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Data sets and quantitative research in the study of intergovernmental organizations

Erik Gartzke and Christina Schneider

The past half-century has seen a dramatic rise in both the number of intergovernmental organizations (IGOs) and participation levels by states and other actors. This exponential growth has been tracked increasingly through the collection and analysis of quantitative data. Some data collections can be divided according to the major subfields of international relations (security, international political economy), while others focus on key institutions: the United Nations (UN), the European Union (EU), the International Monetary Fund (IMF), and the World Trade Organization (WTO). Much less attention has been devoted to collecting data on minor IGOs, or to specialty organizations, which are no doubt worthy of additional scrutiny. In addition, very few large data collection efforts exist for regional organizations (with the notable exception of the EU), or for international non-governmental organizations.

The most integrated database on IGOs is the Correlates of War (COW) IGO data set (http://www.correlatesofwar.org). This chapter focuses on a description of this database as well as a discussion of applications of this database in the academic literature. Our main goal is to provide a summary of the insights that have been gained from analyzing the COW IGO data set. We then briefly summarize other data sets that are specific to important individual IGOs such as the UN, IMF, WTO, and World Bank. Based on these insights, we outline areas of possible data collection or where data sets could be exploited for further analysis. We conclude by noting both the successes of this literature and challenges to growth.

Correlates of War international governmental organization data set

The broadest data on IGOs come from the Correlates of War project (Pevyhouse et al. 2004).

Wallace and Singer (1970) provide a description of an early version of these data. Due to the two-phase collection effort, these data are available in five-year intervals from 1815 to 1965 and annually from 1965 to 2000. There are three versions of these data, corresponding to different units of analysis (the IGO, the IGO-state, and the IGO-dyad). The IGO data list each IGO that existed for every year in the data set. In the second version of these data, an
observation represents a country year, with a count of the number of IGOs in which the state was a member in a given year. The final version, dyad years, consists of a count of IGOs in which dyad members share joint membership.

A number of studies have applied these data to various questions both within and beyond the scope of international institutions.

**Inter-state peace and conflict**

The core use of the COW IGO data is in studying international security. Singer and Wallace (1970) offer a series of bivariate statistical tests to analyze the effect of IGOs on war onset. This first foray into quantification of the effects of IGOs ended in disappointment, as IGOs did not appear to reduce war, though the authors admit that the measures involved are crude.

Evidence of a statistical relationship between IGOs and peace has been slow to materialize. Jacobson et al. (1986) evaluate a functionalist perspective on international cooperation, asserting a general relationship between the number of IGOs and the absence of war in the international system. As the authors state: “Functionalist predictions are upheld.” While optimistic in broad strokes, the study’s methodology is unable to demonstrate that it is the members of IGOs that are responsible for (or experiencing) a reduced propensity of war. Similarly, Domke (1988) finds that there is no significant relationship between IGO membership and interstate war, though his decision to break down the analysis to individual years biases against finding such a relationship.

Interest in the pacific consequences of IGOs was revitalized by the democratic peace theory (Doyle 1986; Maoz and Russett 1993; Russett 1993). Theories and evidence that initially concentrated on liberal domestic politics eventually expanded to encompass the effects of deliberative institutions on the international level (Russett et al. 1998; Oneal and Russett 1999). Russett and Oneal (2001), along with co-authors, compiled a series of studies crediting a liberal “triad” of democracy, cross-border trade, and IGOs with promoting international peace. Despite repeated tests, the association between IGOs and peace is certainly the shakiest of the three relationships in Oneal and Russett’s Kantian triad. As Gartzke et al. (2001) point out, under certain conditions, joint IGO memberships are associated with increased conflict. This is at least partly due to over-aggregation. Studies using the COW IGO data have generally relied on the count of joint IGO memberships, assuming in effect that all IGOs are the same. Boehmer et al. (2004) relax this assumption, testing a theory that only institutionalized IGOs are likely to affect conflict behavior. It is easy to conflate variation in the diplomatic activity of states with the effects of IGOs. Major power disagreement also makes these organizations less effective at promoting peace.

