Power Positions

INTERNATIONAL ORGANIZATIONS, SOCIAL NETWORKS, AND CONFLICT

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A growing number of international relations scholars argue that intergovernmental organizations (IGOs) promote peace. Existing approaches emphasize IGO membership as an important causal attribute of individual states, much like economic development and regime type. The authors use social network analysis to show that IGO memberships also create a disparate distribution of social power, significantly shaping conflicts between states. Membership partitions states into structurally equivalent clusters and establishes hierarchies of prestige in the international system. These relative positions promote common beliefs and alter the distribution of social power, making certain policy strategies more practical or rational. The authors introduce new IGO relational data and explore the empirical merits of their approach during the period from 1885 to 1992. They demonstrate that conflict is increased by the presence of many other states in structurally equivalent clusters, while large prestige disparities and in-group favoritism decrease it.

Keywords: *social network; militarized international dispute (MID); interstate conflict; democratic peace; international governmental organization (IGO)*

International governmental organizations (IGOs) promote peace and cooperation among member states; so say a growing number of international relations scholars. Over the past thirty years, researchers have devoted substantial resources to analyzing the liberal proposition that IGOs offer states important pacific benefits, reducing military conflict between members by creating an interdependent world context of mutual self-interest and understanding. Like trade and democracy, membership in IGOs has come to be conceptualized as an important state attribute: as a characteristic that

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governments possess by joining IGOs, which, in turn, affects their foreign policy behaviors.

This article brings a new analytic perspective to the debate. We agree with the liberal premise that IGOs influence states' conflict propensities. However, our aim is to show that IGOs are more than *attributes* of individual states that place institutional constraints on members' military ambitions. IGOs also create empirically identifiable social networks that help to define the conditions under which acts of aggression or cooperation can be rational strategies of action in international relations. It is our core contention that interstate military aggression is not simply a result of bargaining failure but is suppressed or encouraged by the relative *positions* states occupy in the larger network of IGOs, which promote common beliefs and alter the distribution of social power.

Our analytic approach is different from the liberal argument in several respects. Like many structural realists, we locate sources of conflict in emergent relations between states that materialize within an international environment of power politics rather than from state attributes alone. We also recognize that IGOs are vehicles for power politics that often create conflict-producing rather than peace-making incentives. Like the relative material positions that encourage balancing or bandwagoning behavior, these social structural positions held by states are emergent properties of the international system that influence foreign policy behaviors. They operate on a level of analysis separate from the state attributes, dyadic properties, or systemic qualities typically used to explain conflict. However, our approach also breaks with the structural realist perspective;[1] we argue that IGOs have causal importance independent of state interests, emphasize that power is endowed not only by material positions but also by social structural positions, and posit that the common beliefs created by these positions significantly affect conflict.

We divide our argument into four parts. First, we review the existing theoretical and empirical literature predicting the effects of IGO membership on international conflict, identifying two core omissions. Few studies hypothesize the effect of social networks created by IGO membership patterns on conflict between states; none offer the empirical tools to systematically analyze these network effects. Second, we introduce a new analytical approach to the problem and discuss how different types of social positions within the network structure are likely to influence state conflict in the international system. In the third section, we introduce new IGO relational data and explore the empirical merits of our approach during the period from 1885 to 1992, demonstrating that conflict is increased by the presence of many other states in structurally equivalent clusters, while large prestige disparities and in-group favoritism decrease it. We conclude by drawing implications for future research on social networks, IGOs, and conflict in the international system.

1. While we break with the materialism of Waltz (1979), Waltz's emphasis on material power is not an intrinsic feature of his theory; our addition of social power positions is therefore a compatible addition to a realist approach (Goddard and Nexon 2005).

IGO MEMBERSHIP: COOPERATION OR CONFLICT?

Our argument stands in sharp contrast to current research on IGOs that view organizations as only or primarily external agents of cooperation, although we believe our approach is in many ways complementary. Many scholars of international relations have made the case that IGOs promote peace or decrease states' bellicose tendency to go to war (Angell 1913; Laski 1933; Zimmern 1936; Haas 1958; Mitraney 1966; Jacobson, Reisinger, and Mathers 1986; Domke 1988).[2] This proposition was not systematically studied until 1970, when Wallace and Singer (1970) offered one of the first descriptions of the population of IGOs in the world system. They found a consistently positive correlation between the end of interstate war and the creation of new IGOs but very little evidence that IGOs reduce state tendency to go to war (Singer and Wallace 1970).

Thirty years later, the study of IGOs and conflict has undergone a revolution. Scholars have produced increasingly sophisticated arguments to support the premise that IGOs can reduce conflict. IGOs facilitate state cooperation by increasing the flow of information between states and providing opportunities for coordination among governments (Keohane 1984; Chayes and Chayes 1998); by providing mechanisms for states to express credible commitments to a particular policy or behavior (Moravcsik 2000); by proffering global norms among states with very different social and political histories, socializing elites, generating a shared sense of values and identity, legitimating collective decisions, and changing domestic conceptions of identity and self-interest (Deutsch 1957; Finnemore 1996; Oneal et al. 1996; Russett, Oneal, and Davis 1998; Johnston 2001); by strengthening democracy and smoothing the progress of markets (Oneal and Russett 1999); and by increasing the opportunity costs of dispute, establishing conflict resolution mechanisms, or even transforming state preferences from conflict seeking to peace promoting (Diehl 1997; Stone Sweet and Brunell 1998; Mansfield and Pevehouse 2000; Gartzke, Li, and Boehmer 2001; Russett and Oneal 2001).

Theory supporting a link between IGOs and peace has developed much faster than systematic empirical evidence. Existing research is often based on case studies that do not support generalization, while the few quantitative studies that do exist offer contradictory evidence. For example, Oneal and Russett (1999) and Oneal, Russett, and Berbaum (2003) found that the higher the relative number of shared memberships and the higher the system average of joint memberships, the lower the predicted likelihood of dispute between two states. Gartzke, Li, and Boehmer (2001) found that when the data were corrected for the length of time since the previous conflict between a dyad,[3]

2. A few scholars of international relations (IR) argue that intergovernmental organizations (IGOs) have no real influence on state conflict behavior (Schweller 2001; Mearsheimer 1995; Jervis 1982). Some neorealists in particular claim that international institutions are a pure function of power politics and therefore largely "epiphenomenal" to the study of international conflict (Mearsheimer 1995). Others have suggested that these organizations at times could raise or lower hostilities among states (Boehmer, Gartzke, and Nordstrom 2004), although these conditions have not been articulated in great detail and are seldom tested systematically.

3. The use of splines, initially proposed by Beck, Katz, and Tucker (1998), has become standard among scholars; see also Bennett and Stam (2004).

mutual international organization membership showed a positive relationship to conflict. This finding was confirmed by Kinsella and Russett (2002). Boehmer, Gartzke, and Nordstrom (2004) found no significant relationship between mutual membership and peace when IGOs are treated homogeneously, controlling for the level of engagement in the international system (measured by the number of diplomatic missions sent or received).

