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Trade Centrality and the Process of Economic Sanctions

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After the carnage and destruction of World War II, the international community was eager to find a less violent alternative to war. States began to use diplomatic and coercive techniques to try and resolve differences or effect changes in the international system. Some tools have proven more successful than others, but one that has gained great popularity is the threat and imposition of economic sanctions. Despite the apparent ineffectiveness of imposing sanctions, they are widely threatened and used by states in the system.

Some scholars have suggested that sanctions are doing more than meets the eye (Drezner 2003). Sanctions may indeed be a signaling mechanism that states use to indicate where they stand on an issue or the foreign policy of another state. We agree with this analysis, but find current explanations of sanctions episodes inadequate. In order to make the argument that states use sanctions as a signaling mechanism it is necessary to know something about the states and their position in the international community. We employ network analysis to understand what international trade networks look like and to determine which actors in the network are utilizing sanctions and who they are sanctioning. This helps us to get a better handle on what exactly it is that states are trying to do when they impose sanctions.

We argue that sanctions more than simply signals of states' policy preferences. Indeed, sanctions are a tool that central states use to promote regimes and enforce norms within those regimes. A sanction against a partner state within a trade regime, for example, flags a violation of norms and thereby strengthens the norm and the regime.

We test our explanation using a logistic regression on thirty years of sanctions episodes. In support of our theory, we find that the most economically central states are threatening and imposing as well as receiving sanctions at an exponential rate compared to non-central states.

This indicates that the central states, those with the greatest interest in creating and maintaining regimes are also those that seem most eager to enforce regimes and those most likely to be punished for violations.

Literature Review

Why use sanctions?

Sanctions have long been a topic of interest for scholars of international relations, often falling under the policy umbrella of economic statecraft (Lasswell 1945; Wallensteen 1968; Baldwin 1985). Economic statecraft is a term which describes the attempt to pursue state goals through economic means. There are several different ways of characterizing sanctions. Some argue that economic sanctions are, at their very heart, an influence attempt. Economic sanctions are a tool of coercion, in which the sender state disrupts the flow of trade or capital in an effort to change an undesirable policy in the target state (see Wallensteen 1968; Baldwin 1985; Drezner 2003). This differs from other scholars who see economic sanctions as a method of punishment towards the target state for an action or policy (Nossal 1998). Other authors view the use of sanctions as more of a signaling attempt to show that the sender state is serious in its intentions to coerce the target state to change its policies (Kaempfer and Lowenberg 1988 and 1992; Drury 1998; and Hiscox 2000 Verdier 2004). We follow the latter argument. Despite the fact that sanctions have been found time and time again to be ineffective in changing the undesired policy of the receiving state (see Wallensteen 1968; Pape 1997, 1998; Elliot 1998; Hufbauer et al. 2007), they continue to be utilized with increasing frequency by some states in the system.

There are, however, some contestations to the theory. Drezner (2003) argues that if sanctions are more of a signaling mechanism, then there is a selection bias in effect. This seems

to make sense with economic sanctions, where the threat is more likely to work than the actual imposition. Baldwin (1985) echoes this sentiment: "Thus, economic sanctions may not be effective because of their economic impact, which may be nil, but rather because of the signal they send about the intentions of the state imposing the sanctions" (24). Baldwin further argues that the 16 problems he identifies with economic sanctions are in fact problems with most statecraft, economic or otherwise.

If sanctions are signals, then what are they signaling?

Verdier (2004) argues that sanctions are important purveyors of private information. As implied above, sanctions tell receiving states that they have offended the sender in some way. We argue that sanctions help perpetuate international norms both in the economic and in the political realm. Norm-breaking behavior is recognized because it elicits some sort of disapproval (Finnemore and Sikkink 1998). Furthermore, regime theory has pointed to sanctions as a method of enforcing the "rules of the game" (Kehohane and Nye 1973; Kehohane 1984). In fact, some international institutions, such as the WTO, utilize sanctions as enforcement mechanisms. In the economic realm, it can be argued that free trade is the norm and disapproval for such norm-breaking behavior as tariffs and subsidies is displayed through economic sanctions. In the political realm, there are norms about how states should be governed and how they treat one another. Sanctions are often implemented for human rights abuses, civil wars, and offenses against a neighbor's sovereignty. Martin (1993) specifically looks at international cooperation on international sanctions and notes that, despite the fact that groups of states may agree on predetermined rules, norms, etc., it is generally up to one state to initiate sanctions on behalf of

all. It can be quite difficult to convince states to band together and impose multilateral sanctions, especially if there are any questions regarding the credibility of their threat.

Who sends and receives sanctions?

