates a censored probit model to show the strategic relationship between sanctions imposition and sanctions outcomes. Drezner (2003) expands the definition of sanctions to include cases of economic coercion with economic purposes (for

[5] Restrictions are applied owing to identification problems. For example, the target's utility from offering concessions is normalized to 0. Also, the constant term is excluded from the sender's utility for the DL outcome. There is no loss of generality as a result of these restrictions. For a detailed discussion, see Lewis and Schultz (2003).

[6] Although we primarily rely on the sanctions data from Hufbauer et al. (1990), we also check the works of Kaempfer and Lowenberg (1988), Miyagawa (1992), Drezner (1999), and O'Sullivan (2003) to make sure that we do not miss any cases. As a result of the paucity of data available for measures of international trade and other variables, we include only the cases in which the sender is a member of the UN Security Council or the G8 to control for the sender's characteristics.

[7] Note that the target's payoff for the SQ has no effect on the action probabilities P_{S} and P_{R}. Thus, we do not estimate the SQ payoff for the target.

[8] In three cases (US sanctions against Grenada in 1983, Panama in 1987, and Haiti in 1991), outcomes were almost completely determined by military interventions launched shortly after sanctions initiation. Hufbauer et al.'s coding, especially the contribution score, seems to be inconsistent in these cases. Rather than follow this coding, we treat these cases as DL outcomes because we believe that the targets would have never complied without the US military actions.

example, Section 301), thereby avoiding the omission of a whole category of sanctions. Drury (2001), exploring the determinants of US sanctions initiation, randomly selects non-sanctioned countries as the control group.

We follow the main thrust of Drury's approach with some modifications. We identified cases, in which we could reasonably infer that the sender country's leadership considered the use of economic sanctions as a real possibility. Thus, the population of sanctions episodes consists of cases in which the sender actually imposed sanctions, as well as cases in which the sender chose not to resort to this measure. In the Militarized Interstate Disputes (MIDs) data set, hostility level and action codes provide information that helps to determine whether the sender leaders may have actually considered the use of sanctions.[9] We choose only those cases in which the hostility level is less than or equal to 2, that is, sanctions were not officially imposed but there were ongoing disputes with the use of lower-level foreign policy instruments.[10] As a result of this process, we identify and add to our data set six observations with SQ outcomes.

Independent Variables

Regressors are assigned to each country's payoffs. Besides the payoffs on which we impose restrictions (the sender's SQ utility and the target's CD utility), the mean payoffs of each outcome are assumed to be linear combinations of regressors. We select independent variables that are not only systematically associated with the outcomes but also crucial in testing our hypotheses. Figure 3 shows the extensive form game with payoffs specified in terms of regressors. Just like the functional form specifications of the utility equations, the assignment of the regressors to the payoffs is justified by the underlying theoretical model. Our assignment decisions are based on the characterization of the utilities as described in the theoretical section. The DL payoffs of the sender and the target consist of two terms: the objective probability of prevailing in the conflict (p) and the cost of sanctions (K). That is, $DL_S = p - K_S$ and $DL_T = (1 - p) - K_T$. We assign several variables that measure p and K to the sender's and target's DL utilities. In addition, as the DL utility depends on the normalization of the sender's gain and the target's loss as a result of the target's concessions to 1 and 0, respectively, we include a measure of issue salience (*Issue salience*) in the sender's SQ payoff to get a better sense of the effect of variation in the magnitude of gains and losses at stake in each sanctions episode. The following is a description of each regressor that we used and the relevant payoffs that the regressor corresponds to.

Issue salience represents the salience of the sender's demand. For issue salience data, we rely on the policy objective measure of Hufbauer et al. (1990). This measure is divided into five categories: minor policy change, destabilization, major policy change, impairment of military potential, and disruption of military adventure. Because the inclusion of all categories would significantly increase the number of parameters to be estimated, we replace the policy objective measure with a binary variable. Thus, *Issue salience* is coded as 0 if the sender's demand concerns a minor policy change (for example, greater respect for human rights) and 1 if a salient issue is at stake (for example, territorial concessions or removal of the target leader). This regressor is included in the sender's SQ payoff because we believe that the sanctioner should be more likely to

[9] Jones, Bremer, and Singer (1996).

[10] As the definition of sanctions does not include the use of economic coercion for purely economic purposes (for instance, to exert pressure in a trade dispute), the MIDs or the data from the International Crisis Behavior Project can be used for such sampling.

impose sanctions if it deals with a salient issue. We expect this variable to have a negative effect on the sender's SQ payoff.