Given the controversy, researchers have sought new ways to evaluate the relationship between IGOs and conflict. Chan (2005) analyzes whether the number of IGO memberships affects the conflict behavior of the great powers. Using general dispute initiation instead of bilateral Militarized Interstate Disputes (MIDs), he finds that increased IGO membership promotes increased great power MID initiation, with France being the only exception. States are also more likely to join more IGOs in the wake of an intense period of conflict. Crescenzi et al. (2008) review the effect of cooperation on conflict onset between states. Decisions by both members of the dyad to join the same IGOs in the same year are treated as a cooperative shock. The authors find that this cooperative shock in politically relevant dyads decreases the likelihood of conflict, but that joint joining has no effect on conflict in the sample as a whole.
Kalhenn (2011) explores the effects of interactions between liberal domestic politics and international institutions using shared river basins as an issue of cross-border governance. The greater the number of joint IGO memberships, the lower the conflict in border-crossing basins. However, IGO membership does not affect water quantity very much. On the back end of conflict processes, Shannon et al. (2010) find that joint IGO membership reduces the duration of conflict, but not the likelihood of conflict onset (even in fatal disputes). IGO effectiveness also varies depending on the organization’s informational or commitment role. Hansen et al. (2009) use the Issue Correlates of War (ICOW) data to measure conflict in the western hemisphere. The authors find that IGOs are more likely to facilitate agreements if they are institutionalized, when they have more democratic members, and if they use binding conflict management techniques.

Pevehouse and Russett (2006) argue that the effect of IGOs on peace is less equivocal when democracies are involved. The more IGOs are composed of democracies, the less likely it is that states in a dyad will engage in fatal MIDs. Joint IGO membership does not have an effect once joint membership in democratic institutions is controlled for (EU membership status is also controlled for in the analysis). Shannon (2009) uses the Boehmer et al. (2004) data to identify IGOs with a charter that is primarily security-oriented and the Multilateral Treaties of Pacific Settlement (MTOPS) data to update the list of these institutions. She finds joint membership in peace-brokering IGOs increases attempts to settle disputes peacefully. However, joint membership in security IGOs does not have an effect on bilateral attempts when controlling for shared interests, regime type, and the history of such claims. On the other hand, joint membership encourages settlement through third parties.

Researchers have increasingly shifted from asking “whether IGOs matter” for peace, to “which IGOs matter.” Haftel (2007) develops a new data set on institutional design of regional integration agreements (RIAs). He finds that more diverse and intense economic activity and regularly scheduled meetings are associated with a decline in member conflict behavior. McLaughlin Mitchell and Hensel (2007) look for contexts where IGOs are particularly challenged with keeping the peace. The authors identify contentious issues using the ICOW database, and then assess the effect of IGOs, both as active conflict mediators and as passive membership organizations, in defusing and resolving contentious issues.

Given the growing evidence of indirect effects of IGOs, researchers have also been drawn to the methodology of networks to try to unravel causal mechanisms.1 Dorussen and Ward (2008) attempt to demonstrate that the effect of IGOs on international stability is not necessarily a direct effect of individual memberships. Using network analysis, they show that indirect linkages through IGOs are an important substitute for direct diplomatic ties. Ingram et al. (2005) use network analysis and the COW IGO data to show that trade flows between states increase with the strength of IGO ties between countries. Interestingly, the apparent effect of IGOs on trade is not limited to organizations with an economic mandate, though IGOs with strong institutional structures have a larger effect in promoting trade than minimally institutionalized IGOs. The authors attribute this effect to identity formation.

Global governance

Whereas the bulk of research utilizing the COW IGO data set focuses on conflict behavior, a variety of studies have used the COW IGO data to examine the relationship between IGO membership and global governance. Bernauer et al. (2010) assess both domestic and international determinants of the ratification of global environmental treaties. They find that
countries that are more involved in IGOs tend to join more international environmental agreements. Generally, international factors (IGO membership, treaty ratification) have a stronger effect than domestic factors (income, democracy). Looking at a large number of variables, Neumayer (2002) finds evidence that democracies take more actions associated with environmental commitment. However, democratic performance is no better in terms of environmental outcomes. Similarly, Spilker (2011) shows that whereas democracies do not exhibit better environmental behavior, IGO membership can often lead to reduced pollution.

Greenhill (2010) analyzes the effect of IGO membership on socialization toward human rights. He finds that the human rights standards of IGO partners influence a country’s human rights performance. The specific make up of IGOs (in terms of human rights records of their member-states) is actually more important than the nature of the IGOs themselves. Bearce and Bondanella (2007) take the notion of socialization one step further, arguing that countries with common IGO memberships tend to converge toward similar worldviews. Using data on voting patterns in the UN, they find that states with more joint IGO memberships tend to vote more similarly in the UN General Assembly over time, suggesting that nations with many international ties are being socialized by their memberships.