While it is implied that certain types of states are more and less likely to sanction and be sanctioned, little empirical research has been done on the subject. In their case study approach, Hufbauer, Schott and Elliot (2007) suggest that sanctions are imposed largely by big powers which pursue "an active foreign policy" (5). They also argue that while the sender state is usually large and powerful, the target state is generally small and weak (89). Indeed, "the sender's GNP is more than 10 times greater than the target's GNP in 80 percent of cases, and in half the cases, the ratio is greater than 100" (89). They utilize, however, only descriptive statistics, and their analysis only focuses on sanctions imposed for political, rather than economic reasons.

We argue that a social network approach is the best way to understand who uses sanctions and who receives them. Social network analysis allows us to determine not only the direct relationship between two states, or direct affinity, but also their structural affinity, or "the extent to which any two states are equivalent (or similar) to each other in terms of their attitudes toward the traits they share, or their relations with all other states in the system" (Maoz et al. 2006). Though network analysis has not yet been used extensively in the field of international relations, arguments have been made for its inherent usefulness (see Hafner-Burton and Montgomery 2008). Especially useful is the concept of centrality, or the importance of relationships (Scott 2000; Wasserman and Faust 1994). Rather than "big" or "powerful" states

generally being the sender, and "small" or "weak" states generally being the target in a sanctions episode, we are looking at the relationship through the lens of centrality.

Theory

Our basic theory is that trade networks form regimes with particular norms and a high degree of structural affinity. When states engage in norm-breaking behavior, others threaten or impose sanctions in order to solidify the regime and enforce established customs. Therefore, sanctions episodes simply re-emphasize group norms and solidify expectations of how centralized states will act in the future. Peripheral states, which are not involved in the actions of the regime, will not be sanctioned because there is limited structural similarity with the centralized core. The remainder of the theory section investigates the utility of the trade centrality network, its structure, and how its activities relate to the process of sanctions episodes, both politically-based and economically-based.

Utility of the Liberal Trade Network

States do not engage with regimes unless they gain a minimum threshold of utility from doing so. More centralized states have incentives to create norms for trade because of the vast array of states with which they might trade. By creating rules, states can engage in commerce with relatively limited uncertainty and, therefore, risk. The potential negative externalities of unilaterally lowering trade barriers are offset by the reciprocal openness of trade partners. Indeed, the regime depends on reciprocation of liberal economic norms by trading states. On a functional level, the internationalization of the production chain depends largely on the relatively

free movement of goods between states (Garrett 1998, 792). More ideally, however, the connected core pursues trade openness as a key pillar of a policy environment conducive to normative economic and political goals (Ruggie 1982). With a larger number of states in the network, each state has less individualized leverage on each other state than it would without the aid of norms created and enforced by the regime. Consequently, a reinforcing mechanism exists whereby openness begets openness and is enforced organically through the functioning of the regime.

The "oughtness," described by Finnemore and Sikkink (1998) and created by the lowering of trade barriers and engagement in free trade also can follow the functionalist argument into areas of political engagement. Liberal economics can spread into the political realm in such areas as how states govern their people (e.g. democracy) and how they treat their citizens (e.g. certain human rights standards). On a functional level, civil discord affects trade (see Collier 2007). Consequently, central states receive positive utility when stability-inducing norms are actively followed. Stable states enable stable trade, which in turn may promote higher profits for corporations and their respective states. On a more normative plain, trade ties may allow norms to diffuse between partners. For example, the proliferation of labor rights norms is directly connected to and relatable with trade ties (Greenhill, Mosely, and Prakash 2009).

Less centralized states, on the other hand, are either peripheral to the core trade regime or relegated to "norm takers" in the international system. Being less connected to the global economy with less expansive trade networks, peripheral states do not possess the leverage or interest in shaping trade regimes. First, the relative paucity of their alternative trade outlets diminishes the overall utility of coercion for less central states. Less central states do not have as

many outlets as more central states to divert trade lost from sanctions episodes (sending or receiving), for example, meaning economic norm enforcement is more difficult. Furthermore, having fewer trade connections implicitly limits the diffusion of norms to a smaller network of trade partners. As a result, peripheral, less connected states are less able to shape norms and more apt to accept through incentive or coercion the economic norms of the centralized regime.

Structure of the Network

The structure of the network is best described by Keohane and Nye's (2000) concept of the "issue-structural" model (50-51). In this model, regime structures are determined by stronger states as opposed to weaker ones. While there may be some debate regarding the necessity of a hegemon to create trade regimes, for the purposes of this project it is sufficient to simply acknowledge that more powerful forces have a disproportionate impact on the rules created within the regime. This makes intuitive sense as the most centralized states have the most at risk when it comes to the enforcement and regulation of these norms. If a state trades with more partners, it cannot directly control as many facets of its trade relationships, given a normative environment that emphasizes reciprocal openness.