We address two critical gaps in this literature. First, IGO memberships have been treated primarily as state attributes, yet they also create networks that define the relative social positions of states in the international system, which in turn create conditions for conflict or cooperation. Second, these networks have not been subject to systematic measurement. We introduce an analytical perspective, complementary empirical methodology, and new data suitable for testing the effects of particular social network configurations in general and our core proposition in particular: that states' relative positions in the IGO social network have significant effects on conflict and cooperation behaviors. IGOs shape conflict in the international system, not simply through military might or the provision of dispute settlement procedures but also by promoting common beliefs and altering the distribution of social power.

Concerning the first gap, almost all systematic research on IGOs and state conflict today conceptualizes IGOs as influencing states' conflict behavior through one of two mechanisms—when states join an organization, they come under the influence or constraint of the rules and norms of the organization, and these rules and norms influence their behavior through incentives. For most scholars of international relations, IGOs thus shape states' behaviors by supplying the material rewards or punishments to support conflict or cooperation, by providing dispute resolution mechanisms, or by changing domestic distributions of power or interests among groups pursing conflict or cooperation. Empirical methodologies designed to study IGOs thus treat organizational membership as a state *attribute* and are consequently designed to test some variant of the proposition that states with a greater number of IGO memberships are less (or more) likely to engage in militarized conflict behavior. We agree fully that IGOs supply various institutional attributes that shape members' behaviors in important ways; IGO influence, however, is not limited to these mechanisms.

Concerning the second gap, scholars of international relations have yet to systematically examine whether states' relative positions in the IGO network shape state actions.[4] Although a rising number of scholars argue that IGOs influence state behavior through social processes, few employ the methodological tools to systematically test their propositions or to compare their propositions to more conventional institutional accounts. We use social network analysis tools to measure the relative positions of states in the social network formed by IGOs and compare their effectiveness with institutional perspectives. These tools have been widely used in research on aggressive behaviors among human beings and primates; this research demonstrates that acts of aggression are less characterized by individual traits or direct relations than by the

4. In the study of international organization, two rare exceptions are Skjelsbaek (1972) and Dorussen and Ward (2005).

positional characteristics that emerge within an organized social setting.[5] Our core aim is to introduce an analytic approach and an empirical methodology that allows for systematic assessment of social network arguments more generally and social power arguments more specifically.

In particular, we provide the tools to analyze the ways in which two of the most important types of social network positions affect behavior. First, we have strong reasons to expect that states that are in similar social structural positions—in particular, states that are *structurally equivalent* (i.e., that have similar patterns of IGO ties to other states)—will share common material and ideational traits that will cause them to act similarly. Second, we expect that the centrality of states in the social network—in particular, states' relative *prestige*—will alter these states' conflict propensities due to disparities of social power given by the location of these states in the network. These propositions are similar to the structural realist premises that states in similar material positions will act similarly and that relative material power affects conflict propensity. However, we emphasize social positions and nonmaterial sources of power.

We see three important implications of our research: first, the longstanding assumption that IGOs influence states' behaviors of all kinds through formalized rules can now be systematically compared to their influence on states through the formation of relative positions of social power in the larger network—a claim that has long been marginalized by lack of empirical rigor; second, studies of interstate conflict and cooperation can incorporate a new and important way of understanding how IGOs motivate states' behaviors through the creation of social networks; and third, the introduction of social network analysis allows for the incorporation of a different level of analysis in international relations, between systemwide properties and the attributes or dyadic relations of individual states.[6]

SOCIAL NETWORK STRUCTURES, STATES, AND CONFLICT

States operate in a semistructured international system, distinguished by varying degrees of cooperation and competition, shaped by the distribution of power combined with the lack of strong mechanisms of enforcement (Waltz 1979; Keohane 1984). This international system of anarchy is indeterminate for state conflict behavior: the social (Wendt 1999) and geographic (Mearsheimer 2001) structure of the international system allows for a wide range of different state behaviors, including states' aggressive military behaviors toward other states. For more than a century, this international environment has become increasingly populated by IGOs (Jacobson,

5. For research on aggression among schoolchildren, a well-developed literature in social psychology shows that acts of aggression arise through a structure of social networks formed in the classroom (e.g., McFarland 2001). Research on animals also shows that aggression is connected to social networks; aggression is common where social status is undetermined but decreases once dominance hierarchies are formed (e.g., Chase 1980).

6. The study of emergent, subsystemic properties in international relations has been primarily restricted to social theoretical accounts (Jackson and Nexon 1999; Wendt 1999) or to agent-based modeling (Axelrod 1997; Cederman 2001).

Reisinger, and Mathers 1986). States, like individuals, form networks of relational ties in this system through common affiliations. These networks, whether composed of individuals or states, influence the behaviors of their members by endowing some with greater social power and by shaping common beliefs about behavior. These, in turn, make certain strategies of action more rational than others.

Social network literature on conflict in general demonstrates neither universally positive nor negative effects on aggressive behavior. We believe that IGO social networks are similarly complex; they can and do increase and decrease conflict behavior for different state members under different circumstances. Indeed, several theorists of international relations suggest strong reasons to be skeptical of the liberal belief that IGOs uniformly reduce the risks of militarized disputes. Although IGOs may encourage reciprocity among states by providing information and decreasing the transactions costs of cooperation, IGOs may at the same time increase the risk of aggression because members are more likely to interact competitively with one another. Moreover, as Boehmer, Gartzke, and Nordstrom (2004) argue, states that belong to many different IGOs may have a greater number of international interests to competitively defend and a greater array of opportunities to enact aggressive behavior in defense of those perceived interests. For this reason, we offer no a priori prediction about the general effects of simple dyadic relational ties between states on conflict. Nevertheless, we propose that states' positions in social networks can and do affect states' aggressive behavior; we now turn in more detail to describing how these positions are created and how they affect conflict propensity.

SOCIAL NETWORK POSITIONS

Social network analysis takes relations as well as individuals as primary subjects of study. Individuals in a network have relations that allow for the exchange of tangible (information and services) and intangible (social support and authority) goods. When two individuals are connected by a set of social relations, a tie is formed. The strength of a tie varies with the frequency, duration, intensity, and reciprocal quality of that relation. Given a set of actors and a set of ties, the structure of a social network can be identified. Individuals can be any actor or group of actors, from animals to entire nation-states. Ties can be positive or negative (friendship or enmity) and can be symmetrical (the tie between A and B is the same as the tie between B and A) or asymmetrical (the tie between A and B is different from the tie between B and A). These sets of relations determine the relative social positions of actors in the system.

We operationalize ties between states as frequency of interaction in an institutionalized setting and therefore measure ties between states as common IGO membership, with the strength of the tie equal to the total number of IGOs that both states belong to in a given year ($IGOSAME_{ij}$).[7] However, we are less interested in the direct ties

7. Other possible operationalizations of social ties include diplomatic relations, trade, and alliances. However, each of these other options is problematic. Diplomatic relations data are less frequently collected (every five years), are only available through 1990, and have less variation and many missing values. Trade and alliance data are directly dyadic; however, trade data are economic in nature, while alliance data form a very sparse network and are military in nature.

between two states than in the relative positions that these two states occupy by virtue of the patterns of ties of the entire system. We define and measure two types of positions most related to major theories of international relations: clustering of states by how similar their relations are to other states (*structural equivalence*) and ranking the popularity of states by determining how strongly other states are linked to them (*prestige*). We explore these ideas in the following subsections.