Sender democracy and *Target democracy* are indicators of the sender's and target's regime types.[11] We use the democracy score of the Polity IV data set (Gurr 2000). Previous research suggests that democratic states, in particular democratic target states where leaders can lose office as a result of continued hardship caused to their domestic constituencies by stalemated economic conflicts, should be more willing to avoid DL (Nooruddin 2002; Lektzian and Souva 2003, 2007). *Sender democracy* is included in the sender's DL payoff, and *Target democracy* is included in the target's DL payoff. We expect these variables to have negative relationships with their respective DL payoffs.

Capability ratio is a variable constructed using the Correlates of War project data (Singer and Small 1995) and measured as the natural logarithm of the ratio of the sender's capability index to that of the target. This regressor represents the probability of prevailing in a conflict (p). We include *Capability ratio* in both the sender's and the target's DL payoffs to control for the possibility that the states take into account their relative capabilities that may determine how a DL situation will be resolved. As *Capability ratio* increases, that is, the sender becomes more powerful relative to the target, we expect the sender's DL payoff to increase, whereas the target's DL utility should decline.

Sender cost measures the sender's trade dependence on the target. We use the sum of the sender's pre-sanctions exports to the target and imports from the target, divided by the sender's GDP.[12] The regressor appears in the specification of the sender's DL payoff as a measure of the sender's cost associated with the DL outcome (that is, a measure of K_S). We anticipate that this variable will have a negative relationship with the sender's DL payoff because a deadlocked economic conflict leads to greater losses for the sender with a higher degree of trade dependence on the target.

Using the IMF's Direction of Trade Statistics data set,[13] we created four explanatory variables indicating the level of international support for economic sanctions and the sender's need for such support: *Top5 cooperation*, *Top1 cooperation*, *Black knights*, and *Sender trade status*. These variables, we argue, affect the cost term, K_T, which enters the target's utility when the target rejects the sender's demands. Therefore, we include these regressors in the target's DL payoff.

Top5 cooperation is a variable that captures international cooperation during a sanctions episode. Unlike previous studies that rely on an ordinal measure of international cooperation (for example, Hufbauer et al. 1990; Drezner 2000; Nooruddin 2002) or a dummy variable indicating international support or its absence (for example, Martin 1993), we construct a continuous variable that captures the degree of third-state assistance to the sender or to the target. To measure international cooperation as a determinant of sanctions success, we focus on the role of existing and possible trading partners of the target state before and after sanctions, because the extent to which the target receives their support plays a critical role in deciding the outcomes of sanctions. For example, it would be misleading to infer a high level of cooperation when co-sanctioners support sanctions but these countries have no significant economic relationship with the target prior to and during sanctions. Given this possibility, we develop alternative measures of international cooperation—continuous variables that reflect changes in the total volume of trade between the target and five of its largest

[11] To create a measure that ranges from −1 to 1, we divided the democracy score by 10.

[12] We multiply each observation by 100.

[13] As we use data on overt trade exchanges that are easily observed and measured by outsiders, such as the IMF, the scope of our economic variables is restricted to formal markets.

pre-sanctions trading partners (excluding the sender, if it happens to satisfy this criterion). *Top5 cooperation* was created by dividing the mean value of the target's total trade volume with these countries during the sanctions period by the total trade volume with the same group of countries in the year before sanctions were imposed. Thus, *Top5 cooperation* values that are less than 1 indicate that the sender enjoyed international support, whereas values greater than 1 suggest that third countries chose to cooperate with the target. We expect the target's DL payoff to increase as *Top5 cooperation* increases because an increase in the target's trade with its major trading partners reduces the cost of the target's resistance (K_T), thereby increasing the target's utility for the DL outcome. As a robustness check, we replace *Top5 cooperation* with *Top1 cooperation*. *Top1 cooperation*, which was constructed similarly to *Top5 cooperation*, measures changes in the total volume of trade between the target and its largest pre-sanctions trading partner (excluding the sender). For the same reason that *Top5 cooperation* is expected to have a positive effect on the target's DL payoff, this payoff and *Top1 cooperation* should be positively associated.

Black knights is a variable that captures another aspect of international cooperation with the target country. *Black knights* measures the number of countries that were not in the group of the target's top five trading partners before sanctions but replaced some or all of these five major trading partners during sanctions (based on mean values of total trade volumes). The emergence of the so-called black knights has been linked to a lower likelihood of sanctions success (Hufbauer et al. 1990; Martin 1993; Nooruddin 2002). We expect the target's DL payoff to increase when *Black knights* increases: as more countries are willing to open their markets to the target or to supply sanctioned goods, the target will be in a better position to divert its trade from the sender state to the black knights, which will in turn offset the cost of the target's resistance (K_T).