From a network analysis paradigm, we look at the one-mode network of trade between states. Our actors are states and the relational tie, as well as mode, is trade. We investigate the centrality of trade as our relational variable. Centrality in this instance refers to monadic degree with respect to the number of trade partners. Exact measurements are specified in the conceptualization and operationalization section. The effects of expansiveness and popularity jointly are considered in terms of sanctions threat and/or implementation. More centralized states can be considered the core of this network and less centralized states comprise the periphery.

We predict a form of structural affinity (see Maoz et al. 2006) based on economic ties plays a large part in how centralized states act towards one another. Less centralized states that lack this structural affinity to central states will act differently than the central states, particularly in regards to the punishment mechanism of the trade regime. Similarities in structural affinity increase the likelihood of developing direct, bilateral affinity. This direct affinity ensures the creation of certain norms, such as low trade barriers or observing human rights (as indicated above).

Activities of the Network

Because the network creates these norms, it also helps to create processes for dealing with norm-breaking behavior. In this case, the punishment for norm-breaking behavior is economic sanction. The economic sanction can serve as a signal that another state is not conforming to the rules set forth by the central trade network and will continue to be punished until it comports with the norm. By offering this signal, the sender state is also re-emphasizing its commitment to the regime at the international level. It is willing to engage in some sort of penalty, either economic or reputational with regards to the offending state, in order to continue the rules and norms set forth by the regime. Indeed, economic statecraft is often employed by the highly interdependent and connected core against fellow members in pursuit of commercial and political objectives (Mastanduno 1998). Furthermore, central states are better able to divert losses from sanctions episodes given that their expansive trade networks are able to absorb surplus goods. Sanctions are therefore a viable and potentially attractive option for coercive tactics. This leads to our first hypothesis:

Hypothesis 1: More centralized states will be more likely to threaten or issue sanctions than less centralized states.

Centralized states will also be more likely to be sanctioned because of their involvement in the regime itself. Because centralized states are expected to conform to the norms, they are more likely to be held accountable when they do not comport with them than less centralized states. Furthermore, the salience of central states to the trade regime, both in substantive and normative contexts, means potential sanction sending states accrue greater utility from coercive actions against other core members. While action may be taken against the core, it nets less overall utility than enforcing norms against the core. The functioning of sanctions as primarily a signaling mechanism that a centralized state can withstand also means episodes likely do not threaten the long-term functioning of the regime. The overall relationship is likely to be slightly less strong than the sender-based relationship because of norm transfusion between the different states; however, we expect that it will be a statistically significant finding.

Hypothesis 2: More centralized states will be more likely to be threatened with or to receive sanctions than less centralized states.

As stated above, there are a variety of reasons to believe that the norms in the trade centrality network transcend the simply economic aspects and include more politically based norms as well. There are economic reasons for states to encourage stability-inducing political norms in order to assure stable trade. There are also opportunities for direct affinity to encourage norm transfusion.

Hypothesis 3: The effects of trade centrality on politically-motivated sanctions should be similar to those created for economically-motivated sanctions.

This, in short, means that the trade networks regime is actually significantly more powerful than simply facilitating more open trade. It actually attempts to impose economic and political stability within the network itself through sanctions. This issuance of sanctions helps re-enforce the importance of the regime and conforming to its expected behavior. Therefore, sanctions may work but only in the promulgation and perpetuation of the regime itself.

Conceptualization and Operationalization

We empirically test our theory of centrality and sanctions using a large-N statistical study. Our unit of analysis is directed dyad years extending from 1970 to 2000 based largely on the availability of sanctions data but also corresponding with the proliferation of trade networks after Bretton Woods collapsed. Directed dyads offer a more complete picture of sanctions dynamics by considering the characteristics of both sending and receiving states. Furthermore, employing this strategy better captures the strategic nature of sanctions episodes in that the traits of the receiving state are likely to influence the behavior of the prospective sending state.

The dependent variable in our analysis is the threat or imposition of an economic sanction in a given year for a particular dyad. Conceptually, economic sanctions are coercive actions taken by a state to restrict economic exchange with a target in an attempt to compel policy changes (Morgan, Krustev and Bapat 2006). States employ economic sanctions as a political tool in a range of both political and economic policy arenas. The dynamics between economic

and political sanctions, however, may be different in context of our theory. In other words, centrality may affect the opportunity and willingness of states uniquely depending on the issue area. Consequently, we employ the Threat and Imposition of Economic Sanctions (TIES) dataset which includes sanctions episodes disaggregated by political and economic motivations (Morgan, Krustev and Bapat 2006). In total, once data availability is considered, our dataset contains 886 total dyadic sanctions episodes of which 565 are economically motivated and 321 are politically motivated.

