The Intergovernmental Network of World Trade:
IGO Connectedness, Governance and Embeddedness

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Membership in certain intergovernmental organizations (IGOs), for example the International Monetary Fund, has long been argued to stimulate trade. Yet, evidence linking IGOs to trade is mixed. We argue that identifying the influence of IGOs requires attention not only to the institutions IGOs enact, but to the network through which they enact them. We incorporate the full set of IGOs by using shared-IGO membership to create a network of connectivity between countries. This approach allows us to demonstrate that trade between two countries increases by an average of $28 million with every additional IGO connection between them. We also contribute to debates regarding the mechanisms through which structural relationships influence economic behavior by showing that substantial trade benefits occur not only through economic IGOs, but also through IGOs that were formed for social and cultural purposes. Indirect IGO relationships are also significant, as there is greater trade between countries that have dissimilar relationships to others. We reason that such dissimilarities in the IGO network create brokering opportunities, where trade between two poorly connected countries flows between a third that is better connected to both. Finally, we show that the efficacy of IGO connections depends on the domestic institutions of the connected countries. Specifically, IGOs connections are more beneficial when they link countries with domestic institutions that represent the democratic division of power, and an openness to trade.

Institutions are the bedrock of commercial exchange. As formal or informal sets of rules, norms and decision-making principles, they lower the uncertainty and risk inherent in transactions among traders. Indeed, prominent analyses identify "good institutions" as the basis of economic growth, the difference between good and bad economies. The influence of institutions, however, is not merely a matter of striking the right rule to affect incentives, but relies fundamentally and reciprocally on social structure. Institutions are associated with social units (groups, organizations, nations), which determine which actors are subject to the institutions, with which others they may more effectively trade, and what happens when they violate the institution.

For example, Greif's (1994) examination of trade in the Mediterranean region in the 11th century shows that the Maghribi traders benefited greatly from a set of norms that encouraged their agents to honesty. The coverage of these norms, however, was limited by the range of the network of co-ethnics that supported them, and in later centuries the Maghribis were displaced by Genoese traders, who relied on more formal institutions that took advantage of emerging social structures, among them the Genoese city-state and the family firm. The significance of social structure is equally apparent in contemporary trade, where national and sub-national borders act as substantial barriers to trade, even when the social units they divide have comparable institutions (Frankel, 2000). And there is no better illustration of the connection between social structure and institutional governance than the emergence of the European Community, which is associated with an increase in within-EC trade. The success of the EC is not so much a story of institutional innovation, at least with regard to the institutions that govern trade, but rather of the

creation of an integrated, trans-national society which expands the set of actors that may effectively interact under the institutional umbrella (Fligstein and Stone Sweet, 2002).

Recent sociological analyses of the EC notwithstanding, the tendency in institutional analyses of economic activity is to underemphasize the link between institutions and the social structures that house them. This tendency is particularly clear in the literature on international institutions and trade. As we'll explain, that literature has struggled to identify the role of inter-governmental organizations (IGOs), which are the focus of our theory and analysis. IGOs are organizations formed by treaty, whose members are states. Prominent examples include the World Trade Organization (WTO) and the United Nations (UN). Perhaps more representative of the thousand-plus IGOs are organizations like the Andean Institute of Popular Arts, or the Universal Postal Union. Researchers have sought for decades to identify the economic impact of these increasingly pervasive organizations, but have produced little evidence of any positive effect (e.g., Jacobson, Reisinger and Mathers, 1986; Rose, 2002). Consequently, IGOs have been attributed only a marginal role in the liberalization of trade (Milner, 1999). We contend that past "non-results" are due to a failure to fully account for the social structural implications of IGOs, specifically, that they create a set of connections between member countries, in the aggregate, an international network in which a large and inter-related set of trade-relevant institutions is embedded.

The recognition that IGOs forge connections between countries makes relevant a large sociological literature that links inter-actor connections to exchange. This literature has shown that a range of formal and informal connections between actors smoothes exchange between them (Granovetter, 1985; Uzzi, 1996, DiMaggio and Louch, 1998),

and that the pattern of connections is a key determinant of competition (Burt, 1982). We apply these ideas to help understand the influence of connections through IGOs for bilateral trade, and find support for both the idea that more connections bring more trade (to the tune of about $28 million per connection), and that the broader network affects competition, such that trade between two countries is less if they have similar patterns of connections to others.

Our context also allows us to make a fresh contribution to the network approach to economic sociology by taking up two criticisms of that literature. The first criticism is that network theorists reify social structure, and under-attend to issues regarding the origin and change of networks (Fligstein and Stone Sweet, 2002). In our context it is clear that IGO connections come from IGOs. These organizations form a link between institutions and networks, and IGO analysis highlights the interdependence between the two. Of course, this leads to questions as to where IGOs come from, and which countries join them. We begin to address those questions with an analysis of changes in the IGO network. The key result of this analysis is to dispel a reverse-causality challenge to our findings, that trade drives IGO connections (the opposite is true). Beyond that, we find that IGO connections depend on geographic proximity and similarity of political systems. This homophily holds for all political systems, but is particularly strong for democracies.

The second criticism is that network theorists have under-emphasized the institutional content of connections, treating social structure as an end in itself and failing to account for the fact that similar social structures can house various and sometimes opposing institutions (Salancik, 1995, Nee and Ingram, 1998). Essentially, this is the opposite of the criticism of the institutions literature that motivated us to consider social

structure in the first place. In our reading, it is not that network theorists ignore institutions, but rather that they are catholic as to the mechanisms through which connections may influence exchange. This approach is empirically justifiable, as most connections contain a diverse set of influences on exchange. However, it would be theoretically useful to have more evidence that identifies specific mechanisms through which connections affect exchange, especially in light of arguments by economists that the influence of connections can be accounted for by non-social mechanisms (Gibbons, 1999). We are able to produce such evidence, by dividing IGO connections into those that arise through IGOs formed for economic purposes and those formed for social and cultural purposes. Consistent with a core principle of the economic sociology program, we find that social/cultural IGO connections bring substantial increases in bilateral trade.

Finally, we examine the possibility that the operation of international institutions depends on domestic institutions. The idea that institutions (and the social structures that house them) are nested and interdependent is relevant for both the institutions and networks literature (Nee and Ingram, 1998). For example, the effect of anti-competitive norms sustained by a local friendship network likely depends on anti-trust policies at the national level (Ingram and Roberts, 2000), and the emergence of embedded buyer/supplier relationships between large organizations may depend on the employment policies of those organizations (Azoulay, 2002). In the international trade context, we argue that an IGO connection is only as good as the states it connects. If they are uncommitted, or corrupt, then their agreements to abide by the policies of the IGO will be suspect, and less influential on trade. We find that the operation of a connection through an economic IGO is more positive to the extent the member countries have domestic

institutions, particularly openness to trade and democratic division of power, that reinforce their IGO commitments.

IGOs and the Governance of Trade

The new institutional analysis of exchange relies on transaction costs, which arise because of the risk of malfeasance[1] and uncertainty inherent in trading. In almost every exchange, there is a moment where one of the parties has control over all or most of the goods, and must decide whether to follow through on the agreed upon bargain, or make a grab for more. This problem is obvious in the simplest of exchanges, as where children swap toys on the playground. The risk of malfeasance increases substantially when the exchange is more complex, as in global commerce, where differences in law, physical distance, and language have all been found to impede trade (Frankel, 2000).

The second source of transaction costs, uncertainty, may be a more important inhibitor of international trade. The risk of malfeasance aside, exchange is wrought with difficulties in recognizing opportunities for exchange, finding partners, measuring quantity and quality, and equating the value of goods that may be imperfectly divisible. Indeed, these factors are likely behind the so-called "border effects" (Helliwell, 1998) that riddle trade, whereby commerce tends to flow more within sub-national units like provinces or states than across borders. Here, political-cultural differences make communication and understanding more difficult, the upshot being that many

[1] New institutional arguments have occasionally been criticized as being too cynical of human nature, and assuming malfeasance. The core behavioral assumption of the theory is not malfeasance, but rather self-interest (Ingram and Clay, 2000). Malfeasance is not taken-for-granted, but rather a behavioral option which the theory seeks to explain.

opportunities for international exchange are doubtless missed, especially where it is costly to search on quality.

Institutions are widely thought to moderate these transaction costs. Strong laws that enforce contracts at the domestic level enable exchange partners to credibly commit to future actions, and reduce the risk of malfeasance (North, 1990). When legal sanctions are ineffective or inaccessible, reputation and normative sanctions can create similar benefits (Macaulay, 1963; Greif, 1994). For example, although the dispute settlement procedures of the General Agreement on Tariffs and Trade (GATT), and its successor the WTO, have been likened to a "court without a bailiff", they do provide an opportunity for bargaining which, in the shadow of ongoing diplomatic and trade relationships, is a powerful mechanism for soothing disagreements (Busch and Reinhardt, 2002). Many other IGOs reduce uncertainty by promoting standardization. Most prominent among these is the International Monetary Fund (IMF), which pushes convertible currency. Its 183 members agree to "promote international monetary cooperation, exchange stability, and orderly exchange arrangements…(IMF, 2002)."

Examples of other IGOs that reduce the transaction costs among their members are abundant. A sample of the IGOs that help organizations and others make credible commitments include the African Fund for Guaranty and Economic Cooperation, the African Reinsurance Corporation, the United Nations Convention on the Recognition and Enforcement of Foreign Arbitral Awards, the Mutual Aid and Loan Guaranty Fund of the Entene Council, the Court of Auditors of the European Communities, and the Permanent Court of Arbitration. Many other IGOs promote the recognition and protection of property rights, among them the African Intellectual Property Organization, the European

Patent Office, the International Patent Cooperation Union, the International Union for the Protection of Literary and Artistic Works, the International Copyright Information Center, the World Intellectual Property Organisation and the Trade Related Aspects of Intellectual Property Rights Agreement of the WTO. Still others promote communication and standardization, including the International Standardisation Organisation, a number of postal unions, railway congresses, aviation councils, information banks, centers for statistics, and the Bureau International de Poids et Measures. Countless other IGOs address specific sectors, such as the International Coffee Organization (Bates, 1998).