Sender trade status is a dummy variable indicating whether the sender is the target's most important trading partner or not in terms of either exports, imports, or both. In many cases, international cooperation can undermine or strengthen the impact of economic sanctions; however, the significance of this factor declines when the sender accounts for a substantial share of the target's international trade. If sanctions are imposed by the target's largest pre-sanctions trading partner, the target country will experience high levels of economic hardship. As a result, high resistance costs (K_T) will significantly decrease the target's DL payoff.[14]

Results and Discussion

Table 2 shows estimation results from four different specifications. We first run MLE using the data set that has no restrictions and then run the same model on the data set with sanctions imposed by one country—the United States. In

[14] Although not reported in our main estimation results, several auxiliary explanatory variables were created to test alternative model specifications. We coded a dichotomous variable, *International organization*, to measure the involvement of international organizations by either supporting sanctions, initiating sanctions, or enacting a resolution in support of the sender (or against the target) but without a direct link to sanctions (for example, a cease-fire resolution). *International organization* is expected to capture the influence of international organizations on the SQ or DL payoffs of the sender and target. In addition, we created two continuous variables, *Top5 trade deviation* and *Top1 trade deviation*, which represent the sum of yearly trade deviations for top five (or top single) trading partners of the target state, where a trade deviation is the difference in trade volume between a given sanctions year and the presanctions year. *Top5 trade deviation* and *Top1 trade deviation*, as alternative measures of international cooperation, are expected to be positively associated with the target's resistance cost (K_T).

Table 2. Results of Fully Structural Estimation

Player	*Outcome*	*Mean payoff*	*Variables*	*All senders*		*US sender only*	
Sender	Status quo	$U(SQ_S)$	Constant	−1.44 (2.03)	−0.84 (1.71)	−0.90 (1.37)	−0.33 (1.62)
			Issue salience	−0.79 (0.72)	−0.77 (0.74)	−0.05 (0.83)	0.05 (0.85)
Sender	Concede	$U(CD_S)$	Constant	1.23 (2.96)	2.83 (1.84)	3.25* (1.66)	5.87 (4.02)
Sender	Deadlock	$U(DL_S)$	*Capability ratio*	4.53* (2.51)	4.38** (2.21)	2.27 (3.20)	2.51 (3.24)
			Sender democracy	−1.16 (1.65)	−0.84 (1.27)		
			Sender cost	−0.72 (1.40)	−0.81 (1.51)	1.38 (6.91)	2.30 (7.30)
Target	Deadlock	$U(DL_T)$	Constant	−0.87 (1.14)	−0.09 (0.48)	−0.70 (0.79)	0.06 (0.49)
			Capability ratio	0.01 (1.51)	−0.06 (0.36)	0.06 (0.66)	0.11 (0.37)
			Target democracy	−0.12 (0.20)	−0.13 (0.18)	−0.45* (0.24)	−0.47** (0.23)
			Black knights	0.09 (0.13)	0.03 (0.12)	0.07 (0.14)	−0.00 (0.12)
			Top5 cooperation	1.33** (0.46)		1.13** (0.50)	
			Top1 cooperation		0.85*** (0.30)		0.59* (0.34)
			Sender trade status	−0.94** (0.47)	−1.09*** (0.30)	−0.83** (0.35)	−0.89*** (0.31)
Number of observations				106		79	
Mean log-likelihood				−0.6661	−0.6841	−0.6379	−0.6528
PCP outcomes (%)				72	68	71	70
PCP sanctions (%)				94	93	96	96
PCP resistance (%)				76	73	74	72

(*Note.* PCP, Percentage Correctly Predicted. Standard errors are in parentheses. ***$p < .01$; **$p < .05$; *$p < .08$ [two-tailed].)

addition, we replace *Top5 cooperation* with *Top1 cooperation* in both data sets, and then replicate the analyses. In all four specifications, our central results remain robust.[15]

To summarize the findings briefly, the estimation results strongly support H1 and H3. Sanctions are less likely to succeed when the target's largest trading partners increase their trade with the target during the sanctions period. However, the likelihood of sanctions success is higher if the sanctions are imposed by the target's most important trading partner. The coefficient on *Black knights* is not statistically significant.[16]