Economic centrality is the primary independent variable for this study and is simply the degree to which a state is connected to others and, implicitly, the global economy. As we employ it, a state's centrality measure captures its nodal degree, or the number of lines incident with the node, as a ratio of all possible connections (Faust and Wasserman 1994):

$$Centrality = \frac{\Sigma_i^g L_i}{g-1}.$$

Where L is a line incident to a particular node i and g is the number of total possible lines. A more central state will have economic linkages with a larger number of states than one that is less central. Although sanctions can take a number of economic forms, we consider trade centrality an appropriate measure for capturing the essence of a highly connected country. We therefore operationalize this variable using trade data obtained from Barbieri, Keshk, and Pollins (2008). In the above equation, the numerator measures the number of trade partners a state has (at any level of trade) while the denominator measures the total possible trade partners. Centrality in its raw form, therefore, is bounded between 0 and 1. However, visual inspection of the data and initial results indicates a polynomial relationship between centrality and sanctions behavior such that propensity to sanction increases exponentially with centrality. As such, after

transforming the centrality to a 100 point scale, we include a squared term to more appropriately assay the influence of our primary explanatory variable. Centrality variables are included for both the potential sender and receiver state in a dyad.

We include a number of control variables to account for alternative explanations of sanctions behavior. First, sanctions are often considered an alternative to militarized conflict in that they are meant to coerce states without inviting the potentially high cost of war (Wallensteen 1968; Baldwin 1985; Pape 1997). In this light, it is necessary to control for potentially substitutable policies, namely war. Greater power disparities may more often lead to militarized responses rather than economic responses by the stronger power. We include a variable controlling for the relative power distribution between states in a dyad using the composite index of national capabilities (CINC) scores, which conglomerate total population, urbanization, military personnel, military expenditure, energy consumption, and iron and steel production into a single measure (Singer 1987). Second, it might be expected that allies sanction each other less than non-allies given their security relationship. Cox and Drury, however, find that allies *may* be more likely to sanction each other (2006). Although their findings are not robust to alternative specifications, its potential warrants inclusion in the model.[1] We code observations 1 if the dyad shares an alliance and 0 if not, based on information obtained from the CoW (Correlates of War) dataset (Gibler and Sarkees 2004). Third, the United States is the initiator of the majority of sanctions since 1970, for reasons not completely unrelated to our theory. Most of the sanctions literature includes a dummy variable controlling for the United States specifically for statistical analysis. We cast a wider net given our interest in receiver as well as sender characteristics. Consequently, we control for the influence of major powers given their unique geopolitical

[1] Removing alliances from the model does not influence the results reported here.

positions and interests in ordering the global economy using the Correlates of War definition. Two dummy variables are included in the model, one each for sender and receiver, coded 1 if the state is a major power.

Fourth, regime type plays an important role in the sanctioning behavior of states. In particular, sanctions are viewed as humane alternatives to militarized conflict with particular appeal to audiences in democracies. As a result, democracies are more likely to employ sanctions in pursuit of political or social goals (Cox and Drury 2006). We include regime type with Polity IV scores which scales autocracy and democracy from -10 to 10 with higher values representing most democratic regimes (Marshall, Jaggers, and Gurr 2007). Polity scores are included for both sender and receiver states in a dyad. Fifth, membership in intergovernmental organizations (IGOs) provides alternative means of conflict resolution for member states. Consequently, fewer sanctions might be expected the more states share organizational membership with each other. That said, however, organizations also provide forums with which sanctioning states can gain support and collective action (Abbot and Snidal 1998). We include a variable capturing the number of IGOs of which states in a dyad are both members obtained from the Correlates of War (Pevehouse, Nordstrom, and Warnke 2004).

Sixth, large economies are better able to weather sanctions given their relatively bigger domestic markets. This likely influences both sending and receiving behaviors. Large economies may be more apt to apply sanctions because the cost is lower. Likewise, they may be targeted less given their ability to withstand sanctions. Because this influence is largely independent of our theory, we control for it as a competing explanation using aggregate GDP figures from the World Penn Tables (Heston, Summers, and Atten 2009). GDP figures are included for both states in the dyad. Because GDP is highly skewed, it is logged for statistical

analysis. With similar logic, more robust trading states, in terms of the magnitude of external trade, are likely more insulated from the negative effects of sanctions than less robust trading states. It is also important to control for the alternative explanation that the *scale* of bilateral trade influences sanctions rather than the *degree* of monadic trade ties. To this end, we control for trade dependence in a dyad with the level of bilateral trade between states relative to economic size (exports + imports / GDP) for both sender and receiver states. Trade data comes from the Correlates of War (Barbieri, Keshk, Pollins 2008).