Although these arguments for IGO influence are typical, the common conclusion is that the role of IGOs to promote trade is questionable, and if IGOs produce any benefit at all it probably comes from only a handful of IGOs, such as GATT/WTO and the IMF (Milner, 1999). The reason for this conclusion is that despite persistent research efforts, there is little hard evidence that IGOs promote trade. These efforts, we argue, have not given sufficient attention to the role of IGOs to affect connections between their members. The very earliest efforts to identify the influence of IGOs ignored membership, or at least the idea that membership brought specific countries under the umbrellas of IGOs, and simply correlated counts of IGOs with international outcomes (e.g., Singer and Wallace, 1970). Later efforts have partly overcome this shortcoming, by correlating outcomes for a specific country (levels of trade, GDP growth, participation in war) with the number of IGOs that it belongs to. Representative of this approach is Jacobson, Resinger and Matthews (1986), which finds mixed results regarding the link between IGO memberships and trade (IGO memberships seem to matter only for developing countries, and only in certain periods).

While the count of memberships recognizes that countries must typically be part of IGOs to benefit from their influence, it misses the fact that that influence is often dependent on both countries to a transaction being subject to the same IGOs. In other words, it is not just membership, but joint membership, which matters. This is most obvious with regard to the many IGOs that promote coordination—what good is it to adopt a convention regarding measurement, data transmission, or accounting, when the parties you'd like to transact with do not observe the same convention? The idea that IGO governance depends on the connections between countries that IGOs create has recently been applied in analyses of the likelihood of war, and has reinvigorated that important research topic (Russett and Oneal, 2001; Gartzke, 2002). We propose that identifying the influence of IGOs on bilateral trade requires a similar shift to the between-country connections that IGOs create (and to the network formed by those connections).

Some very recent analyses of bilateral trade have considered the dyadic connections formed by one IGO, GATT/WTO, and found mixed results (Mansfield, Milner and Rosendorff (2000) conclude that a GATT connection promotes trade, Rose, 2002 concludes that it does not). These analyses are a step in the right direction, but they don't go far enough. By considering only one IGO, they miss important issues about the multiplexity of dyadic connections, and the interdependence of institutions. Network theorists emphasize that important inter-actor relationships are "thick", with multiple dimensions of understanding and influence (Uzzi, 1996). As for institutional interdependence, the sampling of IGOs described above illustrate that even a small international transaction might depend on the existence of dozens of IGOs which might help a buyer find a seller, coordinate transportation and communication between them,

provide them with standardized measurements to base negotiations on, and in the end, convert currencies and clear a check.

It is not that we think that all IGOs are of the same importance (we'll show that IGOs of the Bretton Woods family, of which GATT is one, do more to promote trade than other IGOs). Rather, we think that issues of multiplexity and interdependence necessitate consideration of a broad set of IGOs, at least as a starting point. Reflecting the web of institutional support that IGOs in total create, we look for an influence on bilateral trade of the overall IGO connectedness of two countries. We define two countries as being connected through an IGO when they are simultaneously members of it, and thereby subject to its governing rules. The overall IGO connectedness between two countries is simply a count of all the IGOs in which they share membership.

Hypothesis 1: As the IGO connectedness between two countries increases, trade between them will increase.

Governance vs. Social Embeddedness

Hypothesis 1 rests on a utilitarian analysis of IGO connectedness. That treatment does not, however, exhaust the theoretical potential of the idea that relationships govern exchange. Relationships may also produce non-utilitarian outcomes that are important for exchange, such as trust, empathy and sympathy. As Granovetter (1985: 490) observes, "continuing economic relations often become overlaid with social content that carries strong expectations of trust and abstention from opportunism." Relationships may take on characteristics, independent from the economic interests they represent, that may nevertheless contribute to smooth exchange between related parties. An illustration comes from Uzzi's (1996) analysis of embedded relations among buyers and suppliers in

the New York garment industry. Uzzi describes an instance where a supplier made costly concessions to please a buyer that was about to relocate to Asia, and end the relationship with the supplier. Here, there is no shadow of an economic future, and only positive affect between the parties to explain what amounts to a favor that is unlikely to be repaid.

While an illustration like this is helpful to disentangle two theoretical dimensions of relational governance, it is of limited empirical value, because most important relationships are ongoing, and represent both social meaning and an economic shadow of the future. The common practice in empirical research is to view the utilitarian and affective dimensions of relationships as inseparable (e.g., Zaheer, McEvily and Perrone, 1998; Ingram and Roberts, 2000). The analytic strategy of collapsing these dimensions certainly leads to more full and accurate accounts of relational governance. But it obscures the fact that the utilitarian and affective aspects of relationships are not perfectly correlated. In a given relationship it is possible to develop or encourage one over the other, and some relationships are better vehicles for one or the other. These distinctions are important for actors who must decide what types of relationships to cultivate. They are also important to the analyst, who must decide what types of relationships to study.

For these reasons it is worthwhile to distinguish the utilitarian and affective dimensions of relational governance, even though it is often difficult to do so. IGO connectedness presents a rare empirical opportunity to make this distinction. The opportunity comes from the fact that IGOs exist for different and explicit purposes. To this point we have focused on IGOs that overtly attempt to coordinate, provide information and surety, and otherwise reduce the costs of international transactions. In the years in which we measure IGO connectedness, 1981 and 1992, 57.7% and 59.4% of

IGOs had mandated functions that were primarily economic (we call these *economic IGOs*). The rest of the IGO's fulfill a range of other purposes. Mostly, these are social, cultural and humanitarian (23.6% and 26.8%; e.g. The Andean Institute of Popular Arts, The Arab Gulf Folklore Center; we call these *social/cultural IGOs*). Others are general purpose (e.g., the United Nations), or military/political (NATO, Arab Deterrent Force). Our argument is that social/cultural IGOs also facilitate bilateral trade, not through the familiar mechanism of reduced transaction costs, but by increasing awareness between countries, and evoking sympathy, empathy, and perhaps even trust between their citizens.

One way that social/cultural IGOs presumably achieve this is by forging *interpersonal* relationships between people from different countries. For example, the Nordic Cultural Fund sponsors cultural projects that have participation from at least three Nordic countries; the University of the South Pacific brings together students from different countries. Although relatively few interpersonal relationships will be formed this way, the ones that are will mostly be among the small subset of any country's citizens—the business and political elite—that are responsible for most international trade. Still, it seems likely that the greatest effect of social/cultural IGOs will come from more diffuse influences that affect larger proportions of their members' citizens.

Significant among these diffuse influences is to promote cultural and social awareness between countries. It is well known in the literature on international business that organizations are less attractive to transaction partners to the extent that they seem foreign to them (Zaheer, 1995). Consumers' perceptions of products are influenced by those products' country of origin, and cultural and political perceptions of those countries enter into the process (Bilkey and Nes, 1982; Grosse and Trevino, 1996). By

disseminating cultural and social information about member-states, social/cultural IGOs may reduce perceptions of foreignness and cultural distance, and thereby increase the attractiveness of economic exchange with organizations from those states.

Beyond familiarity, social/cultural IGOs may produce positive affect for other countries, their organizations and their products, merely by associating them with the focal country. Again, it is well known that boundaries that define groups have significant influences on social and economic behavior, even when those boundaries seem arbitrary (Brewer and Kramer, 1986). A number of analyses indicate that there is more trade between allies (Mansfield, Milner and Rosendorff, 2001; Oneal and Russett, 2001). Indeed, the oldest dictate regarding global commerce is that trade follows the flag. Social/cultural IGOs may serve to redraw, or de-emphasize the lines between "us" and "them", shifting the categorizations and perceptions of, and affect towards, foreign trading partners. These arguments lead us to predict that connections through social/cultural IGOs, and not just economic IGOs, will promote trade between countries.

Hypothesis 2: As Social/cultural IGO connectedness between two countries increases, trade between them will increase.

Competition in the IGO Network

The broader pattern of IGO connectedness may influence bilateral trade between two countries through the mechanism of competition. In the literature on networks, it is well accepted that the potential for competition between two actors increases as a function of the similarity of their pattern of relationships to others. Actors with more similar relationships have more similar capabilities, information, and other resources. In our context, two countries that had the same IGO connections to all other countries would

face the same export opportunities, at least to the extent that opportunities are a function of the institutions that contribute to surety, trust, communication, transportation, and other inputs to effective trade. In network parlance, these two countries would be labeled structurally equivalent in the IGO network. *Structural equivalence* is a familiar concept in the network literature, a measure of the degree of similarity, in terms of relationships to others, between two actors (Lorrain and White, 1971).

But how does the level of trade between two countries depend on structural equivalence? The significance of relationships to others comes from the fact that international trade is an open system, in the sense that countries engage in trade not only to satisfy domestic interests, but also in response to opportunities and necessities that derive from trade itself. This is most apparent in what we call "flow-through trade", which occurs when a country imports goods from one trading partner and exports them, transformed or otherwise, to another. Such flow-through trade, whether transparent or obfuscated, depends on a disconnect between the original exporter and the ultimate importer. If those countries were well connected institutionally, politically and geographically, then they presumably would not need the services of the country that stands between them to facilitate the flow-through of trade.

As an illustration, consider the simplified trading system shown in figure 1, consisting of France, Israel and Lebanon. Imagine that each country-pair (dyad) can have either a trading relationship, or no trading relationship, and that the initial pattern of relationships is as illustrated in panel A, with France related to both Israel and Lebanon, but with no relationship between Israel and Lebanon. We'll consider the trade in only one commodity, cedar. The volume of trade is as illustrated in panel B, with Lebanon

exporting $200 of cedar to France, and France exporting $100 of cedar to Israel. In this simplified example, France benefits not only from its relationships to Israel and Lebanon, but also from the fact that those two countries have no relationship between them. Now consider the impact of a new trading relationship between Israel and Lebanon (panel C). Now, the cedar that had previously flowed through France can go directly from Lebanon to Israel (panel D). The level of trade falls in both of the dyads involving France: France no longer exports cedar to Israel, so it therefore imports less from Lebanon. In network terms, France experienced an increase in its structural equivalence to both Israel and Lebanon, and a decrease in trade with those countries. In more complex trading systems, the pattern of relationships in panel C represents additional competition for France. Once connected, Lebanon and Israel can trade a range of products, perhaps even products that they are better able to produce because of their connections to France (for example, both Israel and Lebanon can trace the origin of their wine industries to France).