STRUCTURAL EQUIVALENCE

The first of the two social network positions that we examine concerns whether countries have similar patterns of ties with each other, a property known as structural equivalence. Two actors are *structurally equivalent*[8] if they share the same ties with the same actors. Since exact equivalence is rare in social data, positional analysis attempts to identify actors who are structurally similar to each other. Actors can be divided into clusters based on how similar their patterns of ties are to each other (see next section for a full mathematical treatment). These actors may or may not have ties to each other or even share ties through the same affiliations. However, due to their common social positions in the international system, there are good reasons to expect that they should act in similar ways. Groups of states often have a notion of belonging to a group with or without the existence of formal ties directly between states (e.g., North/South, East/West, First/Third World, developing/developed, and U.S.-aligned/Soviet-aligned/nonaligned).

We are aware of no empirical research on clusters of states formed by IGO membership ties. We nevertheless have strong reasons to expect the existence of clusters to have varying effects on states' aggressive behaviors. Social network analysis itself does not make strong predictions in one direction or the other for structurally equivalent actors. Due to their similar social positions, structurally equivalent states are likely to hold similar beliefs regarding the salience of armed conflict with other states. However, these beliefs may push conflict behavior in one of two directions. They may, for example, be placed in a position of competition with each other due to being in the same position (see, e.g., Burt 1987). Alternatively, they may view members in the same position as similar and therefore refrain from aggression (see, e.g., Salmivalli, Huttunen, and Lagerspetz 1997). The question is an empirical one, although we find the latter to be a more convincing prediction since in-group favoritism is a well-established phenomenon in social psychological studies of conflict (Levine and Moreland 1998). For example, in the classroom, shared friendship networks reinforce students' aggressive behaviors toward students outside their own group by providing a dense system of social support for aggressive action—well-defined groups (or popular social groups) are more likely to enact aggression toward students outside their own cluster (McFarland 2001). This finding is supported by Salmivalli, Huttunen, and

8. See Wasserman and Faust (1997, chap. 9) for a technical discussion of structural equivalence; for the origins of the current usage of the term, see Burt (1976); for a good overview, see Scott (2000, chap. 7). Structural equivalence is a slight misnomer since it measures equivalence with respect to particular actors rather than referring to the type of relationship; see Borgatti and Everett (1992) on distinctions between different types of structural similarity.

Lagerspetz's (1997) observation that students outside of classroom peer networks are most often victims of student aggression. If conflict among states is anything like conflict among students, we should expect states in similar social structural positions to refrain from engaging in overt acts of military aggression against each other.

Hypothesis 1a(b): States in the same (different) clusters will be more likely to conflict militarily than states in different (the same) clusters.

We also expect conflict propensity to vary with the size of the clusters for several reasons. First, if states are in a small, well-defined cluster, they are likely to have positive ties with each other as well as a similarity of ties with other states, while larger groups are less likely to have such ties that constrain hostile behavior. Second, competition may be greater when many actors occupy the same structural position. Third, single acts of competitive aggression can often take place in large social groups without injuring the overall structure of the social network (Bales and Borgatta 1955). This is because larger clusters may diffuse intense emotions produced by rivalry among heterogeneous members, providing an environment characterized by some degree of anonymity. In a recent study of students in kindergarten and first grade, Benenson et al. (2001) show that the size of students' clusters that develop in the classroom is significantly related to members' aggressive behaviors: bigger clusters (among boys) tended to be more aggressive. Fourth, larger groups are likely to have a more heterogeneous population with conflicting viewpoints. Again, an analogy can be made to studies of student behavior in the classroom. Theorists have hypothesized that larger clusters among students display a greater degree of openly conflicting viewpoints among members (Thorne and Luria 1986; Maccoby 1990). This conclusion was supported by Salmivalli, Huttunen, and Lagerspetz's (1997) finding that child aggressors belong to larger clusters than victims and that such aggression was usually directed to victims in different social groups. If conflict among states is driven by similar social network principles as conflict among students, we should expect states in larger clusters to be more likely to conflict than members of a smaller cluster.

Hypothesis 2: States in larger structurally equivalent clusters are more prone to military disputes both with members and nonmembers than states in smaller structurally equivalent clusters.

Our cluster hypotheses have a similarity to existing theories in international relations. With respect to hypothesis 1, formal alliance structures and collective security communities are often hypothesized to decrease conflict. Our hypothesis differs from both of these theories in that these clusters require neither formal alliance commitments nor mutual positive ties but rather simply similar relations vis-à-vis other states in the international system. With respect to hypothesis 2, it is generally believed that that cooperative relations (or collective action) in IGOs become more difficult as the number of actors increases (Olson 1965; Keohane 1984). For most scholars of international relations, difficulties in cooperative relations are understood to emerge because monitoring and enforcement become progressively more complicated when the size of IGO membership increases, making cheating an advantageous strategy. Decision making may also become more inefficient (Kahler 1995). Smaller institutions are believed to be able to overcome these weaknesses and thus to offer an institutional environment more congenial to cooperation. However, these mechanisms are based on rational decision making in *formalized* groups, while we have articulated a different mechanism in a different environment (in the international system rather than inside an IGO) through which the size of *informal* groups also matters: smaller clusters are also more likely to offer the *social* environment more likely to produce cooperation among members.

PRESTIGE

The second social network position that we consider is how often other states choose to be in IGOs with particular states: prestige. Much like people, states hold positions that are more or less prestigious in the social network. Prestige is proportional to the number of ties received by an actor; an actor has a high *prestige* if many other actors have ties to that actor. Prestige is a form of social status that extends across clusters and that can serve to reinforce a prestigious actor's behavior. In the international system, prestigious states have a great deal of social power;[9] they can withhold or promise social benefits such as membership and recognition or enact social sanctions such as marginalization as a method of coercion short of a militarized dispute. Moreover, due to their higher social status, a common expectation is held that prestigious states would expect additional support in a conflict. The logic of social power works in the same way that material power does; asymmetries may cause increased conflict if more powerful actors decide to exploit weaker actors; alternatively, they may decrease conflict if asymmetries make the outcome of disputes clearer, promoting settlement before the disputes become militarized.

Ultimately, whether prestige hinders or promotes conflict may depend on the type of social network. Friendship networks in classrooms, for example, indicate that prestige may increase the likelihood of aggression (Wright, Zakriski, and Fisher 1996; Pettit et al. 1990; McFarland 2001; Prinstein and Cillessen 2003; Xie, Farmer, and Cairns 2003; Estell et al. 2002). If states are like students, we will expect to see that the more prestigious will expect to receive more social support when they resort to military threats or the use of force in a dispute and so will be more likely to use such methods. However, aggression is a method of gaining or maintaining prestige in these networks. By contrast, in the international system, high-prestige states may be able to get what they need without reverting to aggression since prestige is decoupled from aggression.