Estimation and Results

In total, the dataset includes approximately 425,000 observations once missing data is taken into account. Because our dependent variable is dichotomous, we use logistic regression with robust standard errors for our statistical analysis. All independent variables are also lagged one year to ensure the proper temporal relationship is reported. Overall, our analysis includes three models. The first model pools all sanctions episodes together regardless of motivation or intent. The subsequent two models disaggregate sanctions into sanctions for economic and political reasons separately. Disaggregating sanctions allows more detailed inference into the actual process of economic coercion used by states.

---- Table 1 Approximately Here ----

Table 1 includes descriptive statistics for all variables. Sanctions, either economic or political, are a relatively rare phenomenon in the international system given that less than 1% of dyads contain an episode. Given its rarity, we also used rare events logistic regression developed by King, Tomz, and Zeng to estimate results (King, Tomz, and Zeng 1999). The outcomes of the rare events logistic model, however, were identical to standard logit. Turning to our primary

independent variable of interest, centrality, the average state maintains trade ties with approximately ¾ of states in the world. Furthermore, centrality is roughly normally distributed, although a spike occurs near 100% where states have trade ties with every other state individually. As for the other variables in the model, the overwhelming majority of dyads are non-allies and non-major powers while the continuous variables exhibit a wide range of values.[2]

Table 2 contains the results of logit estimations for economic, political, and pooled sanctions. Consider first the pooled model that includes all sanction threats or impositions regardless of sender motivations. The simple centrality measures for both sender and receiver are negative and statistically significant, suggesting that more central states are less likely to both send and receive sanctions. However, the polynomial term is positive and significant indicating that a state's probability of either sending or receiving sanctions increases exponentially with centrality. This generally supports our theory that central states are more vested in the maintenance of global economic norms and, therefore, their enforcement. Furthermore, they are also more likely to be sanctioned once they are perceived to stray from the accepted standards.

---- Table 2 Approximately Here ----

Some interesting results emerge once the dependent variable is disaggregated into economic and political sanctions. In the economic sanctions model, only the centrality of the sending state achieves statistical significance. As with the pooled model, simple centrality is negative while the polynomial term is positive, indicating that propensity to sanction increases exponentially with the centrality of the state. The characteristics of the receiver, in turn, do not have a statistically noteworthy relationship on economic sanctions. These results suggest that highly central states occupy unique and important roles in the international economy as the

[2] Although capabilities exhibit somewhat of a skewed distribution, substituting a logged term in the model does not change the results reported in this paper.

enforcers of the liberal economic regime. The fact that the receiver state's centrality is statistically irrelevant implies the outward expansion of these norms from the central core to more peripheral states. Furthermore, this lack of significance, and implicitly lack of regard for the potential ability of sanctions to inflict significant harm on an opponent, points to the use of sanctions as a signaling tool by central states in an effort to enforce norms without resorting to potentially more destabilizing tactics.

Turning to political sanctions, both the characteristics of sender and receiver influence the threat or imposition of sanctions. The results for the political sanctions model generally mirror the pooled model. The simple centrality term is negative and significant while the polynomial term is positive and significant, indicating that the propensity to both sanction and be sanctioned increases exponentially with centrality. Consistent with our theory, being political leaders, highly central sender states shape the global normative landscape. This includes not just liberal economic principles, but also notions of political conduct and acceptability. They are also more apt to be sanctioned, however, given their implicit membership in the economic core. Furthermore, the sheer number of trade ties means economic coercion is more frequently on the menu of policy options for central states vis-à-vis the world. Central states can also more easily divert trade to other partners, thus lowering the overall impact of sanctions and, consequently, increasing their appeal as tools of political coercion. Correspondingly, because they are less affected by sanctions, the primary purpose of sanctions against central states for political reasons is signaling deviation from accepted political behavior.

Substantive effects of the key independent variables are depicted in Figures 1 through 3. Each graph plots the predicted probability of sanctions within a dyad as a function of either sender or receiver centrality. The distribution of values on centrality is also included using

histograms. Consider economic sanctions – Figure 1 – first. Although it is difficult to discern, the confidence intervals given by the dashed lines do not contain zero at any point over the graph, meaning the results are statistically significant over the range of phenomenon. That said, however, sender centrality does not significantly influence the probability of threatening or imposing sanctions until a state trades with approximately 80% of the world. After this, the state presumably possesses a critical mass of trade ties that both partially shield it from negative consequences and indicate a vested interest in shaping the global economic regime. Consequently, its probability of sending sanctions increases relatively rapidly from almost zero to approximately 0.8% probability of imposing sanctions on another state irrespective of receiver characteristics.