The estimated effect of assistance from the target's major trading partners on sanctions success lends support to the intuition that the sender country is less likely to achieve its goals if other countries do not cooperate with the economic sanctions. As the target's largest trading partners increase their total volume of trade with the target relative to the pre-sanctions level, the target's DL costs decline, which leads to an increase in the target's DL utility and in its willingness to resist the sender's demands. Importantly, this positive and statistically significant result contradicts the pessimistic findings of previous empirical studies that show either a negative link or the absence of any association between the success of economic coercion and international cooperation (Hufbauer et al. 1990; van Bergeijk 1994; Bonetti 1998; Drezner 1999).[17]

Table 3 shows the effect of international support on sanctions outcomes: the table reports predicted outcome probabilities that we calculated for the cases in which *Top5 cooperation* takes minimum, mean, and maximum values.[18] For all the cases, our model predicts the outcomes correctly. For the US sanctions imposed against Zimbabwe in 1966, *Top5 cooperation* is at its lowest level, 0.1999, implying that during the sanctions period Zimbabwe's total trade with its five largest trading partners plummeted to just 20% of the pre-sanctions level. As a result of this high degree of international cooperation with the sender, Zimbabwe's resistance was associated with significant economic costs, which increased the likelihood of sanctions success.[19] Note that the economic sanctions initially backfired, resulting in rally-around-the-flag effects in Zimbabwe (Galtung 1967). However, the

[15] We performed two sets of robustness checks. First, we replaced our original third-party cooperation variables (*Top5 cooperation* and *Top1 cooperation*) with the alternative measures, *Top5 trade deviation* and *Top1 trade deviation*. Coefficients on the alternative variables did not achieve statistical significance. Second, we reran our analysis using policy result scores listed in Hufbauer et al. (1990) instead of success scores that are derived by multiplying policy result scores by the measure of sanctions contribution to the policy result. We coded policy result values of 1 and 2 as failure outcomes (that is, DL), and 3 and 4 as success outcomes (that is, CD). Our results remained robust after we replaced success scores with policy result scores as the basis of our outcome variables.

[16] We constructed an alternative measure of black knights' support following the same coding rules that we used for the variables measuring the support of major trading partners. Robustness checks showed that this alternative variable, *Black knight cooperation*, did not have a significant association with the target's DL payoff. The non-findings produced by the two *Black knight* measures suggest that H2 is not supported in the analysis.

[17] In contrast to the results reported in Drezner (2000), our findings suggest that the positive effect of international cooperation does not depend on the backing of an international organization. To probe this result further, we included a dichotomous variable, *International organization*, for the SQ and DL payoffs of the sender and the DL payoff of the target in some model specifications. *International organization* consistently failed to achieve statistical significance, so the estimation results for these specifications are not reported in Table 2. All our results in Table 2 remain robust whether we include *International organization* or not. This suggests that, on the sender's side, the support of an international organization may not have a significant relationship with the sender's SQ or DL payoffs, and hence does not increase the equilibrium probability of imposing sanctions. Another implication is that institutionalized sanctions do not significantly reduce the DL payoff of the target, and hence do not decrease the probability of resistance. Therefore, we do not find any evidence in favor of the claim that international cooperation needs to be institutionalized to succeed in forcing target states into compliance.

[18] To make comparisons easier and more meaningful, we only look at the cases in which the United States was the sender country.

[19] Note that the drop in Zimbabwe's international trade cannot be attributed to a decline in the country's economic activity during the sanctions episode: Zimbabwe's average GDP during the sanctions years was 1.6 times greater than the pre-sanctions GDP. In general, reductions in the target's GDP occur only in 21% of the sanctions cases in our data set.

TABLE 3. Effect of *Top5 cooperation* on Predicted Outcome Probabilities

Top5 cooperation	*Sender*	*Target*	*Years*	P_{SQ}	P_{CD}	P_{DL}
0.1999 (minimum)	United States	Zimbabwe	1966–1979	0.0029	0.6213	0.3758
1.3410 (mean)	United States	Brazil	1978–1981	0.0929	0.3873	0.5197
3.4199	United States	South Korea	1973–1977	0.1930	0.0015	0.8055
3.9263 (maximum)	United States	China	1991–2002	0.4950	0.0000	0.5050

sanctions received high levels of international support and were enforced for a long period of time, which substantially increased the costs to the Smith government, and eventually led to concessions. The successful outcome in this sanctions episode is consistent with the model's prediction: the estimated probability of sanctions success, $P_{CD} = 0.6213$, is greater than the other outcome probabilities (P_{SQ} and P_{DL}). The table also shows that as *Top5 cooperation* increases, so does P_{DL}, signaling the sender's reduced ability to extract concessions owing to weaker international support for the sanctions. For instance, in the case of the US sanctions against Brazil initiated in 1978, *Top5 cooperation* takes its mean value, and DL is more likely than any other outcome ($P_{DL} = 0.5197$).