In other contexts, the advantage we ascribe to a lack of structural equivalence are well known. The role of France in panel A is a classic brokering role. Modern structural sociologists have identified benefits, ranging from the promotion of managers, to the innovativeness of laboratories, to the profitability of industries, for actors who stand between disconnected others, occupying what Burt (1992) calls a "structural hole." Cases of this type of brokering abound in international trade. For example, in the late 1990s, the United States objected to transshipments of textiles from China through Hong Kong as a means of circumventing quota restrictions. Interestingly, New Zealand, in turn, cited this example in raising questions about its own enthusiasm for negotiating an economic agreement with Hong Kong, fearing a flood of Chinese textiles in the wake of a

crack-down by U.S. authorities on Hong Kong.[2] More recently, Brussels has requested that Poland more fully "secure" its borders on the eve of that country's accession to the EU, one fear being that Poland's relations with non-members could well inspire a surge of transshipment into this lucrative market. Of course, not all cases of this brokering role are clandestine. Volkswagen, for example, set up shop in Mexico to service the local market, but with trade liberalization sweeping that country in the lead up to the North American Free Trade Agreement (NAFTA) and the completion of the Uruguay Round of the GATT in the 1980s, Volkswagen's Mexico facility emerged as a key exporter to the US and Canada, its NAFTA partners.[3]

Hypothesis 3. Trade between two countries will be negatively related to the structural equivalence between them in the IGO network.

IGOs and Domestic Institutions

The effectiveness of a given institution depends on the support it receives from subordinate institutions. Scott (1998) highlights this often-invisible fact with the example of a work-to-rule strike, where employees sabotage an organization's effectiveness without violating its rules, but merely by withholding their informal policies that make the rules work. Other examples show that the capacity of the state to enforce specific laws depends on the effectiveness and interdependence of subordinate organizations, such as the bureaucracy, the military, the judiciary, and legistlative organizations (Evans, Rueschemeyer and Skocpol, 1985; North and Weingast, 1989), and by the congruence with the law of the norms of subject groups (Heckathorn, 1990). The institutional

[2] Supplementary Submission by the Central Districts Federated Clothing, Laundry and Allied Worlders Union on the proposed Hong Kong free trade and investment Agreement, at www.canterbury.cyberplace.org.nz

[3] www.umich.edu/~cibe/case_pdf/97-12.pdf; www.autonews.com/news.cms?newsId=2709

performance of the state in the broadest sense of effectively providing order relies on the contributions of subordinate business, religious, and social organizations (Durkheim, 1984; Hechter and Kanazawa, 1993; Simons and Ingram, 2002). As for organizations, there are a number of studies that show their effectiveness depends on norms among their members. For example, the high-energy physics lab described by Nee and Ingram (1998) employed seemingly weak incentives at the organizational level, but thrived nevertheless because of the strength of the norm of cooperation among its scientists. On the other hand, if participants' norms undermine organizational policies, malfunction seems a certainty (Shibutani, 1978).

Sometimes, super- and sub-ordinate institutions reinforce each other by influencing behavior in the same direction (for whatever reason). In other circumstances, a specific feature of subordinate institutions makes the super-ordinate institutions more effective. In other words, there is an interaction between institutional forms. The most compelling theoretical explanation for such an interaction stems from the concept of *credible commitment*. Credible commitment is the solution to one of the classic dilemma's of interaction, that it may be advantageous to make promises in the present that the promiser may not want to keep in the future. For example, in North and Weingast's (1989) account of the Glorious Revolution, the shift of power to the Parliament enables the Crown to make credible commitments to repay its lenders (as it no longer has the power to unilaterally renege).

In the IGO context, the role of credible commitment is to give teeth to a country's international obligations. Recall that IGOs bind their member-countries through treaties. Should a country decide to flaunt the conditions of these treaties, the only real sanctions

are imposed by other members; there is no "higher court" or third-party enforcer that can compel members to follow through on their commitments. Therefore, the quality of IGO governance depends critically on the willingness *and* ability of connected members to honor their commitments. This draws attention to *domestic* institutions, since the terms of an agreement or concession negotiated under the auspices of an IGO must be ratified at home before it takes effect internationally.

There are at least three ways that domestic institutions may influence the efficacy of IGOs. The first comes from the political science literature, where much attention has been focused on democratic institutions. Executive-legislature relations stand out in this regard; the President, for example, who champions a national constituency, may not see eye to eye with members of the House of Representatives, who champion the interests of small single-member districts, and are thus more prone to capture by special interests. Domestic institutional arrangements that strike an effective balance between these powers can dampen short-term incentives to renege on state commitments, including treaties (North and Weingast, 1989; Henisz, 2000, 2002).

The second relevant category of domestic institutions are those that represent a country's commitment to international trade. Certainly the policies that indicate that a country is open to trade, such as moderate or low tariff rates, and the absence of extreme controls (taxes, quotas, state monopolies) on exports, will have a direct positive effect on the level of trade (Sachs and Warner, 1995). They may also empower IGOs by creating a long-run incentive to maintain positive trading relationships, which may encourage compliance with IGO rules despite the weakness of the enforcement mechanisms available to most IGOs (Busch and Reinhardt, 2002).

Third, the widely shared values that constitute civil society may generate their own influence on the effectiveness of IGOs. Sociological institutionalists recognize a wide range of institutionalized behaviors that occur despite the absence of immediate sanctions, or long-run rewards (Meyer and Rowan, 1977; Dobbin and Sutton, 1998). Societal values regarding the sanctity of commitments and honesty in economic exchange may have their roots in laws and explicit norms, but there can be no doubt that they become internalized and taken-for-granted, and that the taken-for-granted values in this realm impact the effectiveness of international agreements.

Hypothesis 4: The relationship between IGO connectedness between two countries and trade between them will be more positive when the countries have domestic institutions that encourage compliance with IGO agreements.

Data and Methods

Our data on IGOs comes from Jacobson (1996), and contains the full IGO population for the years 1981 and 1992. The basis of the data is the Yearbook of International Organizations, published by the Union of International Associations (UIA). The UIA "tracks IGOs annually, relying on a variety of reporting mechanisms to create the most comprehensive and reliable catalog of the world's international organizations (Shanks, Jacobson and Kaplan, 1996: 595)." The UIA's bias is towards inclusion, and thus the Yearbook lists a number of organizations that are not relevant to our theory, either because they are not truly international, because they are subsidiaries of other IGOs without independent members, or because their members are nongovernmental entities. Fortunately, Jacobson (1996) employs a more conservative set of inclusion criteria, which is ideally suited for our purposes. The data includes only organizations whose members are multiple states. Thus, the IGOs used for our analysis constitute the

complete population of organizations that may represent connections between states. Our data include 1064 IGOs for 1981 and 1143 for 1992.

Our data on bilateral trade comes from the World Trade Database, 1980–1992, published by the International Trade Division of Statistics Canada. This is the most comprehensive publicly available data on trade. The original source of the data is the United Nations Statistical Office, which collects trade data from individual countries. Statistics Canada estimates that it has reports from at least one side (importer or exporter) for 98% of world trade, and confirmed reports (importer and exporter) for 87%. Feenstra, Lipsey and Bowen (1997) describe technical features of this data, and present comparisons to less-comprehensive trade databases. Following Rose (2002), we converted trade values, and measures of GDP, to constant U.S. dollars (December, 2002) using the American CPI for all urban consumers (taken from www.freelunch.com).

Our analysis includes every country for which we had trade and IGO data, with one exception. The 143 included countries are listed in table 1. The one excluded country is Russia, and we excluded it because differences between the Soviet Union of 1981 and Russia of 1992 were so vast that it was unreasonable to treat them as the same country for purposes of our analysis. Of course, other countries such as Germany changed significantly over that period, but we were more comfortable that those changes could be captured by our control variables. Additionally, all of our models include fixed effects to control for individual country differences that are not captured by the control variables (Mansfield and Bronson, 1997). None of our results are sensitive to the inclusion or exclusion of specific countries in the analysis.

Our main explanatory variables, IGO connectedness and structural equivalence, are dyadic measures of the relationship between two countries. Therefore, we conduct the analysis at the dyadic level, with the total value of trade between two countries as the dependent variable. The structure of our data is a panel with two waves, 1981 and 1992. We estimated first-difference regressions, where change in bilateral trade between country *i* and country *j* from 1981 to 1992 is explained by change in IGO connectedness and changes in other variables:

$$\Delta\text{Bilateral Trade}_{ij} = \beta_0 + \beta_1 \Delta\text{IGO Connectedness}_{ij} + \beta_2 \Delta Z_{ij} + \beta_3 \text{Fixed Country Effects} + \Delta\varepsilon,$$

where Z_{ij} is a vector of other variables regarding the dyad.

The first-difference method has a number of advantages for our purposes including: 1) a reduction of biases from persistent measurement error in trade, which could occur because of differences between reporting practices between countries; and 2) a reduction in biases from unmeasured and unchanging characteristics of the dyad, such as historic relationships or shared cultural origin between *i* and *j* (Liker, Augustyniak and Duncan, 1985). Allison (1990) advises that first-differences are generally preferred to the alternative of including a lagged dependent variable as a regressor when the dependent variable represents a 'flow' (e.g., annual income) as opposed to a 'stock' (e.g., accumulated wealth), a condition that is clearly satisfied in the case of bilateral trade. We replicate our results using another common method for studying bilateral trade, the gravity model, in the appendix.