**Intergovernmental organizations and democratization**

Given modern trends, organizational mandates, and the normative context, it seems obvious that IGOs would serve as an important force motivating democratization in the international system. Pevehouse (2002a) seeks to identify the effect of IGO membership on democratization. He argues that IGOs with higher democratic density are more likely to be associated with liberal transition. His measure uses the average POLITY democracy score (Jaggers and Gurr 1995) of the most democratic IGO in which a given state is a member. Membership in democratic IGOs is shown to increase the likelihood of a transition to democracy. Interestingly, this does not appear to be the case for regional IGOs. As Pevehouse (2002b) shows, regional IGOs are not associated with an increase in democracy, but they are associated with the durability of national efforts to liberalize. Pevehouse (2005) echoes and expands on this premise, arguing that regional IGOs serve as a major commitment mechanism, allowing domestic leaders to make more credible claims to liberalize.

Torfason and Ingram (2010) argue that the network of IGOs diffuses democratic norms and transmits information among democratic members. They find that democracies have more influence in the IGO network than autocracies. Their evidence also supports the claim that networks diffuse democracy, accelerating the shift to democracy among those states heavily engaged in the IGO network. Donno (2010) explores the issue of reinforcement of existing democratic norms. Examining reports of election violations in the sample of COW IGOs, she finds that enforcement varies with importance, but that observers and the content of their reports influence IGO sections and enforcement.

**The determinants of IGO membership**

Scholars have devoted increasing attention to explaining IGO membership. Rey and Barkdull (2005) use the Singer/Jacobson version of the COW data to evaluate the effect of democracy on joining IGOs. They find that states with more competitive party systems and multiple legislative chambers tend to join a greater number of IGOs. Less competitive party systems with unicameral legislatures and low per capita gross domestic product tend to decrease IGO
memberships. Mansfield and Pevehouse (2006) also seek to identify why states accede to IGO membership. States that experience a democratic transition over the past five years tend to have about 20 percent more IGO memberships than states that did not undergo regime change. Autocratizing states are less likely to join IGOs than states with stable regimes, while democracies are more likely to join IGOs. Major powers and former communist countries are also more likely to join IGOs, while states involved in MIDs display a lower propensity to become IGO members. Eroding hegemony seems to stimulate more IGO joining.

Mansfield and Pevehouse (2008) explore additional determinants of IGO accession. They argue that democratizing states have more reason to join standards-based and economic IGOs than political organizations, given the value of these organizations as commitment devices for domestic democratic politicians. They find that democratizing countries are more likely to enter economic, political, and standards-based organizations than stable autocracies. The influence of democratization on IGO joining also appears to be independent of stability. These effects are declining: As a state joins more IGOs of a given type, it enters fewer IGOs of the same type, but more IGOs of different types. Finally, Mansfield et al. (2008) look at the effect of domestic factors on membership in regional international agreements. While democracies are generally more likely to join RIA than non-democracies, those with more veto players are relatively less likely to become members. The level of integration serves to magnify the effect of veto players: more integrated RIA have fewer democratic members.

Boehmer and Nordstrom (2008) ask why countries become joint members in certain IGOs but not in others. They differentiate between levels of institutionalization, and between economic and security organizations, finding that dyads that are economically dependent or democratic and at peace are more likely to join highly institutionalized IGOs. MIDs have a modest effect in reducing the likelihood of joint IGO memberships. Economic development and alliances increase joint IGO memberships. Trade ties are the most important determinant of joint IGO membership. At the same time, IGO joining by non-democracies remains something of a mystery (Rodgers and Volgy 2009), particularly given pressures to conform.

Where most research addresses IGO joining, some studies have branched beyond this. Shanks et al. (1996) explore both the growth and demise of IGO along five dimensions. While aggregate IGO counts have grown, many are also “set aside.” As Shanks et al. (1996: 594) state, “only two-thirds of the IGOs that existed in 1981 were still active in 1992.” Second, emanations (where existing IGOs create new organizations) are an important source of IGO formation. Third, evolution has resulted in the population of IGOs shifting over time. Newer organizations allocate membership differently. Fourth, membership patterns vary both across countries and over time. In some cases, states belonged to fewer IGOs in the 1990s than previously. Finally, the end of the Cold War led to new IGO formation that reflected reduced international competition. Surprisingly, Shanks et al. (1996) find that countries that are autocratizing (i.e., becoming less democratic) tend to have more IGO memberships. The age of a country and its development are associated with an increase in IGO memberships. Ingram and Torfason (2010) also address the determinants of IGO termination. They show that IGOs that are dependent on major powers suffer a much higher rate of organizational demise than IGOs which are not. Interestingly, IGOs that help to promote trade, democracy, and peace do not survive longer than those serving other functions.