9. Our conception of social power is derived from a particular conception of social capital. Social capital was originally defined by Bourdieu (1986, 248) as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition." Two schools of thought regarding social capital have since developed (Portes 1998): the idea that structural holes are sources of capital (Burt 1992) and the idea that centrality is a source of capital (Coleman 1990). We take the latter definition as our basis for measuring social power.

Hypothesis 3a(b): Pairs of states with high (low) relative disparities in prestige will engage in aggressive behavior more often than pairs with low (high) disparities in prestige.

Like our cluster hypotheses, our prestige hypothesis parallels existing international relations literature. Prestige has been cited as an incentive for states in the international system to gain symbols of international prominence such as nuclear weapons (Sagan 1997) or advanced weaponry (Eyre and Suchman 1996), either of which may lead to conflict. However, as a direct link to war, few studies have considered prestige to be something that might directly cause states to fight. One good exception is O'Neill (1999), who argues that states are likely to get into conflicts in order to maintain their honor, face, or prestige when they are challenged by another state. O'Neill defines prestige as a belief that a person is generally admired in a group and will gain influence in the group because of it. His definition is compatible with social network conceptions of prestige (a person who is admired can be operationalized as a person who receives many friendship ties); however, his discussion is a formal theoretical one and omits measurement.

EMPIRICAL ANALYSIS

We apply these tools of social network analysis to existing empirical studies of IGO effects on state conflict. Through replication, we aim to refocus analytical attention away from the liberal worldview that conceives of states as independent users of IGOs toward a worldview that understands states as embedded in an interconnected set of institutional associations that endows members with varying degrees of prestige and membership within clusters. As we will show below, this analytical shift brings new empirical insights to research on IGOs and conflict and demonstrates several conditions under which IGOs encourage rather than suppress military conflict.

Our study uses pooled cross-national time-series data on state dyad-years. We focus our attention on all dyads[10] from the period from 1885 to 1992. We base our analysis on the data and findings of Oneal and Russett (1999).[11] Following both Mansfield and Pevehouse (2000) and Boehmer, Gartzke, and Nordstrom (2004), we employ Beck, Katz, and Tucker's (1998) splines[12] to correct for temporal dependence in the dependent variable. We recognize that IGOs exhibit a great deal of institutional variation. Nevertheless, we adopt the simplifying assumption here that IGOs can be analyzed as if they are a homogeneous population in order to remain consistent with the original study. We thus assume that social network properties that emerge through one set of IGOs (such as security organizations) are socially equivalent to properties

10. We choose to use all dyads instead of politically relevant dyads since the effects captured by taking only a subset of states (power projection capabilities, distance between dyads) are already included in our model.

11. Oneal and Russett's (1999) study gives full details of their model specification and their results; both manuscript and data are available online at http://www.yale.edu/unsy/democ/democ1.htm.

12. We compute a three-knot cubic spline using BTSCS (Tucker 1999).

emerging through another set of IGOs (such as economic organizations).[13] We introduce new IGO data as well as three new social network variables that we have derived from patterns of IGO memberships.

We begin with replication.[14] We estimate the following model (1):

$$\begin{aligned} MID_{ij} = \beta_0 &+ \beta_1 IGOSAME_{ij} + \beta_2 DEM_L + \beta_3 DEPEND_L + \beta_4 CAPRATIO_{ij} \\ &+ \beta_5 ALLIANCES_{ij} + \beta_6 NONCONTIG_{ij} + \beta_7 DISTANCE_{ij} + \beta_8 MINORPWRS_{ij} \\ &+ \beta_9 HEGDEF_{ij} + e_{ij}. \end{aligned}$$

DEPENDENT VARIABLE

Militarized international disputes (MID_{ij}) occur when a state threatens or enacts military force against another state. The observed value of the dependent variable is binary, equaling 1 if a dyad *ij* experiences a MID in a given year *t* and 0 if no MID is observed.

INDEPENDENT VARIABLES

DEM_L measures the political character of the less democratic state in a dyad, which liberals expect to be the stronger determinant of conflict behavior. Because a MID can result from the actions of a single state, they argue that MID likelihood mainly depends on the level of political constraint experienced by the weak link—the less constrained state in each dyad (or the less democratic state). The variable ranges from –10 for a state characterized by extremely autocratic political institutions to 10 for a state characterized by extremely democratic political institutions. To remain consistent in replication, we compute this variable using POLITY III data, although that data source has since been updated.

The weak link theory extends to economic interdependence as well. (For a helpful evaluation of weak link measures, see Goertz 2005). Liberals argue that the likelihood of an MID will depend on the level of state economic interdependence for the least dependent state. States that are less constrained by bilateral trade interdependence with their dyad partner are more likely to employ military force. $DEPEND_L$ thus measures the sum of the least dependent country's exports and imports with its dyad partner by its gross domestic product (GDP) and is expected to be negative.

To investigate their hypothesis that IGOs reduce the likelihood of state conflict, Oneal and Russett (1999) measure the number of IGOs that a pair of states *ij* share membership in during a given year *t*, drawing on a sample collected every five years of all "conventional international bodies" from 1970 to 1992 and relying on a sample col-

13. We relax this assumption in a current work in progress and test whether social networks emerging through different populations of IGOs have the same influence on state aggression. However, our assumption that IGOs are *socially* similar is a weaker assumption than the assumption that IGOs are *functionally* similar used by other studies.

14. Oneal and Russett (1999) offer several specifications of their model. We adopt their basic model with the addition of the spline correction instead of the four-variable linear correction they use, although we choose to incorporate their measure of hegemonic defense burden from the very outset to control for the realist argument that a hegemon's assumption of the general defense burden is related to the likelihood of dyadic conflict.

lected by Wallace and Singer (1970) from 1885 to 1965.[15] They call this variable IGO_{ij} and expect that dyads sharing a greater number of IGO memberships will be less likely to conflict. We substitute our variable $IGOSAME_{ij}$ based on updated data collected yearly in all models (see below).