Our fundamental independent variable, IGO connectedness, is the number of IGOs that *i* and *j* are simultaneously members of. If $\mathbf{X}_t^{c,IGO}$ is a country by IGO matrix, with the cells indicating whether a country is a member of a given IGO at time t, then $\mathbf{IC}_t^{c,c} = \mathbf{X} \cdot \mathbf{X}^t$ is a symmetric country by country matrix where the cell ic_{jkt} indicates the

number of IGOs that country *i* and country *j* are both members of at time *t*. The variables that test hypothesis 2, economic IGO connectedness and social/cultural IGO connectedness, represent IGO affiliations between countries in the subsets of IGOs that have a mandated function that is either economic or social/cultural. We excluded the roughly ten percent of IGOs that were political, military, or general purpose when we decomposed total IGO connectedness into economic and social/cultural components. Structural equivalence, which tests hypotheses 3, is simply the Pearson product-moment correlation between the vectors that represent *i* and *j's* connections to all other countries (Wasserman and Faust, 1994:368).

We use three variables to operationalize the domestic institutional environment. For each, the value for a dyad is the sum of the value for each of the countries in the dyad. Each of the three variables is mean-centered on zero to facilitate interpretation of its interaction with IGO connectedness. The first variable, Henisz's (2002) measure of political constraint, represents the democratic division of power that we argue will enhance IGO effectiveness by facilitating credible commitment to international agreements. This measure is based on the number of independent branches of government (executive, lower and upper legislative chambers) that have veto power over policy change. When one branch of government has complete discretion, for example an unchecked executive, the political constraint measure is zero. As the number of actors with independent veto power increases, the level of political constraints increases, to a maximum of 0.8 in the three-branch version of the measure. We assigned a value for each country based on the average of Henisz's calculation of this measure from 1981 to 1992.

The second variable is Sachs and Warner's (1995) open to trade measure. This dichotomous variable is coded one if each of the following conditions is satisfied, else zero: 1) average tariff rates below 40 percent; (2) average quota and licensing coverage of imports of less than 40 percent; (3) a black market exchange rate premium that averaged less than 20 percent during the decade of the 1970s and 1980s; and (4) no extreme controls (taxes, quotas, state monopolies) on exports. We assigned a value for open for trade for each country based on its average of the Sachs and Warner measure for 1981 to 1992.

The third measure is the rule of law variable from Kaufmann, Kraay and Zoido-Lobatón's (1999a) project to create aggregate governance indicators by combining information from more than a dozen surveys and polls of experts. Rule of law is an aggregation of 42 items from twelve sources. We intend this variable to reflect the third mechanism we identified for the influence of domestic institutions on IGO connectedness—societal values regarding the sanctity of commitments and honesty in economic exchange. According to its creators, the rule of law aggregation measures "the success of a society in developing an environment in which fair and predictable rules form the basis for economic and social interactions (Kaufmann, Kraay and Zoido-Lobatón, 1999b:8)." There are at least two reasons to be cautious, or even dubious, of this measure for current purposes. First is that it is noisy, and does not allow the assignment of countries into even broad categories (quartiles) without a significant margin of error. Second, the measure represents the year 1998. Although there is empirical validation of the sensible expectation that rule of law is slow to change (Kaufmann, Kraay and Zoido-Lobatón, 2002), it is troubling to ponder an independent variable that is temporally

subsequent to the dependent variable. These problems weigh against including rule of law in our regressions. We do so anyway because the idea that there is an interdependence between societal values and the efficacy of international institutions is too important to ignore. This is particularly true in the face of the tendency for specific institutional arguments to examine rules and laws, or norms and values, but not the relationships between those categories. Further, there is no more appropriate measure available.

We also include a number of control variables, sourced mainly from Jacobson (1996). These are the changes in the total exports, GDP and populations of the two countries in each dyad, whether the two were in the same geographic region, whether they had the same government system, and the similarity of their population sizes. We also include one network variable as a control, the change in the total centrality, or prestige, scores for the two countries. In this operationalization we use Bonacich's (1972) eigenvector procedure for measuring the centrality of an actor in a network as a function of the centrality of the actors it is related to. The most central country in the IGO network in both 1981 and 1992 was France, and four other Western European countries, the UK, Netherlands, Germany and Italy, rounded out the top five in both years. The U.S. ranked sixth and ninth. Denmark, which had the highest number of IGO memberships in 1981 was only eighth in terms of centrality that year, evidencing the difference between this recursive centrality measure and a simple count of IGO memberships.

The fixed effects and "same region" indicator do not change between 1981 and 1992. By including these variables in a first-differences regression, we are allowing their

effects to differ between 1981 and 1992. Table 3 presents basic statistics for all variables.

Results

Table 4 presents our main results. Model 1 includes IGO connectedness, structural equivalence, the control variables and country fixed effects. As predicted by hypothesis 1, IGO connectedness has a positive coefficient. An increase of one on that variable is associated with a $28 million increase in bilateral trade.

Model 2 decomposes IGO connectedness into its economic and social/cultural components. Consistent with hypothesis 2, both coefficients are positive. Surprisingly, the coefficient of social/cultural IGO connectedness is almost twice the magnitude of economic IGO connectedness. This difference falls away in later models but in all of the models social/cultural IGO connectedness is at least as large (statistically) as economic IGO connectedness. This is an even stronger showing for the role of social embeddedness in international trade than we had predicted.

Hypothesis 3 is supported by the negative coefficient on structural equivalence in all models. This indicates that when two countries have similar patterns of IGO connections to *others*, trade between them is less. We performed additional analysis on triads to test our idea that this occurs because structural equivalence produces trade competition. The goal of the additional analysis was to get more directly at the structure illustrated in Figure 1, which shows that trade between two countries *j* and *k* may depend on their relationships to a third, *i*. We represent *i*'s potential for competition with a measure of its exports to the world. The crux of our argument is that the impact of *i*'s total exports on *j*'s exports to *k* (the dependent variable here) will be moderated by the

pattern of relationships between *i, j* and *k*. We capture that pattern with the variable institutional brokerage, which is p – the angle in radians of J in the triangle IJK, where the lengths of the sides are the IGO connections between *i, j* and *k*. Institutional brokerage gets smaller as IGO connectedness between *i* and *k* gets larger relative to IGO connectedness between *i* and *j* and *j* and *k*. In other words, as the path between *i* and *k* becomes more attractive (in terms of the IGOs that cover that path), then *j's* brokerage position worsens, and we expect *j* to export less to *k*.

All of the regressions in table 5 include an observation for each of the 2,863,146 triads in our data, and a fixed effect for each country in the triad. Model 7 is the base model for this analysis, and includes *i*'s total exports, institutional brokerage, and four variables summarizing key features of the *j* to *k* dyad: the IGO connections between those countries, whether they are in the same region, and their combined populations and GDPs. The negative influence of *i's* total exports on *j*'s exports to *k* indicates competition between *i* and *j*. Model 8 adds the interaction that tests our idea about the interdependence between competition and institutional brokerage. As expected, its coefficient is positive. This means that as *j's* relative position in the triad improves, it suffers less competition from *i.*

We return to table 4 to consider evidence regarding hypothesis 4. Model 3 adds the main effect of rule of law, which was not included in previous models because it is not available for all of the countries in our sample. Model 4 adds interactions between economic and social/cultural IGO connectedness and each of the variables representing domestic institutions. It is a significant improvement over model 3, but not all of the interactions are significant. In Model 5 we dropped the interactions between

social/cultural IGO connectedness and the political constraint and rule of law measures. We dropped these interactions because the correlations of the various interactions were high, and the theoretical arguments behind hypothesis 4 apply more to economic IGO connections, which often represent explicit commitments regarding trade behavior, than to social/cultural IGO connections. We discuss coefficients from model 5 below.

Open for trade has a positive interaction with both social and economic IGO connectedness. The magnitude of this effect is large. In dyads where open for trade is one standard deviation (578.25) above the mean, economic IGO connections are more than twice as beneficial, and social/cultural IGO connections seventy-five-percent more beneficial than in dyads with the mean level of open for trade.

As expected, political constraint has a positive interaction with economic IGO connectedness. This supports our claim that IGO connectedness is more potent when the leaders of the connected countries can credibly commit to international agreements. The one surprise in the interactions is that economic IGO connections are less beneficial when they connect countries that are high on the rule of law measure. Of course, we are suspicious of this result given the problems with the rule of law measure. Theoretically, the best explanation for this result is substitution between international and domestic institutions. Perhaps societal values for the rule of law serve as their own, normative, form of international governance, lessening the role of IGO connections.

As for the direct effects, open for trade and the rule of law increase trade. The first result is obvious, and the second in line with many arguments that link legal order and economic development. The political constraint result is non significant in model 5, and is negative or positive in other models we present. This mixed result may reflect that

political constraint represents an overall more positive environment for economic activity and trade (Grief, Milgrom and Weingast, 1994), but also encourages foreign direct investment, which may substitute for trade (Henisz, 2000).

Model 6 tests the sensitivity of our results by including only dyads that have positive values for trade in either 1981 or 1992. It produces results comparable to model 5. The appendix replicates our main results using the so-called "gravity model", a popular choice for analyses of bilateral trade, but not our first choice for reasons explained in the appendix. Results from the gravity model are comparable to those reported in table 4.

IGO Families

As a check on our estimates of IGO connectedness on bilateral trade, we considered the role of three important IGO families. Each of these three families contains a number of prominent IGOs. The largest of the three families is the UN, which consisted of 256 and 369 IGOs in 1981 and 1992. These include the venerable General Assembly, but also hundreds of more specialized IGOs, such as the Economic Commission for Africa and the International Maritime Organization. The European Union included 40 IGOs in 1981, and 41 in 1992, including the European Parliament, the Court of Justice, the Court of Auditors and the European Central Bank. The Bretton Woods family consists of 10 IGOs that emerged from the 1944 United Nations conference held in New Hampshire. They include the IMF, World Bank and GATT.