Interestingly, in the case of the 1991 US sanctions against China, P_{DL} is only 0.5050 even though *Top5 cooperation* takes its maximum value, that is, China's trade with its largest trading partners increased nearly fourfold after the sanctions were imposed. When *Top5 cooperation* is greater than its mean value (1.34), the probability of DL, P_{DL}, tends to be very high, as was, for example, the case with the US sanctions against South Korea imposed in 1973 ($P_{DL} = 0.8055$). This stark difference in DL probabilities can be attributed to the logic of strategic interaction. Note that, in the case of the US sanctions against China, the SQ probability, P_{SQ}, is 0.4950, whereas the probabilities of the SQ outcome in the other three cases in Table 3 are significantly lower. Given the expectation that China would easily divert its trade from the sanctioner toward other countries, the sanctioner's benefit from using economic coercion was not sufficiently high to make sanctions much more attractive than the SQ. Moreover, as the United States did not enjoy an overwhelming capability advantage over China (*Capability ratio* for these two countries takes a very low value), this factor significantly decreased the United States' DL payoff, thereby further reducing the sender's expected utility from launching sanctions. Thus, the effect of *Top5 cooperation* on P_{DL} is lower than anticipated because *strategic considerations* shaped by China's strong economic position made sanctions an unattractive policy tool for the United States.

The estimation results reported in Table 2 are also consistent with the hypothesis that economic sanctions are more likely to succeed if they are imposed by the target's most important trading partner. The significant and negative coefficients on *Sender trade status* in all four specifications suggest that the target's trade dependence on the sender is an important indicator of the target's DL cost. If the sender accounts for the largest share of the target's trade before sanctions, the sender is capable of inflicting significant economic costs on the defiant target, which decreases the target's DL utility and, consequently, the probability of resistance.

The last variable in the specification of the target's DL payoff is the level of democracy in the target country. *Target democracy* is not statistically significant when we use the unconstrained data set, but becomes significant on the sample of US sanctions. The significant and negative coefficient implies that when sanctions are imposed by the United States, a democratic target is worse off if the sanctions reach the DL outcome. As a result of the reduced DL payoff, this type of target is more likely to concede. This finding is consistent with previous

studies that suggest a negative link between broad public participation and government accountability characteristic of democratic regimes and democratic leaders' willingness to resist sanctions that cause significant economic hardship (Nooruddin 2002; Lektzian and Souva 2003, 2007; McGillivray and Stam 2004; Allen 2005).

The final set of results is related to the sender's utilities. The variable included in the sender's SQ payoff, *Issue salience*, is not statistically significant in any of the specifications. Consequently, we cannot reject the null hypothesis that the salience of the disputed policy has no effect on the sender's decision to initiate economic sanctions. In the specification of the sender's DL payoff, the sender's democracy level, *Sender democracy*, and the DL cost term, *Sender cost*, also fail to reach statistical significance, indicating that these two factors may not influence the sender's decision to impose sanctions. The positive association of the capability ratio with the sender's DL payoff is significant when we use the full data set, but does not attain statistical significance at conventional levels on the sample of US sanctions. This difference in statistical significance of the coefficient on *Capability ratio* can be attributed to the lack of variation in the sender's capability when we restrict the analysis to US sanctions only, and to the United States' status of a global superpower, which can be expected to prevail in most conflicts.

Although there is no consensual measure of model fit, in discrete choice models a popular measure is the extent to which the model correctly predicts the outcomes in the data. Therefore, we calculate and report the percentage of sanctions outcomes correctly predicted. If the model fails to fit the data, it implies that the model may be misspecified (Signorino 1999). Our model predicts about 72% of the outcomes correctly when the data set is not restricted to US sanctions and *Top5 cooperation* is used as a measure of international cooperation (the first column of Table 2). Moreover, the percentages of correctly predicted actions are 94% for the sender and 78% for the target.