It is important to control for a variety of competing hypotheses. We measure the balance of power within a dyad to test whether an equal balance of power or a preponderance of power works to deter MIDs. $CAPRATIO_{ij}$ is the natural logarithm of the ratio of the stronger state's military capability—measured by averaging its share of world population, urban population, military expenditures, military personnel, iron and steel production, and energy consumption—to that of the weaker dyad member. This may increase conflict (if the stronger state is tempted to take over the weaker one) or decrease it (if the stronger state deters the weaker state from attacking). $ALLIANCES_{ij}$ equals 1 if the dyad members were linked by formal mutual defense treaties, neutrality pacts, or entente and equals 0 otherwise. This variable is important to control for the common wisdom that allies are generally likely to fight each other less than nonallied states because they share a common security interest. $CONTIG_{ij}$ controls for the potential that MIDs result when at least one member of a dyad can reach the other member with effective military force. The variable equals 0 if two states are not directly or indirectly contiguous and 1 if they share a territorial boundary or are divided by less then 150 miles of water. $DISTANCE_{ij}$ controls for the natural logarithm of mileage between the two capitals of dyad partners. $MAJORPWRS_{ij}$ controls for the effects of great powers.[16] The variable takes on a value of 0 if a dyad is made up of minor powers and 1 if it contains at least one great power. Finally, *HEGDEF* controls for the possibility that MIDs decrease as a result of the hegemon's assumption of the defense burden of the rest of the world (and therefore suppression of conflict). This variable is computed by the proportion of GDP the hegemon devotes to military expenditures.[17]

To test our social network hypotheses, we estimate a second model adding our social network variables: $CLUSSAME_{ij}$, $PRESTIGE_D$, and $CLUSSIZE_H$. $CLUSSAME_{ij}$ is 1 if both states are in the same structurally equivalent cluster (described in the next subsection) and 0 otherwise. $PRESTIGE_D$ is the difference between the prestige of two states since we expect that disparities in prestige (see below) will allow the more prestigious state to settle conflicts before they become militarized. We compute $CLUSSIZE_H$ using a "weak link" assumption that is consistent with previous arguments that a dispute can result from the actions of a single state in a dyad.[18] In our case, we test whether the likelihood of conflict is a function of the highest degree of prestige

15. The authors also measure average IGO membership density and relative IGO membership.

16. We use the Correlates of War 2 (COW2) data set to determine major power status.

17. One of our reviewers suggested that there are likely to be relationships between power and several of our network variables, such as prestige and cluster size, and that descriptive statistics on the variables would prove useful. We do not report these statistics due to space constraints but we do include $MINORPWRS_{ij}$, $CAPRATIO_{ij}$, and $HEGDEF_{ij}$ to control for power; correlations and descriptive statistics will be available on the *Journal of Conflict Resolution* Web site at http://jcr.sagepub.com/cgi/content/full/50/1/**000**/DC1/.

18. Reviewers suggested alternate specifications of our model to test certain hypotheses more directly; one recommended testing prestige as a directed dyadic variable (Bennett and Stam 2000a, 2000b)

or cluster size experienced in a dyad. To compute these variables, we thus rely on Wallace and Singer's (1970) early collection of IGO data, which is the most comprehensive sample available for the time period.[19] We also rely on Pevehouse, Nordstrom, and Warnke's (2003) update of these data from 1965 to 1992.[20] IGOs from Pevehouse, Nordstrom, and Warnke are matched with Singer and Wallace's (1970) original data. The new data set contains a subset of the original international organizations sampled. This discrepancy in sample accounts for the difference between the IGO_{ij} variable used in previous studies and our $IGOSAME_{ij}$ variable, although their empirical correlation is greater than 0.85.

DERIVING THE SOCIAL NETWORK VARIABLES

Our IGO membership data span the period 1885 to 1992. For each year, we take the n states and k IGOs that exist for that year,[21] forming an n-by-k affiliation matrix A.[22] Each entry is either 1 (if a state is a full member of an IGO) or 0 (if not). We then convert the affiliation matrix A into a sociomatrix S by multiplying the matrix by its transpose ($S = A'A$). Each off-diagonal entry s_{ij} is equal to the number of IGOs that states i and j have in common, while the diagonal s_{ii} is equal to the total number of IGOs country i belongs to.

As an example, suppose that the entire system was composed of four countries and six IGOs. Then we would have an affiliation matrix A (data are for illustrative purposes only):

	IGO1	*IGO2*	*IGO3*	*IGO4*	*IGO5*	*IGO6*
United States	1	1	1	1	0	0
France	1	1	1	1	1	0
China	0	0	0	1	1	1
North Korea	0	0	0	0	0	1

Then this would produce a symmetric sociomatrix S:

against dispute initiation, while another argued that prestige is a monadic variable rather than dyadic. Each of these alternate specifications has merit; however, we have argued that it is differences in prestige (a dyadic attribute derived from a monadic property that is, in turn, derived from the entire system of ties) that cause variations in conflict. In ongoing work, we use a wider variety of specifications to test variants of our general hypotheses.

19. Wallace and Singer's (1970) data are coded in such a way that they "look forward" (i.e., membership for 1960 covers membership from 1960 to 1964). Since they also provide the data for the exact start date of each IGO (and since state membership data are also available), we correct for this when calculating yearly membership before 1965.

20. We thank Jon Pevehouse and Timothy Nordstrom for use of their data. Further information regarding the collection of these data can be found in Pevehouse, Nordstrom, and Warnke (2003).

21. See the Correlates of War 2 Project (2003) and Pevehouse, Nordstrom, and Warnke (2003) for the COW2 criteria for state and IGO existence, respectively. We count only full members of IGOs.

22. An *affiliation matrix* is a social network term for a special case of a two-mode matrix. A two-mode matrix has two distinct types of entities; an affiliation matrix is a two-mode matrix with only one set of actors. See Wasserman and Faust (1997, 29-30).

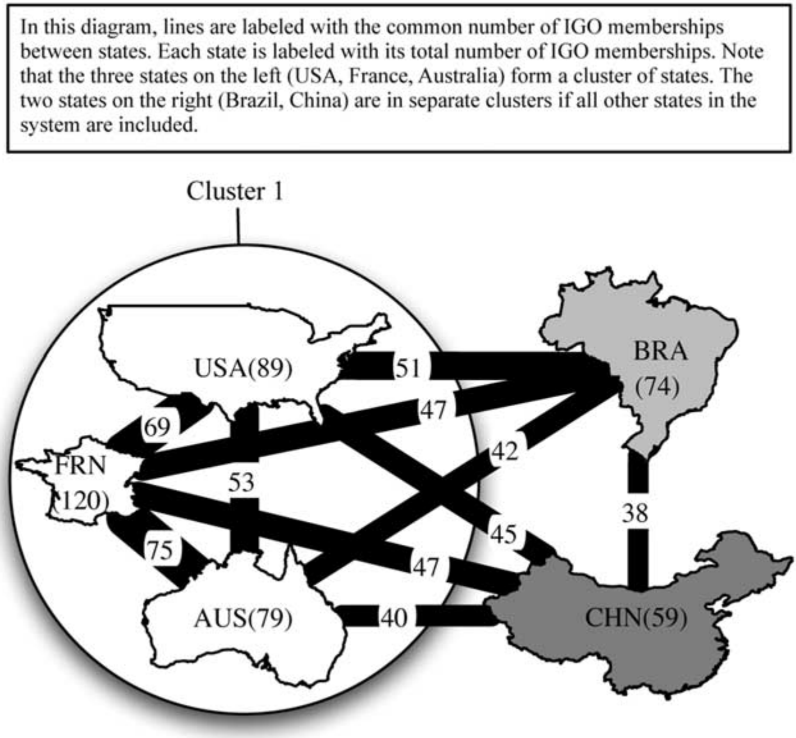

Figure 1: Measuring Ties and Cluster Membership from Intergovernmental Organization (IGO) Membership

NOTE: Data are from 1992. Countries are placed for readability; distances and placement do not have any meaning.