**Examples of organization-specific data sets**

Whereas this chapter focuses on the COW IGO data set, other data collection efforts are worth mentioning, particularly because they provide important ideas about potential
future avenues for the data collection and analysis efforts within the COW IGO framework.²

**United Nations**

The most widely used database within the realm of the UN records roll-call votes from the UN General Assembly (UNGA) from 1945 to the present.³ One arm of quantitative research involves the effect of UNGA voting on the level of international cooperation. Gartzke (1998, 2000, 2007) uses the similarity of UNGA vote patterns to argue that it is interests, and not institutions, that are primarily responsible for democratic peace. UNGA votes are widely used as a measure of variation in inter-state interests. As Voeten (2012: 12) notes, “indicators based on UN votes have now become an almost obligatory ingredient in models that explain bilateral and multilateral lending, international conflict, and a host of other outcomes.” Other measures of international interests use alliance data (Bueno de Mesquita 1981; Bueno de Mesquita and Lalman 1992) or counts of IGO portfolios (Maoz et al. 2006).

Another arm of quantitative research involves the effects of major IGOs (in particular the UN) on domestic public opinion. Chapman and Reiter (2004) and Chapman (2009) show that the US president can demonstrate international support by obtaining approval from the UN Security Council (UNSC). Tingley and Tomz (2012) use an experiment to assess the causal pathways between UNSC resolutions and popular support. In contrast to the claim that UN resolutions signal quality or reflect international material support, the authors find that resolutions serve as commitments, causing publics to back military uses of force abroad.

Important questions remain about the origins of national interests, and how they are translated into voting in the UNGA or UNSC. Alker (1964) and Alker and Russett (1965) were among the first to apply UNGA roll-call vote data to study international politics. They used factor analysis to identify coalitions and cleavages among voting members. Kim and Russett (1996) use an updated version of the UNGA roll-call data to argue that the Cold War, in which an East–West divide was dominant, had been re-shaped by a North–South split. Voeten (2000) applies the NOMINATE scaling technique to evaluate UNGA roll-call vote data. He finds that the post-Cold War world actually remained uni-dimensional, with the US and its partners standing against all other states. Regime type and wealth are also determinants of UN vote patterns. Hagan (1989) goes further, using data on regime change in 87 developing countries to show that realignments in the UNGA are often tied to domestic transitions.

Studies of UN voting have been criticized for not paying sufficient attention to the manipulation of votes. In particular, powerful nations may be able to “purchase” roll-call outcomes. Early studies produced contradictory evidence of vote buying in the UNGA (Rai 1972, 1980; Kegley and Hook 1991; Sexton and Decker 1992). Wang (1999) finds that US foreign aid influenced politically important UNGA votes in a sample of 65 developing countries in the 1980s and 1990s. Kuziemko and Werker (2006) estimate the value to a state of obtaining one of the ten temporary seats on the UNSC. Dreher et al. (2008) examine the benefits of UNSC membership in terms of World Bank loans. Temporary UNSC membership does increase the probability of success in obtaining funding from the World Bank, though UNSC influence of this kind does not seem to increase the size of the loans obtained.

**World Trade Organization**

The WTO, and its dispute settlement procedure, provides an ideal laboratory to empirically analyze questions of compliance and enforcement of cooperation in international institutions.
Over time, scholars have collected a database of several hundred General Agreement on Tariffs and Trade/WTO disputes, starting with the initial data collection efforts by Hudec (1993). This initial database was substantively revised and reformatted by Reinhardt (1996) and subsequently supplemented by Reinhardt (2000), Busch (2000), and Busch and Reinhardt (2003, 2006). The database incorporates information on over 600 bilateral disputes from 1948 to 2000. In addition, the database includes information on the dispute escalation, policy outcomes, compliance with the rulings, and other factors of interest for analyzing enforcement of cooperation within the WTO. In a recent data collection effort, Busch et al. (2009) collected data on the legal capacity of WTO members using a 48-question survey. Many scholars have used these data to analyze important questions such as who initiates disputes, and why are some disputes never resolved whereas others never reach the formal stage. Busch and Reinhardt (2002) and Davis (2012) provide excellent overviews of the insights that have been drawn from these data.