The estimates presented in Table 2 are insufficient to demonstrate the substantive impact of the explanatory variables on sanctions outcomes. In general, in discrete choice models such as logit or probit, the association between regressors and outcome variables is hard to evaluate simply by looking at the coefficients. A better way of assessing the relationship is to analyze the predicted probabilities of outcomes by fixing independent variables at some reasonable values and varying only the regressor of interest. First, we evaluate the extent to which the level of international support for economic sanctions, *Top5 cooperation*, affects the predicted probability of the target's resistance and the CD outcome.[20] Second, we discuss the effects of the sender's status as the target's largest trading partner before sanctions, *Sender trade status*, on the actions and outcomes of our economic sanctions model. The substantive effects of these two variables capture the role of international cooperation in determining the sanctions behavior of the sender and the target. Furthermore, relations among the sender, the target, and third states are highly interdependent. We illustrate this interdependence with an example, in which strategic interaction is a crucial factor in explaining the outcome of economic sanctions.

We first turn to the finding that the target's cost of resistance (K_T) is significantly affected by the extent to which the main trading partners change their total volume of trade with the target during the sanctions period. The positive and significant coefficients on *Top5 cooperation* and *Top1 cooperation* imply that if the top trading partners exploit economic opportunities presented by the sanctions and increase their trade with the target, the target's costs from reductions in trade with the sender will be significantly reduced and, consequently, the

[20] Although we do not present the substantive effects of *Top1 cooperation*, they are essentially the same as those reported for *Top5 cooperation*.

target will receive a higher DL payoff. These considerations, in turn, affect the target's decision to concede or resist. Thus, if third countries allow the target to redirect its trade exchanges to their economies, concessions become less likely because the support of these countries is sufficient to offset the sanctioned state's decreased trade.

Note that the effect of *Top5 cooperation* is realized through the target's DL cost, K_T. To demonstrate this effect, we calculate estimated probabilities holding all other variables constant at what we call their ''worst-case,'' ''baseline,'' and ''best-case'' values, as shown in Table 4. For example, from the target's perspective the worst-case scenario occurs when the target's objective probability of prevailing in the conflict is low (high *Capability ratio*), the political system of the target country is highly democratic (high *Target democracy*), few black knights emerge to undermine sanctions (low *Black knights*), and the sender is the target's largest trading partner (*Sender trade status* equals 1). For the variables that determine the sender's payoffs, we assign values such that the sender is most inclined to impose sanctions, that is, the sender and the target disagree over a highly salient issue, the capability ratio favors the sender, the sender state is undemocratic, and the sanctions impose low economic costs on the sender (see Table 4). Holding all other variables except *Top5 cooperation* at the worst-case, baseline, and best-case levels, we calculate the predicated probabilities of actions and outcomes of sanctions. The analysis of the three benchmark cases presents us with a more detailed understanding of the impact of explanatory variables on the initiation and success of sanctions.

Figures 4 and 5 display the effect of *Top5 cooperation* on the predicted probabilities of the target's action (that is, resistance) and sanctions outcomes (CD and SQ). When the regressors are fixed at the baseline or worst-case levels, the impact of *Top5 cooperation* on the probability of resistance is significant, as shown by Figure 4. Consistently with our expectations, an increase in the target's trade with its major trading partners makes the target considerably more likely to resist the sender's demands.

In the best-case scenario, however, the target always chooses to resist regardless of the level of international cooperation (*Top5 cooperation*). Note that in this case the probability of resistance is always greater than 0.5. What would be the equilibrium outcome in this case? Figure 5 offers an answer to this question. When the regressors are held at their best-case values, the probability that the target will concede, P_{CD}, is close to 0 over the entire range of *Top5 cooperation* values, as depicted in Figure 4. Given the high likelihood of the target's resistance in the best-case scenario, this result is not surprising. What is interesting is the probability of the SQ, P_{SQ}, in the base-case scenario. Figure 5 shows that P_{SQ} is close to 1 regardless of the level of international cooperation. Looking down the game tree

TABLE 4. ''Best-case,'' ''Baseline,'' and ''Worst-case'' Values of Explanatory Variables

Player	*Outcome*	*Variables*	*Minimum K_T*	*Moderate K_T*	*Maximum K_T*
Sender	Status quo	*Issue salience*	0	1	1
Sender	Deadlock	*Capability ratio*	0.0035	0.3437	4.202
		Sender democracy	1	0.8868	−0.7
		Sender cost	6.095	0.1457	0.000
Target	Deadlock	*Capability ratio*	0.0035	0.3437	4.202
		Target democracy	−0.9	−0.2321	1
		Black knights	8	2.1038	0
		Top5 cooperation		Varies	
		Sender trade status	0	0.5755	1

(*Note.* Each column reports a set of values corresponding to one of the three benchmark cases, which represent the best-case, baseline, or worst-case scenarios from the target's perspective.)