These three families demand specific analytic attention because they have each been the subject of prominent and specific arguments about the role of IGOs in trade

(Keohane, 1984; Fligstein and Sweet, 2002; Sachs and Warner, 1995). These families, and specific IGOs within them, are the darlings of IGO analysis, although together they account for only about thirty-five percent of the IGOs we analyze. If it were the case that these families, or specific IGOs within them, accounted for most of the influence of IGO connectedness we have identified, then our basic premise that IGOs represent a network of connectedness would be challenged. It could be that the relevant question is not "to what extent are two countries linked through the broad network of IGOs?", but rather "are the countries full members of the EU?" or, "are they members of the IMF?"

The models in table 6 break IGO connectedness into components attributable to each of the three families, and the roughly seven-hundred IGOs that are not part of those families. Model 13, which includes all three of the families, is the best fit to the data, so we'll discuss its results. The differences in the magnitudes of the four classes of IGO connectedness are all statistically significant, so the model indicates that in order of benefit to bilateral trade, the forms of IGO connectedness are ordered as: EU > Bretton Woods > UN > Other IGOs. This result confirms the emphasis of previous analyses on the above families. There *is* something special about the EU IGOs, which by our analysis are the most beneficial in the world system in terms of promoting trade. Similarly, each Bretton Woods IGO connection is more beneficial than connections through the larger and less focused set of UN IGOs, which are themselves more beneficial than the still larger and less coherent class of other IGOs. But the key for our purpose is that connections through the vast set of other IGOs still have marked benefits to trade. The coefficient in model 13 indicates that a connection through any one of the roughly seven hundred 'other IGOs' increases trade between two countries by roughly $26 million. We

see this as a powerful justification for our structural approach, which after all does not claim that all IGOs are equal in their influence, but that they can all be characterized as part of a relational system that subjects participants to the constraints of economic governance and social embeddedness.

Our decision to give specific attention to the UN, EU, and Bretton Woods families of IGOs was based on their prominence, but the results in table 6 invite the question "what is different about these IGOs?" Gartzke (2002) takes up the question of differential influence of IGOs in an attempt to resolve mixed results regarding the influence of IGO connectedness on the likelihood of war. His analysis examines 297 IGOs, which he divides into three categories of institutionalization: (1) "Minimal" IGOs are those with little or no organizational structure. They typically have few rules, or formal collective procedures and little capacity to compel states to take action; (2) "Structured" IGOs represent instances where states "relinquish minimal amounts of their sovereignty to support IGO projects and missions (31)." Codified procedures and voting rules specify the operations of the IGO, and a bureaucracy often exists to carry out decisions (and when it doesn't, other bodies assume concrete administrative powers). (3) "Interventionist" IGOs "possess clear mechanisms with which to coerce or influence state behavior (32)." These IGOs represent extensive codification of rules and procedures. Any IGO with a judiciary structure was included in this category, as were IGOs that had the discretion to sanction states.

Gartzke's coding is not available for the complete set of IGOs we study, so we cannot look for differential effects of minimal and more institutionalized IGOs in the same way we broke out social/cultural and economic IGOs. We can, however, examine

the idea that instiutitonalization explains some of the family effects in table 6. Table 7 presents a cross-tabulation of institutionalization by family type for the 231 IGOs that were coded by Gartzke and in our data for 1992. In raw numbers, IGOs of the UN, EU and Bretton Woods are overall more institutionalized than those of the "other family" category. EU IGOs, which our analysis indicated to be the most beneficial for trade, were significantly more structured than those in the other category. Bretton Woods IGOs, which were the next most beneficial, were significantly more likely to be interventionist. These simple results are suggestive that the degree of institutionalization contributes to the impact of IGOs for promoting trade (Gartzke found a kindred result regarding IGO suppression of war). In the discussion, we take up the possibility that IGOs represent organizational governance, and not only the relational governance that we have so far emphasized.

The Direction of Causality: What Causes IGO Connectedness?

Although the results of the previous analyses are robust and consistent with all of our theoretical arguments, there remain questions of causality. Our first-difference methodology does not evidence a causal relationship between independent and dependent variables (Allison, 1990). Further, there is a credible alternative that reverses the causality of our argument. Countries may forge IGO connections because they increase bilateral trade. This might happen because through increased trade they discover the need for increased governance. It might also happen because increased trade brings bilateral sympathy that manifests itself in IGO connections.

We take advantage of the panel structure of our data to address the issue of reverse causality. If trade causes IGO connectedness, then trade in 1981 should be a positive predictor of changes in IGO connectedness over the 1981 to 1992 period. Table 8 presents models designed to test this idea. The most significant finding for our purposes is that all forms of IGO connectedness are negatively affected by previous trade levels. This is the opposite of what is implied by the reverse-causality challenge to our findings. Further, even though the coefficients indicate a statistically significant negative impact of past trade of future connections, the effects are very small in magnitude. At the mean level of 1981 trade, each dyad would lose only about 0.03 economic IGO connections and 0.04 social/cultural IGO connections due to the negative influence of the past level of trade.

Of course, given our results, the question of why past trade affects a decrease in IGO connectedness looms large. We cannot provide a comprehensive answer here. The results presented in table 8, however, suggest two promising directions for future work. First, there is evidence of the familiar idea that past network connections are predictive of future connections (Gulati and Gargiulo, 1999), although it appears that this relationship is complex, with many negative interdependencies. The results also indicate that trends in IGO connectedness were heavily influenced by geographic and governmental similarities between countries, and particularly that democratic countries became more connected, and that they were particularly likely to do so with other democracies.

Discussion

We have frequently referred to the impact of an additional IGO connection on bilateral trade using the coefficient from the IGO connectedness variable. For example, the coefficient on IGO connectedness from model 1 indicates that adding an IGO connection between two countries increases trade between them by $27,834,000. As large as this figure seems, it is important to realize that it does not capture the full trading benefit of a country joining an additional IGO. That value comes from multiplying the $28 million gain in bilateral trade by the number of other countries that the focal country would come into contact by joining an additional IGO. In 1992, each IGO had on average of 26.64 members. A country considering entering the average IGO could estimate the expected trading gain to be close to three-quarters of a billion dollars ($713,663,760).

Our point, however, is not merely that the trading benefits of IGO connections are massive. Rather, our analysis exposes previously unrecognized facts about just how IGOs (and by extension, relationships and institutions) operate in the economic realm. Ours is the first analysis of trade to explicitly model the *relational* implications of IGOs, that the significance of membership in a given IGO is not so much association with the organization but affiliation with all of the other countries that are members. This network approach gives full realization to the relational allusions of earlier treatments of IGOs. It leads us theoretically and empirically to the conclusion that all types of IGO connections, from the IMF to the Interstate School of Rural Equipment Engineers, may promote trade by sharing information, facilitating dispute resolution, providing surety, and solidifying

trust. And, it highlights specific structural configurations that affect trading patterns, such as the IGO disconnects that facilitate flow-through trade.

Our approach also enabled the development and testing of two ideas of significance to theories of institutions and networks more broadly. The first concerns the distinctly social influence of relationships on economic exchange. The division of IGOs into economic and social/cultural categories gave us rare insight into this issue, which is critical to the relevance of economic sociology. Although we expected to find a trade-benefit from social/cultural IGO connections, the results surprised us in their strength, with those connections doing as much to promote trade as connections through economic IGOs. This is a victory for arguments that the economic impact of relationships depends partly on social mechanisms. The strength of social/cultural IGO connections is still more interesting in light of recent arguments that identify limitations of economic connections between states. Recent work makes clear that preferential trade agreements, in particular, are struck by states looking to increase their bargaining power in multilateral trade rounds, or in response to trade disputes with third parties (Mansfield and Reinhardt, forthcoming). This "defensive" integration is likely to be more cyclical, and perhaps less robust, than integration realized through social/cultural IGOs, which may be more palatable domestically.

The second contribution to general theory concerns the interdependence between different levels of institutions, an idea central to institutional theories, but to date, the subject of more speculation than robust analysis. We find that the effectiveness of IGO connections depends critically on reinforcement from domestic institutions. An economic IGO connection, for example, may be twice as beneficial, or of no benefit at

all, depending on whether the connected countries are one standard deviation above, or one below, the mean of openness to trade. This result turns the table on a common assertion, that international institutions may fill in where domestic institutions fall short, either by offering an alternative forum, or by enabling elected officials to "tie hands" at home by citing multilateral obligations. Illustrating this thinking, it was speculated that Mexico's entry into NAFTA would enable national firms to put greater pressure on domestic institutions, not least because, under Chapter 19, they could challenge their own domestic agency's unfavorable determination on an anti-dumping or countervailing duty case. Our results suggest, in contrast, that members get more mileage out of international institutions the stronger their domestic institutions, shedding light on the extent to which they complement, rather than substitute for one another (the exception being the questionable rule of law result). This finding has clear implications for developing countries, in particular: where these countries join international institutions before their domestic house is in order, membership is unlikely to yield the payoffs expected. To the extent that this is misconstrued as bias against developing countries per se, rather than a reflection of the disconnect between domestic institutional capacity and multilateral obligations, relations among states are likely to be strained, and remedial policies ineffectual.

Although the results of our analysis are consistent with our core contention that IGOs create relationships that promote governance of trade, there are alternative explanations for our findings. The first would shift attention from IGOs as a source of inter-state connectedness towards their direct exercise of organizational and bureaucratic control. We would not resist this shift, as our own analysis indicates that IGO families

whose members tended to be more institutionalized had larger influence on trade. It should also be clear from our division of IGOs into economic and social/cultural categories, and into different families, that we accept the assertion that all IGOs are not alike in their influence. There is much more that could be done to differentiate between IGOs, and thus refine the understanding of the international network they create, and the institutional content of that network. We think that examination of the organizational and bureaucratic capacities of IGOs is among the most promising alternatives for this pursuit, one that extends our position, but is wholly consistent with our view of IGOs as intermediating structures that both enact and connect institutions and networks.