---- Figure 1 Approximately Here ----

Turning to Figures 2 and 3, which plot the predicted probability of political sanctions in a dyad given sender and receiver centrality respectively, the same general pattern is revealed with some slight deviation. First, the results are significant across the entire sample since the confidence interval does not include zero in either figure. Second, centrality does not significantly influence the probability of sending political sanctions until it reaches relatively high values (approximately 80%). At this critical mass of centrality, however, the state has both significant opportunity and willingness to sanction others for political reasons. Indeed, the probability of sanctioning for political reasons grows from almost zero to over 0.3% between 80% and 100% centrality. The influence of receiver centrality, however, is more complicated and less obvious. While more central receivers are more likely to be sanctioned, the effect is very mild through the range of observed values. The most central states having trade ties with all other possible partners is only slightly more likely to be sanctioned than what might be

considered peripheral states. Consequently, it appears that political sanctions are more influenced by the dynamics of the sending state – i.e., potential costs, signaling resolve, global leadership, etc. – than potential targets.

---- Figures 2 and 3 Approximately Here ----

Looking briefly at the other variables in the models, several interesting results emerge. Alliances, GDP, and shared IGO membership influence sanctions uniformly across the models. Allies, in general, are more likely to sanction each other than non-allies, potentially lending credence to the use of sanctions as an alternative to war. Likewise, larger economies are more likely to both sanction and be sanctioned, which might be expected given the opportunity and willingness argument posed here. Interestingly, shared membership in IGOs decreases the probability of sanction episodes. This may reflect the ability of IGOs to resolve conflict without coercive tactics being employed. Capabilities are only relevant for economic sanctions and actually decrease the likelihood of their use. Military threats *may* be less costly and more effective as disparities in capabilities grow. Some interesting patterns are revealed by the democracy variable as well. In general, the more democratic a state, the less likely it is to sanction for political reasons, suggesting normative tendencies of non-interference in other states. That said, democracy has no influence on economic sanctions. Trade dependency is only relevant for economic sanctions, indicating that more trade dependent states are more likely to both sanction and be sanctioned. Dependent states have strong interests in managing bilateral trade relations, potentially leading them to more aggressive tactics. Likewise, being more vulnerable, economic sanctions are more likely to work against dependent states. Finally, major powers are less likely to sanction and be sanctioned for economic reasons. However, they are more likely to sanction for political reasons.

Conclusion

We have argued that central states use economic sanctions to enforce international norms. Although sanctions are often ineffective at changing the policy behavior of the receiver of a sanction, they can be useful as signals. Sanctioning the violator of a norm strengthens the norm and may change long run behavior, if not immediate behavior. Previous explanations, however, have failed to consider an important aspect of these interactions. Simple monadic or even dyadic analyses cannot account for the many relationships among the various actors in the international system. Using network analysis we have argued that there are particular states which are more likely to see sanctions as a useful tool. We also argued that the states most likely to punish violations are those with the greatest interest in maintaining and promoting international regimes, namely the central states in a given network. We find empirical support for our arguments; central states impose more than their share of sanctions against other states.

While this paper makes significant progress in understanding how and why sanctions are used in the international system, there is still more research to be done. Future research should focus on the next step of the relationship we have studied here. Our argument indicates that states imposing sanctions may be focused on long run behavior rather than immediate changes in the foreign policy of sanction recipients. The next step, then, is to examine whether a sanction on a particular issue affects how states behave in subsequent iterations. In other words, after having been sanctioned for violating a norm, do states continue to violate that norm?

Table and Figures

Table 1: Descriptive Statistics

Dependent Variables					
Militarized Disputes		**Economic**		**Political**	
		0 (No)	1 (Yes)	0 (No)	1 (Yes)
Sanctions	Frequency	425,369	565	425,613	321
	Percentage	99.86	0.14	99.92	0.08
Independent Variables					
		Frequency		**Percentage**	
Allies	0 (No)	390,934		91.78	
	1 (Yes)	35,000		8.22	
Major Power	0 (No)	406,468		95.43	
	1 (Yes)	19,466		4.57	
	Mean	**Median**	**Std. Dev.**	**Minimum**	**Maximum**
Centrality (%)	75.012	74.667	17.110	9.346	100.000
Capabilities Ratio	23.477	1.000	209.720	<0.001	16,527.000
Democracy	0.970	1.000	7.690	-10.000	10.000
Trade Dependency	0.003	<0.001	0.029	0.000	7.031
GDP ($ Billion)	178.000	24.700	607.000	0.600	9,220.000
IGO Membership	27.460	26.000	11.560	0.000	107.000