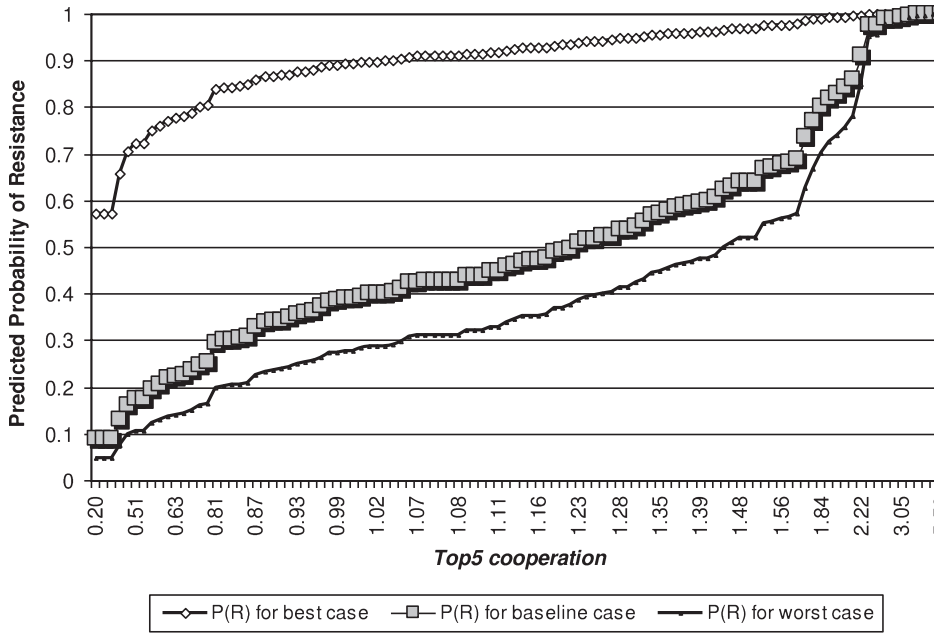

Fig 4. Effect of *Top5 cooperation* on Predicted Probability of Resistance

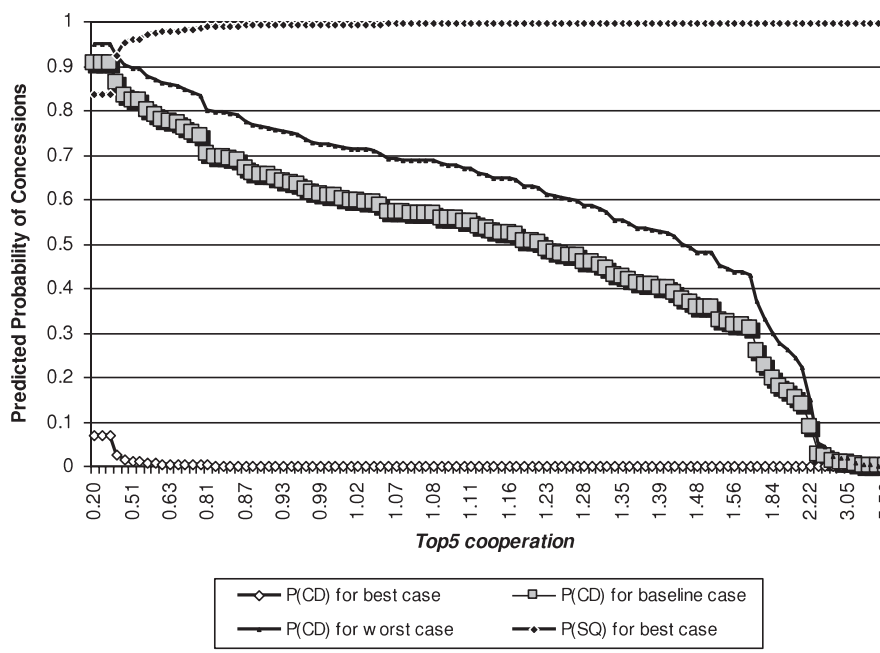

Fig 5. Effect of *Top5 cooperation* on Predicted Probability of Concessions

and anticipating the target's resistance, the sender prefers to maintain the SQ rather than impose sanctions and then find itself in a stalemated economic conflict without any hope of extracting desired concessions. This illustrates the significance of strategic calculations for the sender's decision to initiate sanctions. However, when the regressors are set at the baseline or worst-case values and

TABLE 5. Effect of *Sender trade status* on Predicted Probabilities of Actions and Outcomes