	United States	*France*	*China*	*North Korea*
United States	4	4	1	0
France	4	5	2	0
China	1	2	3	1
North Korea	0	0	1	1

Some social network studies convert this matrix into a binary matrix by specifying a threshold number of common memberships to count as a tie between two countries (e.g., more common memberships than the mean or median). However, specification of the threshold is arbitrary and an unnecessary simplification. To calculate our measures, we use the raw sociomatrix S to derive our measures whenever possible and appropriate.

Since our theory specifies that it is overall social structural *positions* that have an effect on conflict rather than direct social *relations*, we use this matrix to derive measures of social positions in the international system, *structurally equivalent* clusters and *prestige*. See Figure 1 for an example of measuring ties and cluster membership from 1992 data.[23]

Clusters. Two actors are *structurally equivalent*[24] if they share the same ties with the same others.[25] However, since this is rare in social data, positional analysis attempts to identify actors who are structurally similar. To determine the similarity of ties between two states, a metric must first be selected for comparison. Typical metrics for nondirected data ($s_{ij} = s_{ji}$) include the absolute value metric

$$d_{ij} = \sum_{k \neq i,\, j} |s_{ik} - s_{jk}|$$

and the Euclidean metric

$$d_{ij} = \sqrt{\sum_{k \neq i,\, j} (s_{ik} - s_{jk})^2}.$$

We use the absolute value metric in our study; in tests, the absolute value metric outperformed the Euclidean metric in producing clusters such that the reduced block model[26] correlated highly with the original sociomatrix. In addition, the absolute value metric generally produced more stable clusters.[27]

In our example, the sociomatrix S (if this included every state in the international system) would produce a symmetric absolute distance matrix D:

	United States	*France*	*China*	*North Korea*
United States	0	1	3	4
France	1	0	4	5
China	3	4	0	3
North Korea	4	5	3	0

Note the result that the United States is closer to China than France is to China despite the existence of a greater number of direct links between China and France than the United States and China. This is due to the fact that China and the United States have more similar links to other countries than China and France do.

23. We used R 2.0.1 (R Development Core Team 2004) with the package sna 0.44-1 (Butts 2004) for producing all social network variables.

24. See Wasserman and Faust (1997, 356-75) on structural equivalence.

25. Structural equivalence is a test of similarity somewhat akin to Signorino and Ritter's (1999) S in that both use a metric to determine the distance between two states in a dyad in order to determine their similarity. However, Signorino and Ritter use the similarity data directly as a relation rather than using them to cluster states together as a group.

26. A reduced block model assumes that ties between all countries within a given cluster are 1, while ties to countries in other clusters are 0.

27. A reviewer suggested using the distance metric directly instead of clustering states based on the metric. However, hypothesis 3 relies on measuring the number of states in each cluster; without clustering, this hypothesis could not be tested. However, the metric could be used as an alternate method of testing whether "closeness" affects conflict; we do so as a robustness check.

After determining the distance between every pair of countries, we partition states into clusters using average-link hierarchical clustering.[28] Hierarchical clustering starts with each actor in a separate cluster, then increases the distance level using the clustering criteria until the desired number of clusters or the desired level is reached, described below. We use average-link clustering because it produces more homogeneous and stable clusters than other methods.[29] Either a level or a number of clusters can be set. In our example, progressively decreasing the number of clusters would produce the following clusters:

Number	*Clusters*
4	[United States], [France], [China], [North Korea]
3	[United States, France], [China], [North Korea]
2	[United States, France], [China, North Korea]
1	[United States, France, China, North Korea]

Setting a fixed or variable level for clustering would be somewhat arbitrary and could potentially force many small clusters in later years. Instead, we set the number of clusters. To robustly test our hypothesis that states in large clusters are more conflict prone, we smoothly increase the number of clusters with the number of states in the system to keep the average size of clusters across time consistent.[30] We then define two variables based on these clusters, $CLUSSAME_{ij}$ and $CLUSSIZE_i$. $CLUSSAME_{ij}$ is 1 if both i and j are in the same cluster; $CLUSSIZE_i$ is equal to the number of states in state i's cluster.

Prestige. A *prestigious* actor is the recipient of many ties.[31] From the sociomatrix S, we can compute prestige values for each state. The appropriate prestige measure to use depends on whether higher prestige comes from being linked to prestigious actors, any actors, or nonprestigious actors. For example, bargaining leverage may be increased if

28. Hierarchical clustering is called agglomerative clustering because it starts out with each country in a separate cluster, then builds clusters piece by piece. We also tested one method of divisive clustering (CONCOR). In divisive clustering, one cluster is split into smaller clusters until the desired number is reached (Wasserman and Faust 1997, 375-81). Through the same block model test we used to determine which metric to use, we found that CONCOR produced clusters that were less correlated with the original pattern of ties than hierarchical clustering using a variety of metrics.

29. See Wasserman and Faust (1997, 381) on different clustering criteria. For example, single-link clustering puts together the two clusters with the smallest minimum pairwise distance and tends to create more heterogeneous, less stable clusters. Complete-link clustering, by contrast, merges two clusters with the smallest maximum pairwise distance in each step. Average-link clustering strikes a balance between the two.

30. We increase the number of clusters in our sample from two in 1885 up to ten in 2000. We find that the average of six clusters is an optimal (and nonarbitrary) number; when checking for correlation with the original data in a reduced block model, we find that the increase in correlation for each additional cluster drops off after about six clusters. We therefore chose the mean number of clusters to be six by setting the number of clusters per year to the number of states divided by 18 rounded down (a number chosen to ensure that at least two clusters exist at all times in the data set). For robustness, we also test a constant number of clusters across all years, which produced substantively similar results.

31. See Wasserman and Faust (1997, chap. 5) on centrality and prestige. Technically, these two measures differ based on whether the underlying ties are symmetrical (centrality) or directed (prestige); since ties between states are symmetrical, we use a centrality measure rather than a prestige measure. However, the two are conceptually very similar.

actors have connections to otherwise weakly connected actors,[32] while being connected to strongly connected actors may increase the resources a state can draw on. As a default assumption, we treat all actors as equal since it is unclear whether being connected to strong or weak actors would be more likely to affect conflict (or, for that matter, what weight should be put on the prestige of an actor).[33] We then define the *prestige* of a state as the sum of a state's ties to all (n) other actors in the system.

$$PRESTIGE_i = \sum_{i \neq j}^{n} S_{ij}.$$

In our example, the prestige values are as follows:[34]

	PRESTIGE
United States	5
France	6
China	4
North Korea	1

STATISTICAL RESULTS

Replication is reported in the first column of Table 1.[35] We are interested in the results for IGOs; all other results in this table are substantively equivalent to previous findings and are thus not discussed here. The effect of the measure of mutual IGO membership ($IGOSAME_{ij}$) is weakly significant and positive: when controlling for temporal dependence, dyads that share a greater number of total IGO memberships (in their IGO sample) are more likely to conflict. Like Boehmer, Gartzke, and Nordstrom (2004), we are skeptical that these results are substantively meaningful. We have argued that $IGOSAME_{ij}$ captures the existence of a social network but says nothing about the *content* of that network and thus offers very limited information about the influence of IGOs on state conflict. Nonetheless, we include the variable in our regressions since the liberal institutional perspective argues that membership in IGOs should affect conflict; we include a relative version of the measure as a robustness check to be consistent with the extant literature and to demonstrate its variable effects under different specifications. Inclusion or exclusion or different formulations did not significantly change our results.