Note: Total observations = 425,963; Centrality, Democracy, GDP, and dependency scores include identical statistics for both "A" and "B" variables according to direction of the dyad; GDP is logged for statistical analysis

Table 2: Sanction Episodes and the Centrality of Aggrieved Parties

	All Sanctions	Economic Sanctions	Political Sanctions
Centrality$_{reciever}$	-0.128***	0.080	-0.110***
	(0.015)	(0.066)	(0.017)
Centrality$_{sender}$	-0.133***	-0.168***	-0.091***
	(0.015)	(0.045)	(0.023)
Centrality$^2_{reciever}$	0.001***	-0.001	0.001***
	(0.000)	(0.001)	(0.000)
Centrality$^2_{sender}$	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.001)
Allies	1.714***	1.979***	0.964***
	(0.095)	(0.124)	(0.162)
Capratio	6.12 e^{-05}	-0.025**	6.59 e^{-05}
	(0.000)	(0.009)	(0.000)
Democracy$_{reciever}$	-0.027***	-0.001	-0.051***
	(0.006)	(0.010)	(0.009)
Democracy$_{sender}$	0.018**	0.044***	0.009
	(0.006)	(0.013)	(0.048)
logGDP$_{reciever}$	0.673***	0.977***	0.445***
	(0.034)	(0.053)	(0.484)
logGDP$_{sender}$	0.887***	1.303***	0.423***
	(0.045)	(0.065)	(0.053)
IGO	-0.027***	-0.034***	-0.029***
	(0.002)	(0.004)	(0.005)
Dependency$_{reciever}$	1.041***	1.633***	0.570
	(0.166)	(0.202)	(0.309)
Dependency$_{sender}$	1.356***	2.564***	0.778
	(0.148)	(0.332)	(0.413)
Major Power$_{reciever}$	-0.083	-0.452**	0.299
	(0.113)	(0.154)	(0.201)
Major Power$_{sender}$	0.462***	-0.584***	1.949***
	(0.116)	(0.151)	(0.182)
Constant	-36.174***	-63.478***	-21.161***
	(1.596)	(3.724)	(1.787)
N	425,934	425,613	425,369
Log-Likelihood	-3,827.18	-1,959.43	-2,154.73
Pseudo-R^2	0.405	0.554	0.208
χ^2		4,867.94***	1,124.19***