Sender trade status	P_S	P_R	P_{SQ}	P_{CD}	P_{DL}
Holding other variables at best-case values					
1	0.9926	0.5685	0.0074	0.4283	0.5643
0	0.9807	0.8679	0.0193	0.1296	0.8512
Holding other variables at baseline values					
1	0.0019	0.9999	0.9981	0.0000	0.0019
0	0.0019	0.9999	0.9981	0.0000	0.0019
Holding other variables at worst-case values					
1	1.0000	0.0492	0.0000	0.9500	0.0492
0	0.9992	0.2393	0.0008	0.7607	0.2393

sanctions are launched, international cooperation grows in importance. If the target's major trading partners exploit economic opportunities created by the sanctions and help the target to restore its interrupted trade flows, the sanctioned country becomes less likely to concede. The effect of international assistance to the target is quite large: this support dramatically changes the target's probability of granting concessions—from almost 1 to 0.

We now turn to the effects of the sender's status as the target's largest trading partner before sanctions, *Sender trade status*, on sanctions outcomes. The negative and significant coefficient on *Sender trade status* implies that if the sender accounts for the largest share of the target's international trade prior to sanctions initiation, then the target is less likely to resist the sender's demands. This is a consequence of the sender's ability to reduce the target's trade significantly, thereby greatly increasing the target's DL cost (K_T). The high resistance cost makes the target more willing to concede because of its decreased DL payoff. Table 5 shows the effect of *Sender trade status* on the predicted probabilities of actions and outcomes of our sanctions model while holding all other variables constant at their worst-case, baseline, and best-case values. In the baseline case, the equilibrium probability of CD (P_{CD}) is only 0.1296 if the sender is not the target's main trading partner. However, P_{CD} increases to 0.4283 if the sender accounts for the largest share of the target's trade. In the worst-case scenario, the sender imposes sanctions regardless of the target's dependence on trade with the sender. The target is unlikely to resist the sanctions in this case—the probability of resistance is only 24%, even when the sender is not the target's main trading partner. The probability of resistance reaches its lowest level (that is, 5%) when the sanctions are imposed by the target's largest trading partner. Finally, in the best-case scenario, the scale of trade exchanges with the sender plays no role in determining sanctions outcomes. As the target resists with high probability (P_R is close to 1), the sender cannot reasonably expect to receive any concessions from the target. Given this, the sender is unlikely to resort to sanctions ($P_S = 0.0019$). Again, strategic interaction between the sender and the target accounts for this result.

Conclusion

International cooperation is a key factor in the success of economic sanctions. We examine international support in the context of strategic interaction between the sender and target to explain the use of economic coercion and its success. Our study is the first to develop a direct measure of third countries' behavior during sanctions and use it in the empirical analysis of sanctions outcomes. We find that sanctions success becomes more likely as the degree of international cooperation increases. More specifically, the sanctioner is considerably more likely to succeed in obtaining concessions from its target when the target's larg-

est trading partners support the sanctioner's coercive action and decrease trade exchanges with the target. Although the result may seem intuitive, this study is the first empirical demonstration of this relationship. We also find that sanctions are more successful in inducing compliance if the sender is the largest trading partner of the target state.

In addition to providing the substantive findings, this article makes a methodological contribution to the study of economic sanctions. We use a fully structural statistical model, which allows us not only to capture nonmonotonicities in the relationship between the observable sanctions outcomes and independent variables, but also to trace the influence of these variables through the theoretically justified specification of payoffs. With standard techniques, it would be difficult to tease out the effects of the independent variables of interest on the sanctions behavior of the sender and the target.

Finally, our analysis used the data collected with the underlying theoretical and statistical models in mind. To avoid selection bias, we included observations with SQ outcomes. We also constructed four variables to capture the level of international cooperation during economic sanctions and the sender's need for international support. These variables measure the actual, rather than declared, level of international assistance to the sender or the target.

Having said that, our research can be extended in the following directions. First, we do not examine pre-sanctions factor and asset endowments of the target and the sender. Strategically important goods, such as oil and uranium, as well as the competitiveness of the trade relationship between the sender and the target, stand out as potential determinants of sanctions initiation and outcomes. Our model is sufficiently flexible to facilitate empirical tests of the hypothesized link between countries' endowments and the success of economic sanctions. Second, informal markets are likely to constitute a complementary source of international support for target countries. Empirical data on covert forms of international assistance are not readily available. However, our theoretical and empirical models can be extended to accommodate this possibility to examine covert as well as overt activities of third countries.

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