32. See Bonacich (1987) for a generalization of centrality measures and conditions under which ties to weakly connected actors may be a source of prestige.

33. The selection of the weight—β—in Bonacich's (1987) centrality measure is often arbitrary; moreover, this measure is often unstable to changes in β. Consequently, we weight actors equally since we have no a priori knowledge as to what value it should be. This is *degree centrality*. See Wasserman and Faust (1997, 199).

34. If we use eigenvector centrality (assuming that receiving ties from higher prestige actors is more prestigious than receiving them from lower prestige actors), we get [0.619, 0.665, 0.410, 0.083]. If $\beta = -0.4$ (assuming that receiving ties from lower prestige actors is more prestigious), we get [1.176, 0.962, 1.295, 0.129], reversing the rankings of China and France.

35. All values in Tables 1 and 2 were calculated using Stata 8.2 (StataCorp 2004).

TABLE 1

Estimates of the Effects of Intergovernmental Organization (IGO) Social Networks on Militarized Interstate Disputes, 1885-1992

Variable	*(1) Replication*		*(2) Social Networks*		*(3) Minimal Model*		*(4) Politically Relevant Dyads*		*(5) Dispute Onset*		*(6) Generalized Estimating Equation (GEE)*	
IGO membership (*IGOSAME*$_{ij}$)	0.013**	(0.005)	0.015***	(0.005)	0.010**	(0.004)	0.010**	(0.005)	–0.011**	(0.005)	–0.012**	(0.005)
Same cluster (*CLUSSAME*$_{ij}$)			–0.161	(0.101)	–0.342***	(0.106)	–0.247**	(0.102)	–0.052	(0.100)	–0.125	(0.095)
Prestige difference/1000 (*PRESTIGE*$_D$)			–0.355***	(0.103)	–0.244***	(0.089)	–0.448***	(0.111)	–0.342***	(0.104)	–0.298**	(0.121)
Cluster size (*CLUSSIZE*$_H$)			0.012***	(0.004)	0.018***	(0.004)	0.007*	(0.004)	0.011***	(0.004)	0.008**	(0.003)
Lower democracy (*DEM*$_L$)	–0.064***	(0.010)	–0.065***	(0.009)			–0.061***	(0.009)	–0.053***	(0.008)	–0.066***	(0.010)
Trade/gross domestic product (*DEPEND*$_L$)	–42.976***	(12.255)	–41.905***	(12.543)			–21.703**	(9.615)	–26.205**	(11.053)	–46.782***	(15.036)
Capability ratio (*CAPRATIO*$_{ij}$)	–0.204***	(0.042)	–0.189***	(0.044)			–0.256***	(0.044)	–0.182***	(0.039)	–0.261***	(0.054)
Alliances (*ALLIANCES*$_{ij}$)	–0.326**	(0.156)	–0.366**	(0.160)			–0.327**	(0.155)	–0.277**	(0.136)	–0.373**	(0.170)
Hegemonic defense (*HEGDEF*)	7.655***	(1.749)	7.913***	(1.731)			8.347***	(1.780)	9.670***	(1.504)	13.454***	(1.691)
Contiguity (*CONTIG*$_{ij}$)	1.767***	(0.154)	1.744***	(0.157)	1.741***	(0.170)	0.811***	(0.140)	1.698***	(0.141)	1.937***	(0.187)
Log distance (*DISTANCE*$_{ij}$)	–0.450***	(0.053)	–0.457***	(0.057)	–0.376***	(0.059)	–0.215***	(0.055)	–0.505***	(0.047)	–0.537***	(0.059)
Major powers (*MAJORPWRS*$_{ij}$)	1.944***	(0.147)	1.998***	(0.153)	1.514***	(0.147)	0.794***	(0.160)	1.764***	(0.136)	2.022***	(0.184)
Constant	–0.962**	(0.433)	–1.109**	(0.470)	–1.331***	(0.482)	–0.801*	(0.442)	–2.270***	(0.430)	–1.933***	(0.492)
n	149,403		149,403		149,403		33,354		149,403		149,372	
χ^2	2256.35		2190.46		1718.19		1141.16		1915.63		1386.87	

NOTE: The numbers in parentheses are Huber standard errors. Each model is estimated after including spline corrections for temporal dependence, except (6).

*$p \le .10$. **$p \le .05$. ***$p \le .01$.

Column 2 of Table 1 displays the logit estimates of our social network model, including three social network variables. In this model, the estimates of two of the three social network variables are significant, while the third ($CLUSSAME_{ij}$) is negative but just misses significance at the 0.10 level (hypothesis 1a).[36] States positioned in larger clusters are significantly more likely to engage in MIDs with members and nonmembers alike ($CLUSSIZE_H$). We find that large differences in prestige, however, lead to less frequent MIDs ($PRESTIGE_D$). We therefore find strong support for our core proposition: that states' relative positions in the IGO social network have significant effects on conflict and cooperation behaviors. States in larger structurally equivalent clusters are more prone to military disputes both with members and nonmembers (hypothesis 2), while pairs of states with high relative disparities in prestige will enact aggression less often toward each other (hypothesis 3a).

ROBUSTNESS AND SUBSTANTIVE SIGNIFICANCE

We have taken a number of steps to assess the robustness of our findings and to provide results that are as consistent with as many different sample and variable specifications as possible. Although we cannot report all of those steps here in full detail, we do address some of the more important issues in Table 1, which offers estimates across four additional models. In column 3, we present estimates of a model that only includes our social network model and variables that affect a state's ability to start a militarized dispute. In column 4, we present estimates of our social network model calculated from a sample of politically relevant dyads employed by some scholars.[37] The estimates in column 5 present our results using an alternative specification of the dependent variable that considers only the first year of a dispute, as suggested by Boehmer, Gartzke, and Nordstrom (2004). Finally, the estimates in column 6 present our results using the population-averaged panel-data model estimation technique (generalized estimating equation [GEE]) preferred by some scholars.

Our results are quite stable across models, with some small variations. When we use a minimal model only including a few variables (column 3) or politically relevant dyads (column 4), our social network estimates remain quite consistent with our core findings; our variable that measures whether two states are in the same cluster ($CLUSSAME_{ij}$) reaches statistical significance and decreases conflict, supporting hypothesis 1a. However, while the other social network coefficients estimated using dispute onsets (column 4) and GEE estimation (column 5) are also significant, $CLUSSAME_i$ again loses significance under these specifications.

We ran a large number of additional robustness checks, the full results of which are available online with our data,[38] including testing our variables for multicollinearity and adding or substituting variables suggested by our reviewers. We selected a subset of IGOs that contained great powers and came up with substantively similar results.