Figure 1: Economic Sanction Probability and Sender Centrality

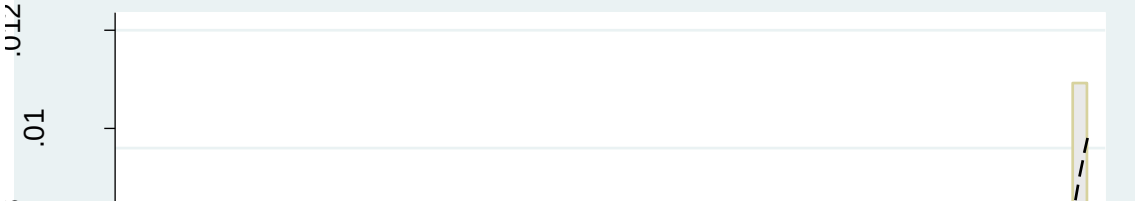


Figure 2: Political Sanction Probability and Sender Centrality

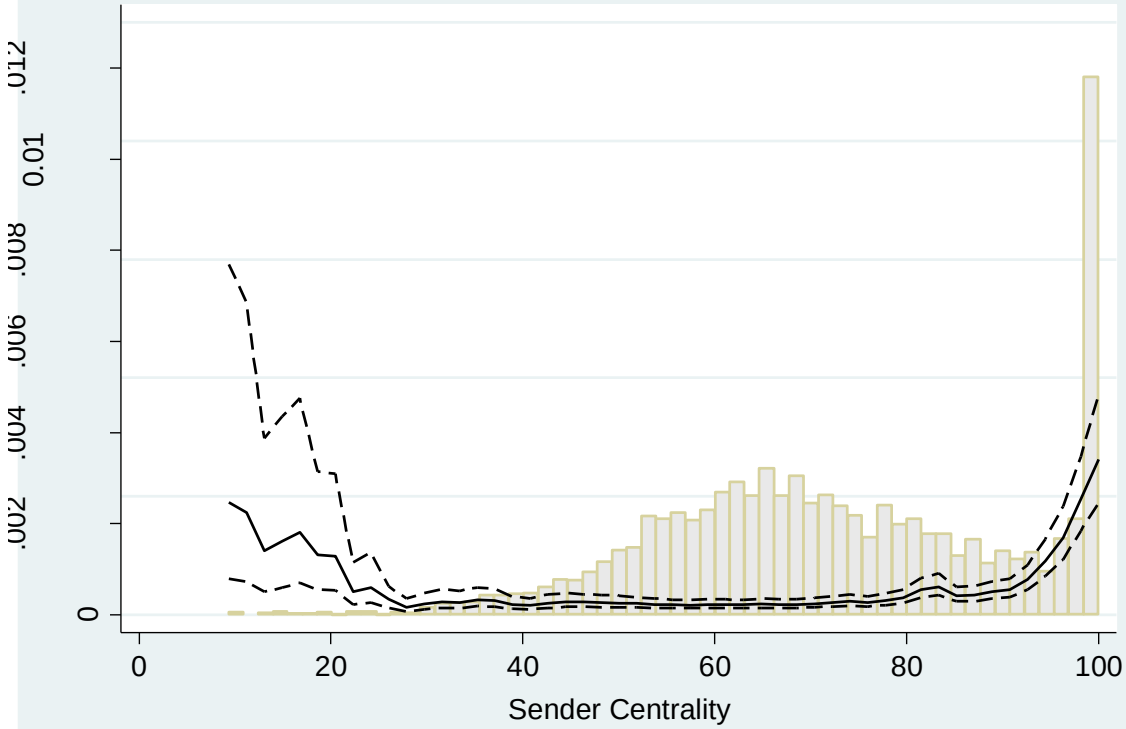
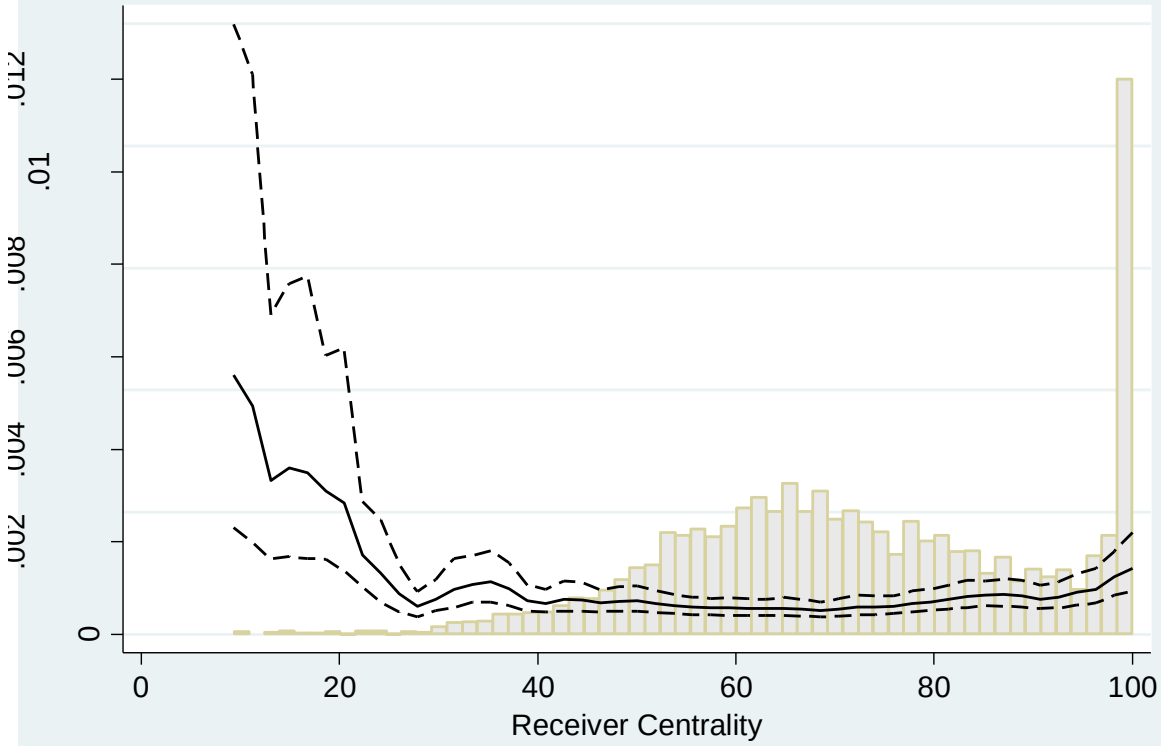


Figure 3: Political Sanction Probability and Receiver Centrality



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