Another possibility is that our IGO connectedness variables may be picking up other relationships between countries. We've heard the suggestion that social/cultural IGO connectedness may simply reflect some other dimension of international affinity. Understandably, we are resistant to substitute our specific, theoretically grounded explanation with a vague, atheoretical one. Perhaps more important, the obvious candidates for "other" bases of affinity—shared language, religion, or colonial history—are persistent and stable, and therefore controlled for by our first-difference methodology. There are, however, two specific variables, joint democracy and military alliance, that might be expected to correlate with IGO connectedness, and have been shown to influence trade. Our analysis of change in the IGO network showed that democracies are more likely to forge IGO connections, and recent analyses have indicated that democracies trade more with each other (Mansfield, Milner and Rosendorff, 2000; Oneal and Russett, 2001). The same studies also show that military alliances promote bilateral trade. Our analyses contained a kindred control variable, whether the two countries of a

dyad had the same governmental system. Supplementary analyses show that our main results still hold when that variable is modified to indicate whether the two countries were both democracies. Additionally, we checked the robustness of our results by adding an IGO connectedness covariate (garnered from Russett and Oneal's (2001) analysis of the influence of IGO connectedness on war) to Oneal and Russett's (2001) analysis of bilateral trade from 1886-1992. The effects of joint-democracy and military alliance remained in the resulting regressions, but IGO connectedness was also a significant and positive influence on trade. This supplementary analysis shows that IGO connectedness is not merely a proxy for other political connections, and that our foundational result holds over more than one century, using data and models that are prominent in the bilateral trade literature.

Our findings regarding the important interdependencies between domestic institutions and IGO connectedness raises questions about interdependencies with the other mechanisms for international connection, Non-Governmental Organizations (NGOs) and multinational corporations (MNCs). The influence of NGOs on world culture is the subject of an active research program in sociology (eg., Boli and Thomas, 1999). Evidence from that program indicates that NGOs may serve a purpose analogous to that we ascribe to social/cultural IGOs, in terms of knitting together national cultures, creating empathy, sympathy and trust at the seams. This observation suggests a second-order influence of the linkage between NGOs and world culture, to trade. Strange (1996) suggests a direct symbiosis between IGOs and NGOs, where NGOs get funding, and IGOs (or IGO bureaucrats) get flexibility to pursue interests in ways their mandates may

preclude. The possible interdependencies between IGOs and MNCs could likewise be the subject of papers, books, and academic careers.

Despite the impressive gains in trade we have demonstrated the decisions of states to join IGOs may not be easy. There are costs associated with IGO membership, and these must be weighed against the gains. Most obviously, there are the costs of operating the IGO which are assessed to members using various formulas. These direct costs may typically pale in comparison to the benefits of increased trade, but they are not always trivial (witness the battle between the U.S. and the UN over dues to that organization).

The second cost is the risk that IGOs may be diverted from their original purposes, or the will of their members, by powerful bureaucrats. Michel's iron law represents a threat not only to the effectiveness of IGOs, but to the very autonomy of their member-states (Strange, 1996). Cox and Jacobson (1973) present case studies of decision making in eight UN IGOs. They identify a trend to bureaucratization, and citing UNESCO and the International Labor Organization as specific examples, claim "[T]he existence of a large organization is itself a potentiality and a pressure for the expansion of tasks (424)." Indeed, goal displacement and unjustified budgetary growth were among the criticisms the U.S. made when withdrawing from UNESCO in 1984. Cox and Jacobson begin the process of identifying features of an IGO's structure and mandate that affect whether it is likely to be most subject to the influence of the individual participants (bureaucrats, consultants, member-representatives), or of its member states. This distinction is an important one for extending our research, and fully specifying its policy implications. A clear understanding of what preserves member influence in IGOs would be useful for 1) identifying which IGOs are most useful for promoting trade and other

desired outcomes; 2) helping countries decide which IGOs to join; and 3) guiding the designers and managers of IGOs.

Another contributing factor to the U.S. decision to withdraw from UNESCO, the latter organization's perceived anti-Westernism and anti-Semitism, is useful for illustrating the third, and perhaps greatest, cost of IGO connections. The sociological literature on embeddedness is clear that there is a dark side to relational constraints (Uzzi, 1996). They bind related parties for better or worse. To this point, we have concentrated on the advantages of relational constraints to smooth trade. In the IGO context, relational constraints may also subject states to unwanted economic, political and ideological dictates. It is not possible to fully mitigate this risk through careful design of the structure and scope of IGOs—any relationship that the parties derive benefit from opens the door to normative influence on a range of issues (Homans, 1950).

These potentialities suggest that a given IGO connection may be a panacea, or a devil's compact, depending on the IGO's structure and mandate, and the cultures, histories, economies and polities of the connected countries. At the same time, we don't want to slight the benefits to trade of IGO connectedness merely because they are only part of the equation of benefits and costs. The gains to trade are substantial, and their pattern sheds important light on the interdependence between economy and society, and between domestic and international institutions. Hopefully, our robust results and readily applicable methods will encourage more research, to more fully identify the causes, benefits, costs, and conditions of IGO connections.

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Appendix
Replication of Key Results with Gravity Model

The "gravity" model is commonly applied in analyses of bilateral trade. According to Rose (2002), "the standard gravity model of bilateral trade…explains (the natural logarithm) of trade with (the logs of) the distance between the countries and their joint income (p. 3)", in other words, it asserts that trade flows between two countries will be proportional to the product of their GDPs, and of inverse proportion to the distance between them.

Given its popularity, why didn't we use the gravity model as our "baseline?" The model is favored more because it tends to fit trade data well than for correspondence with any particular theory of trade (see Evenett and Keller, 2002 for a discussion of the set of theories that produce predictions consistent with those of the gravity equation). Although it typically yields high fit-statistics, it often produces coefficients that are sensitive to subtle changes in model specification, and to changes in the sample, and these problems are heightened when dealing with short panels such as ours (O'Neal and Russett, 2001). For example, Rose (2002) uses the gravity model to analyze the influence of WTO/GATT membership on bilateral trade. His results show variously that WTO/GATT membership increases trade, decreases trade, or has no effect, depending on whether country fixed-effects, random-effects, or no country effects are used, which time period is considered, whether all countries, only industrialized countries, only G7 countries, or only non-OPEC countries are anlalyzed, and whether time within WTO/GATT is modeled. These results are not simply mixed, but often contradictory,

and to us they do as much to call into question the gravity model as they do the relevance of WTO/GATT membership.

For these reasons, we used first-differences for the core of our analysis. Nevertheless, the goal of comparability to other analyses of bilateral trade dictates that we replicate our results using the gravity model specification. We use the bench line specification of the gravity model described by Rose (2002: 4), adjusted to include the variables of interest from our model 5:

$$\ln(Trade_{ijt}) = \beta_0 + \beta_1 \ln(D_{ij}) + \beta_2 \ln(GDP_i GDP_j)_t + \beta_3 \ln(GDP_i GDP_j / Pop_i Pop_j)_t + \beta_4 Z_{ijt} + \beta_5 \text{Fixed Country Effects} + \beta_6 \text{Fixed Year Effect} + \varepsilon_{ijt},$$

where D is the distance between i and j, GDP is real GDP, pop is population, Z_{ijt} is a vector of variables including all of the variables in model 5 other than same region, GDP, and population (those variables were replaced by their gravity model versions), and the fixed year effect is a fixed effect to differentiate between the two waves in our data.

Model A1 in table A1 is a gravity-model replication of model 5 from table 4. Model A2 replicates A1 using only those dyads with some trade in both 1981 and 1992. Analysis on this sub-sample is particularly important as past research has indicated that key results from the gravity model sometimes depend on what is added to dyads with 0 levels of trade in order to take the log of the dependent variable (Green, Kim and Yoon, 2001; Oneal and Russett, 2001). Results for the variables that test our hypotheses are comparable in models A1 and A2.

Our main results hold up well to the gravity specification. Economic IGO connectedness and social/cultural IGO connectedness both increase trade. The coefficients indicate that each additional economic IGO connection increases trade by

2.12% (which is exp(.021)-1) while each social IGO connection is associated with an increase of 1.21% (exp(.012)-1). The interactions between IGO connectedness and the domestic institution variables are comparable to model 5, except that the interaction between economic IGO connectedness and Open to Trade is now negative, indicating a substitution between those two sets of institutions. The only contradiction with previous results is with regard to the structural equivalence measure which tests hypothesis 3. We had predicted, and the first-difference models had indicated, that there would be less trade between structurally equivalent countries. In the gravity model, however, structural equivalence has a positive and significant coefficient. Recall, however, that we generated direct evidence for the mechanism behind hypothesis 3 with the analysis of triads presented in table 5. Model A3 (appended to table 5) replicates the triadic analysis with the gravity model, and indicates that *i*'s exports have less of a competitive effect when *j* is in a better position to connect *i* and *k* (the positive coefficient for the interaction between *i's* exports and institutional brokerage). So, the mechanism behind hypothesis 3 is shown to operate with the gravity model specification.

As a final robustness check, we estimated model A3, which replicates model A2 with a lagged dependent variable (so only observations from 1992 are included). Not surprisingly, the magnitudes of many coefficients change with the inclusion of the lagged dependent variable, but the results are comparable between A2 and A3. Indeed, A3 is a little more positive with regard to our hypotheses, as the positive coefficient of structural equivalence goes to non-significance, and the interaction between social/cultural IGO connectedness and open to trade becomes positive and significant, as it was in the first-difference regressions.