36. Exclusion of *HEGDEF* from the model makes $CLUSSAME_{ij}$ significant.

37. Politically relevant dyads are pairs of states considered to have the opportunity for interaction based on geographical proximity or power projection capabilities (Maoz and Russett 1993).

38. Our data, code, and additional robustness checks are available at http://www.yale.edu/unsy/jcr/jcrdata.htm.

TABLE 2
Effects of Intergovernmental Organization Social Networks on the Predicted Probability of a Militarized Interstate Dispute (MID)

	Probability of an MID	*Percentage Change in Risk*[a]
Baseline (all variables at their mean)	.0024	
$CLUSSAME_{ij}$		
Minimum value (0)	.0025	+4
Maximum value (1)	.0021	–13
$PRESTIGE_D$		
Minimum value (0)	.0029	+21
Maximum value (101.82)	.0006	–75
$CLUSSIZE_H$		
Minimum value (2)	.0017	–29
Maximum value (86)	.0030	+25
Ideal network types		
Social rivals: minimum $CLUSSAME_{ij}$, minimum $PRESTIGE_D$, maximum $CLUSSIZE_H$	.0040	+66
Social allies: maximum $CLUSSAME_{ij}$, maximum $PRESTIGE_D$, minimum $CLUSSIZE_H$	.0004	–83
DEM_L		
Minimum value (–10)	.0036	+46
Maximum value (10)	.0010	–54
$DEPEND_L$		
Minimum value (0)	.0025	+4
Maximum value (.21)	.0000	–100

NOTE: These probabilities are calculated using the logit estimates in column 2 of Table 1. Unless otherwise specified, all variables are held at their means.
a. Percentage change in MID risk is computed as the percentage change from the baseline.

We incorporated measures of interest similarity; we found that the inclusion of these measures never affected our results statistically or substantively.[39] We tried alternate specifications of our prestige variable, including the minimum, maximum, and sum of two countries' prestige; while in the base model, all reduced conflict, none were as robust in additional tests as the difference between two countries' prestige values, bolstering our proposition that relative prestige differences suppress conflict.[40] We altered our clustering variables, including using the distance matrix directly instead of our $CLUSSAME_{ij}$ variable and a constant rather than a smoothly increasing number of clusters, neither of which altered our results.[41]

39. We tested several different formulations of Kendall's tau-b and Signorino and Ritter's (1999) S measure, which attempt to measure similarity of alliance portfolios. We used EUGene version 3.04 to calculate these values (Bennett and Stam 2000a, 2004).

40. One reviewer suggested we try eigenvector centrality; this variable also decreased conflict but just missed significance at the 0.10 level in our base model.

41. The distance metric was insignificant in our tests. As an additional robustness check, we used an Euclidean metric to cluster states; $CLUSSAME_{ij}$ becomes significant, while $CLUSSIZE_H$ lost significance. We believe that the extreme instability of cluster size under the Euclidean metric is driving this result—the correlation $CLUSSIZE_i$ between years for individual states was 0.390 for the Euclidean metric compared with 0.663 for the absolute distance metric.

We generate predicted probabilities of MID occurrence to give some depth to our findings. The results are presented in Table 2.[42] We begin by computing the baseline probability that a dyad engages in dispute, evaluating all variables in our base model (Table 1, column 2) at their means. This probability is quite small because MIDs are quite rare. In column 1, we calculate MID probabilities across a range of social network conditions, holding each variable—$CLUSSAME_{ij}$, $PRESTIGE_D$, and $CLUSSIZE_H$—at their respective minimum and maximum to isolate their influence. We compare these probabilities to the core variables of the liberal agenda—DEM_L and $DEPEND_L$. In column 2, we compute the percentage change in risk for MID involvement. The results show that a dyad including a state in a large cluster or two states from different clusters is more likely to engage in a MID than states in the same cluster or if both are in small clusters (holding all else at the mean).

Quite striking is the degree of effect from prestige. Dyads where two states have radically different prestige values are substantially (four times) less likely to engage in MID behavior than dyads where both states have similar prestige values. When we analyze these networks in terms of “ideal types” (by which we mean hypothetical kinds of networks), we find similarly considerable effects. We look at dyads participating in two ideal types of networks: social rivals—dyads where the states are from different clusters (at least one of which is large) and the differences in prestige between the states are small—and social allies—dyads where both states are in the same small cluster but have a large difference in prestige. Social rivals are more than ten times more likely to engage in MID behavior than social allies. While these are extreme examples, in practice with actual dyads, the variance is still considerable, especially with respect to our prestige variable. Moreover, our social network variables (particularly prestige) have quite a substantial influence on the likelihood of MIDs when compared to the influence of state attributes of democracy and dependency.

The results in Tables 1 and 2 thus provide further evidence to support our core proposition that IGOs influence states’ MID behavior through social network positions of power emergent through state membership rather than through state attributes alone. State aggression is an interstate phenomenon that develops within a broader social context of peers; states are neither inherently aggressive nor passive actors in international relations. When controlling for the dyadic characteristics of trade, democracy, alliance, and a large host of additional variables, our findings show that states’ aggressive acts are still significantly affected by the social structures in which they are embedded—namely, through social networks that emerge from mutual IGO membership and that confer varying degrees of social position (and thus power) on states. These networks neither intrinsically promote nor suppress conflict. Networks vary in their social properties; this variation produces systematically different effects on behavior, at times providing the conditions for conflict and at other times providing the conditions for peace.

42. All values in Table 2 were calculated using SPost (Long and Freese 2001).

CONCLUSION

IGOs create relative positions of power among states within an international social network; our core proposition understands states as interconnected members of an international system of social relations ridden with relative power hierarchies that influence behavior. As we have argued throughout, the central principle of our approach is that states' behaviors are driven not only by internal attributes such as the structure of political regimes or gross domestic product but also by relative positions of power and by common beliefs caused by social networks of IGOs. Our approach is thus compatible with much current theory on international organizations predicting that IGOs influence states in important ways. It does suggest, however, that theories considering IGOs as influencing states through membership alone have not gone far enough in capturing how they influence states' behavior. Indeed, such theories overlook one of the most important features of intergovernmental organizations—namely, their network qualities that produce radical asymmetry and even inequalities of social power among states. These inequalities at times provide states with incentives that help to keep the peace. At times, however, networks may also provide states with the motives to go to war.

In the preceding pages, we applied our social network approach to international organization to one particular case study of aggression—militarized international disputes. It is our belief, however, that our conceptualization of IGOs as creating social networks has a much broader application to the study of international relations. Conceiving states as shaped by relational networks of IGOs has the potential to change the way we think about and analyze international relations more broadly. Social positions can influence any kind of interaction, not just militarized conflict: international flows of both material (goods, aid, arms, technology) and social (discourse, norms, values, ideas) kinds are affected by the relative social positions of the countries involved. Applications for social network analysis of the international system range even beyond state-to-state interaction; states also interact with individuals, organizations, and other groups, all of which have definable social positions and act out particular social roles. Our approach thus calls for new data and research methodologies that can measure and analyze states' relative social positions. We have tried to provide a few such tools that we hope will invite further development and lead to new theoretical and empirical insights into the study of international relations.

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