Table 1
Countries Analyzed

Afghanistan
Albania
Algeria
Angola
Argentina
Australia
Austria
Bahamas
Bahrain
Bangladesh
Barbados
Belgium
Belize
Benin
Bhutan
Bolivia
Brazil
Brunei
Bulgaria
Burkina Faso
Burundi
Cameroon
Canada
Central African Republic
Chad
Chile
China
Colombia
Comoros
Congo
Democratic Republic of Congo
Costa Rica
Cote d'Ivoire
Cuba
Cyprus
Czechoslovakia
Denmark
Djibouti
Dominican Republic
Ecuador
Egypt
El Salvador
Equatorial Guinea
Ethiopia
Fiji
Finland
France
Gabon
Gambia
Germany (West)
Ghana
Greece
Guatemala
Guinea-Bissau
Guyana
Haiti
Honduras
Hong Kong
Hungary
Iceland
India
Indonesia
Iran
Iraq
Ireland
Israel
Italy
Jamaica
Japan
Jordan
Kenya
Korea, North
Korea, South
Kuwait
Laos
Lebanon
Liberia
Libya
Madagascar
Malawi
Malaysia
Maldives
Mali
Malta
Mauritania
Mauritius
Mexico
Mongolia
Morocco
Mozambique
Myanmar (Burma)
Nepal
Netherlands
New Zealand
Nicaragua
Niger
Nigeria
Norway
Oman
Pakistan
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Poland
Portugal
Qatar
Romania
Rwanda
Saudi Arabia
Senegal
Seychelles
Sierra Leone
Singapore
Solomon Islands
Somalia
South Africa
Spain
Sri Lanka
Sudan
Suriname
Sweden
Switzerland
Syria
Taiwan
Tanzania
Thailand
Togo
Trinidad and Tobago
Tunisia
Turkey
Uganda
United Arab Emirates
UK
USA
Uruguay
Venezuela
Vietnam
Yemen
Yugoslavia
Zambia
Zimbabwe

Table 2
IGOs by Mandated Function

	1981	1992
Economic	678	703
Social/Culture	277	313
Political and Military	87	109
General Purpose	22	18
Total IGOs	1064	1143

Table 3
Basic Statistics

Variable	Mean	Standard Deviation	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
(1) Bilateral Trade	118251	2169535	.08	.17	.12	.08	-.09	0.23	-.08	.08	.12	.01	.02	.15	.08	.11	.14	-.01	.09	-.00	.12	-.00
(2) IGO Connectedness	-45.43	32.7		.74	.81	.67	-.03	.16	-.04	.78	.12	.00	-.14	.05	.06	.18	-.11	-.10	.00	-.02	.00	-.05
(3) Economic IGO Connectedness	-20.23	18.1			.84	.57	.03	.18	.00	.61	.28	.02	-.04	.13	.10	.17	-.03	-.13	.06	-.04	.16	-.00
(4) Social/Cultural IGO Connectedness	-24.57	13.2				.58	-.02	.16	.03	.65	.18	.03	-.09	.08	.08	.18	-.07	-.10	.02	-.03	.07	-.02
(5) Structural Equivalence*1000	-42.25	0.25					-.04	.16	-.05	.38	.41	.04	-.02	.11	.07	.17	-.13	.14	-.03	-.06	-.02	-.08
(6) GDP	113.26	1237						-.28	.12	-.05	.03	-.01	.08	-.05	-.03	-.02	.10	.05	.05	.03	.07	.02
(7) Total Exports/1000	16381.2	48084							-.25	.30	-.03	.10	-.11	.53	.31	.35	-.23	-.39	-.16	-.24	-.13	-.25
(8) Population/1000	-57784	1.44E+05								-.13	.05	-.01	.27	.01	-.05	-.01	-.05	-.04	.00	.03	-.01	.01
(9) Centrality*1000	-140.2	2.3901									-.04	.04	-.17	.22	.26	.30	-.24	-.27	-.11	-.18	-.11	-.20
(10) Same Region*1000	155.7	362.6										-.01	.07	-.04	-.11	-05	.10	.07	.14	.12	.10	.06
(11) Same Government*1000	-33.0	395.5											.01	.14	.11	.14	-.12	-.14	-.09	-.11	-.12	-.14
(12) Population Similarity*1000	531.8	338.8												.05	-.01	-.07	.01	-.00	.00	.00	.09	.08
(13) Open to Trade*1000	0	578													.44	.61	-.60	-.85	-.23	-.34	-.34	-.51
(14) Political Constraint * 1000	0	305														.42	-.23	-.35	-.68	-.87	-.28	-.38
(15) Domestic Rule of Law * 1000	0	1373															-.34	-.53	-.29	-.38	-.66	-.88
(16) Open to Trade * Economic IGO Connectedness	1383	15107																.86	.43	.32	.58	.46
(17) Open to Trade * Social/Cultural IGO Connectedness	637	15093																	.33	.37	.47	.57
(18) Political Constraint * Economic IGO Connectedness	577	7916																		.88	.45	.35
(19) Political Constraint * Social/Cultural IGO Connectedness	322	8047																			.35	.40
(20) Rule of Law * Economic IGO Connectedness	3385	37122																				.87
(21) Rule of Law * Social/Cultural IGO Connectedness	2235	37655																				

Table 4
Fixed Effects Regressions of Change in Bilateral Trade, 1981-1992

	Model 1 All Dyads	Model 2 All Dyads	Model 3 All Dyads	Model 4 All Dyads	Model 5 All Dyads	Model 6 Dyads with Trade
Intercept	1044789**	-12688398**	-8809877**	-3386434**	-3856743**	3717322**
	(218683)	(727802)	(839958)	(864312)	(8557831)	(564180)
IGO Connectedness	27834**					
	(2051)					
Economic IGO Connectedness		26211**	32989**	18613**	18075**	14345**
		(3069)	(3250)	(3387)	(3286)	(4601)
Social/Cultural IGO Connectedness		47079**	31879**	20113**	22089**	24456**
		(5463)	(5972)	(5911)	(5804)	(7877)
Structural Equivalence*1000	-2013**	-1276**	-1599**	-946**	-957**	-1080**
	(170)	(123)	(136)	(135)	(134)	(186)
GDP	-7184**	-7150**	-5253**	-1519	-1838*	-4297**
	(834)	(818)	(864)	(867)	(851)	(1244)
Total Exports	-0.042**	-0.043**	-0.075**	-0.078**	-0.077**	-0.127**
	(.0023)	(.002)	(.003)	(.002)	(.003)	(.004)
Population	0.009	0.013**	0.004	0.012*	0.010	0.034**
	(.005)	(.005)	(.005)	(.005)	(.005)	(.008)
Centrality*1000	-191.5**	-339**	-620**	-407.8**	-382**	-790**
	(31.8)	(32.3)	(37.3)	(39.4)	(38.9)	(59.6)
Same Region*1000	996**	338.1**	512**	463.8**	457**	515**
	(69.4)	(73.2)	(72.4)	(77.0)	(77.0)	(105)
Same Government*1000	-100.8	-104.4	-86.7	4.95	6.15	30.6
	(54.8)	(54.1)	(56.9)	(55.2)	(55.2)	(79.9)
Population Similarity*1000	409.6**	291.2**	353.6**	331.7**	337**	533**
	(75.6)	(75.0)	(82.4)	(79.7)	(79.8)	(119)
Open to Trade*1000	2919**	2569**	2841**	3903**	4090**	5508**
	(212)	(211)	(221)	(253)	(244)	(364)
Political Constraint * 1000	-2866**	-2514**	433	739	20.4	-1575**
	(358)	(352)	(408)	(418)	(406)	(573)
Domestic Rule of Law * 1000			2393	2410**	2305**	4419**
			(138)	(145)	(141)	(218)
Open to Trade * Economic IGO Connectedness				45.28**	40.77**	39.06**
				(5.66)	(4.56)	(6.24)
Open to Trade * Social/Cultural IGO				19.03**	26.96**	40.49**
				(8.08)	(5.84)	(7.99)
Political Constraint * Economic IGO Connectedness				-5.06	23.42**	34.10**
				(9.20)	(5.32)	(7.27)
Political Constraint * Social/Cultural IGO Connectedness				48.5**		
				(12.8)		
Rule of Law * Economic IGO Connectedness				-4.81	-7.01**	-9.19**
				(2.51)	(1.36)	(1.91)
Rule of Law * Social/Cultural IGO Connectedness				-3.14		
				(3.44)		
Observations	10153	10153	9316	9316	9316	6550
R-Squared	0.1372	0.1624	0.1965	0.2496	0.2484	0.2993
F-test Comparison	Fixed Effects	Model that collapses Economic and Social/Cultural IGOs	Model 2 on 9316 observations	Model 3	Model 4	
F-value	27.38**	7.17**	302.6**	108.1.3**	7.33**	

Standard errors in parentheses; ** p < .01; * p < .05

Table 5
Fixed Effects Regressions of Trade by Triad
How do i's exports affect exports from j to k?

	Model 7	Model 8	Model A3 Gravity Model‡
Intercept	2678**	-2683**	8.33****
	(22.4)	(22.4)	(.082)
$Exports_i$	$-6.51X10^{-6}$**	$-6.589X10^{-6}$**	-.449**
	(.000)	(.000)	(.002)
Institutional Brokerage	-99.45**	-106.4**	-.411**
	(1.94)	(2.08)	(.012)
Insitutional Brokerage * $Exports_i$		$2.01X10^{-7}$**	0.032**
		(.000)	(.000)
IGO $Connections_{jk}$	5.64**	5.64**	0.019**
	(.04)	(.04)	(.000)
GDP_{jk}	0.006**	0.007**	0.616**
	(.002)	(.002)	(.002)
$Population_{jk}$ / 1,000,000	-13.67**	-11.13**	-.668**
	(10.8)	(10.7)	(.002)
Same $Region_{jk}$	455.41**	455.28**	-.281**
	(3.49)	(3.49)	(.003)
Observations	2863146	2863146	2863146
R-Squared	0.1405	0.1405	0.5725

Standard errors in parentheses; ** $p < .01$; * $p < .05$
‡ In gravity model, GDP and Population are as described in the Appendix, and Same $Region_{jk}$ is log($Distance_{jk}$).

Table 6
Fixed Effects Regressions of Change in Bilateral Trade, 1981-1992

	Model 10	Model 11	Model 12	Model 13
Intercept	2983348**	1614090**	1975712**	3114792**
	(348824)	(324337)	(334863)	(351668)
Other IGO Connectedness	27941**	29349**	28497**	26070**
	(2251)	(2243)	(2279)	(2262)
UN IGO Connectedness	54058**			48903**
	(3093)			(3164)
EU IGO Connectedness		182347**		163780**
		(14388)		(14411)
Bretton Woods IGO Connectedness			129308**	88519**
			(18422)	(18506)
Structural Equivalence*1000	-2855**	-2349**	-2525**	-2583**
	(187)	(187)	(187)	(188)
GDP	-2096**	-1410**	-1639**	-2153**
	(269)	(262)	(266)	(270)
Total Exports	-0.074**	-0.069**	-0.07**	-0.075**
	(.003)	(.003)	(.003)	(.006)
Population	0.011*	0.002	0.004	0.012*
	(.005)	(.005)	(.005)	(.005)
Centrality*1000	-663**	-470**	-521**	-676**
	(40.6)	(36.5)	(38.0)	(41.0)
Same Region*1000	977.4**	972**	1186**	847**
	(76.4)	(76.7)	(75.1)	(78.1)
Same Government*1000	64.1	-52.2	78.3	55.9
	(57.4)	(57.4)	(57.7)	(57.1)
Population Similarity*1000	466**	478**	503**	467**
	(82.7)	(82.7)	(83.2)	(82.3)
Open to Trade*1000	2368**	2685**	2688**	2368**
	(204)	(202)	(203)	(203)
Political Constraint * 1000	-1645**	-1644**	-2003**	-1845**
	(311)	(311)	(319)	(316)
Domestic Rule of Law * 1000	2013**	2035**	2204**	2096**
	(108)	(108)	(113)	(111)
Observations	9316	9316	9316	9316
R-Squared	0.1799	0.1791	0.1716	0.1893
F-test Comparison	Model 1 on 9316 observations	Model 1 on 9316 observations	Model 1 on 9316 observations	Model 10
F-value	123.09**	114.03**	29.91**	53.20**

Standard errors in parentheses; ** p < .01; * p < .05

Table 7

IGO Institutionalization by Family Type±

Family	IGOs in Sample	% Minimalist	% Structured	% Interventionist
United Nations	41	63.4	12.2	24.4
Breton Woods	5	0.0*	20.0	80.0*
European Union	22	0.50	0.41*	0.09
Other	168	0.68	0.18	0.14

* $p < .05$ comparison to "Other" category in a two-tailed difference of means test

± Institutionalization coding from Gartzke, 2002.

Table 8
Fixed Effects Regressions of Changes in IGO Connectedness
Between Country Pairs, 1981-1992

	Model 14 All IGOs	Model 15 Economic IGOs	Model 16 Social/Cultural IGOs
Intercept	58.44**	24.83**	17.65**
	(1.37)	(0.66)	(0.40)
Bilateral Trade / 1,000,000	-0.54**	-0.19**	-0.23**
	(0.14)	(0.07)	(0.04)
Economic IGO Ties	0.07**	-0.42**	0.20**
	(0.03)	(0.01)	(0.01)
Social/Cultural IGO Ties	-1.36**	-0.67**	-1.13**
	(0.05)	(0.02)	(0.01)
Structural Equivalence	-19.28**	40.64**	14.70**
	(2.55)	(1.24)	(0.75)
Population / 1,000,000	-0.40**	-0.29**	-0.16**
	(0.04)	(0.02)	(0.01)
GDP	0.15**	0.12**	0.07**
	(0.01)	(0.00)	(0.00)
Total Exports / 1,000,000	-1.16**	-0.92**	-0.61**
	(0.08)	(0.04)	(0.02)
GDP Similarity	4.75**	1.92**	0.78**
	(0.67)	(0.33)	(0.20)
Same Region	19.66**	16.57**	8.81**
	(0.67)	(0.33)	(0.20)
Same Government	-0.43	0.23	-0.14
	(0.56)	(0.27)	(0.17)
Democracy	6.53**	5.21**	2.65**
	(1.40)	(0.68)	(0.41)
Same Region * Democracy.	18.70**	21.93**	9.90**
	(2.17)	(1.05)	(0.64)
Same Region * Same Govt.	4.44**	3.11**	1.41**
	(1.12)	(0.54)	(0.33)
Observations	10153	10153	10153
R-Squared	0.7506	0.7894	0.8576
F-test Comparison	Fixed Effects	Fixed Effects	Fixed Effects
F-value	761.29**	1488.42**	2157.90**

Standard errors in parentheses; ** p < .01; * p < .05

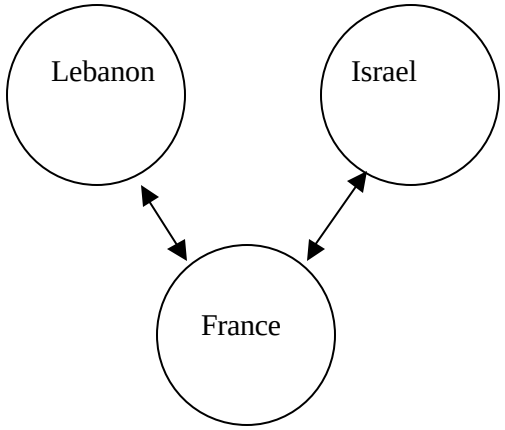
Table A1
Gravity Model Analysis of Bilateral Trade

	Model A1 All Dyads	Model A2 Dyads with Trade	Model A3 Dyads with Trade, lagged dependent variable
Intercept	10.08*	13.95**	9.308**
	(.569)	(.500)	(1.44)
Economic IGO Connectedness	0.015**	0.021**	0.012**
	(.003)	(.003)	(.004)
Social/Cultural IGO Connectedness	0.011*	0.012**	0.023**
	(.005)	(.004)	(.007)
Structural Equivalence	0.413**	0.397**	0.154
	(.150)	(.132)	(.126)
GDP	0.029*	0.022	0.236**
	(0.018)	(.015)	(.036)
Total Exports /1,000,000	0.001**	0.003**	0.005*
	(.0005)	(.001)	(.002)
GDP per Capita	-.017	-.012	-.294**
	(.024)	(.022)	(.039)
Centrality	-.000	-.059**	-.250**
	(.021)	(.018)	(.046)
Distance	-.898**	-.801**	-.405**
	(.030)	(.027)	(.033)
Same Government	-.346**	-129**	0.042
	(.054)	(.048)	(.055)
Population Similarity	0.399**	0.223**	-.027
	(.079)	(.072)	(.079)
Open to Trade	4.520**	3.538**	1.444**
	(.184)	(.173)	(.256)
Political Constraint	1.378**	0.805*	1.244**
	(.425)	(.384)	(.424)
Domestic Rule of Law	1.393**	0.821**	0.406**
	(.1128	(.115)	(.164)
Open to Trade * Economic IGO Connectedness	-.044**	-.019**	-.014**
	(.003)	(.003)	(.004)
Open to Trade * Social/Cultural IGO Connectedness	0.022**	-.001	0.014*
	(.004)	(.004)	(.008)
Political Constraint * Economic IGO Connectedness	0.003	0.013**	-.003
	(.003)	(.003)	(.003)
Rule of Law * Economic IGO Connectedness	0.001	-.001	-.002*
	(.001)	(.0008)	(.001)
Bilateral Trade$_{t-1}$			0.409**
			(.011)
Observations	18632	9620	4810
R-Squared	.7092	.7010	.8278

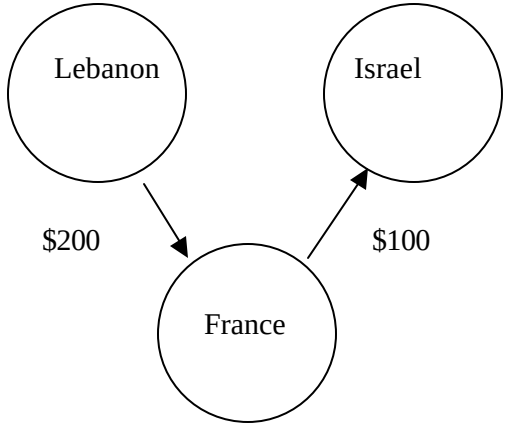
Standard errors in parentheses; ** p < .01; * p < .05

Time 1

(A): Network of trading relationships

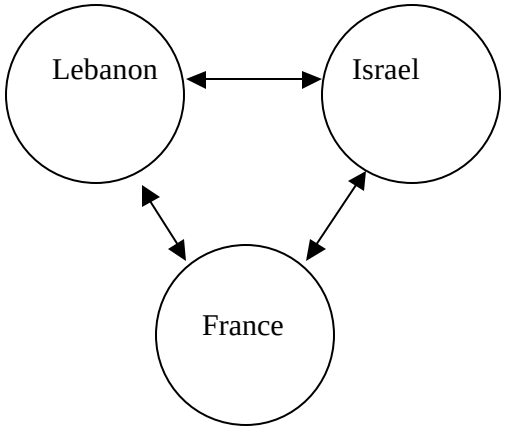


(B): Trade

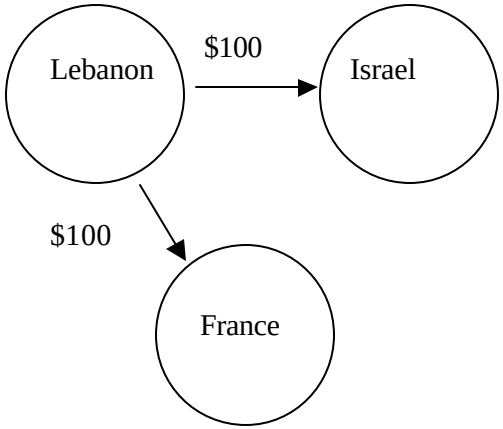


Time 2

(C): Network of trading relationships



(D): Trade



Dyad	Time 1			Time 2			Change: Time 2 – Time 1		
	Tie	Structural Equivalence	Trade	Tie	Structural Equivalence	Trade	Tie	Structural Equivalence	Trade
France-Lebanon	1	0	200	1	1	100	0	1	- 100
France-Israel	1	0	100	1	1	0	0	1	- 100
Israel-Lebanon	0	1	0	1	1	100	1	0	100

Figure 1: An Illustration of the impact of structural equivalence on flow-through trade, and bilateral trade.