**International Monetary Fund**

Data collection efforts in IMF research have focused primarily on the determinants of IMF lending, conditionality choices, and borrower performance. Vreeland (2003) provides data on the number of years a country is in an IMF program and the time a country negotiates a program. Gould (2003, 2006), Dreher and Jensen (2007), and Copelovitch (2010a, 2010b) provide measurements of IMF conditionality operationalized as the number of conditions imposed for each IMF loan. For example, Copelovitch (2010a) collects data of 197 non-concessional IMF loans to 47 countries from 1984 to 2003 using IMF archival documents to measure loan size as well as the number of conditions for each loan. He distinguishes “hard” and “binding” conditions from “soft conditions.” Stone (2008, 2011) proposes a different way of measuring the scope of IMF conditionality, using quantitative macroeconomic performance criteria and structural benchmarks as reported in the IMF’s Monitoring of Agreements Database. The database codes conditionality in 19 categories, ranging from fiscal and monetary policy to exchange rate restrictions and structural reforms. Stone’s measure of scope is operationalized as the number of categories of conditions subject to test in a particular review. With these data, Stone demonstrates how the US is able to continue to wield disproportionate power in the IMF, despite waning contributions, by combining formal and informal mechanisms. Finally, some effort has gone into providing adequate measures for borrowers’ compliance. Dreher (2003) measures performance as a binary variable that takes one if in a particular year at least 25 percent of the amount which would be available for that year under equal phasing remains undrawn. He uses these data to analyze the effect of elections on IMF program interruptions. Using these data, scholars have addressed various questions, such as the influence of powerful states, preference heterogeneity, and agency behavior on IMF lending and conditionality. Copelovitch (2010a, 2010b) provides a detailed summary on the quantitative literature on this question, and Vreeland (2007) conducts a meta-analysis of database studies of the IMF, offering a criticism of some IMF lending practices and the influence of major powers.

**World Bank and other multilateral aid institutions**

Research on the World Bank and other multilateral aid institutions has long relied on the Organization of Economic Cooperation and Development’s International Development Statistics to analyze aid commitments and disbursements from various regional and multilateral
development banks, including the World Bank. In a recent effort, Tierney et al. (2011) provide a more comprehensive data set on bilateral and multilateral aid flows. Both data sets have been used to address a variety of interesting questions related to economic development, and provided important insights for our understanding of multilateral aid allocation decisions (see, for example, Milner 2006; Hicks et al. 2008; Lyne et al. 2009; Schneider and Tobin 2012a). In addition, in an attempt to enable the comparison of various multilateral aid institutions, McLean (2012) and Schneider and Tobin (2012b) collect data on contributions to and allocation of a number of multilateral aid institutions in order to understand why governments delegate resources to a variety of IGOs with often overlapping goals.

Future applications of quantitative data on IGOs

While much has been achieved in the initial exploitation of the COW IGO data, some important questions remain. Perhaps the greatest question of all remains the effects of IGOs on peace. A major source of ambiguity is the over-aggregation of the indicator itself. Counts of these data pose the risk of an ecological fallacy: Identifying relationships in populations does not mean that one can infer efficaciousness for individual organizations or memberships (Robinson 1950). Research using these data has generally not disaggregated these data. Inferences meant to reflect the effects of IGOs in conflict are actually demonstrating the effect of accumulating memberships. Given the high variation in membership levels among countries, it is very likely that the factors that lead states to join more IGOs may themselves be responsible for variation in conflict behavior. This has already been shown in the case of countries that are more active in the international system. Future research should seek to disaggregate the effects of IGOs on various dependent variables. The data collected on individual IGOs, as summarized here, provide a useful starting point for this.

The existing efforts in data collection for specific IGOs provide further ideas for the development and application of the COW IGO database. Whereas much effort has been spent on analyzing the effectiveness of IGOs on promoting peace, there is less understanding about the effectiveness of IGOs in their own fields. Based on the ongoing efforts to provide more fine-grained codings in respect of IGO characteristics and policy fields, future research could gain insights about IGO effectiveness using comparative methods.

Scholars of the IMF, the World Bank, and the WTO often focus on the effects of bargaining power on policy outcomes. Most of this work relies on either the influence of the most powerful member-states, such as the US (Stone 2008), or on the influence of a group of powerful states (Copelovitch 2010b). More fine-grained analysis requires the collection of data about the informal and formal bargaining power of individual member-states. Much of this work has already been completed in EU research, and scholars have used these measures of power to analyze various questions related to formal and informal bargaining inputs and outputs in the EU (Carrubba 1997; Rodden 2002; Thomson et al. 2006; Slapin 2008; Aksoy 2010; Schneider 2011, 2012; Schneider and Tobin 2012a). This research could serve as a guide for future data collection efforts that result in a comparable data set of bargaining power in IGOs.

Another interesting question that has only been explored partially is the development and existence of IGOs in various issue fields that often have overlapping or even similar goals (Raustiala and Victor 2004; Alter and Meunier 2009). Some research discusses the beneficial effects of such regime complexes. For example, Schneider and Tobin (2012b) argue that it gives governments the ability to diversify the risks of delegation. Whereas these
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studies provide explanations that are specific to particular issue fields, the COW IGO data set could provide the foundation for future data collection that makes it possible to answer such questions.

While much has been accomplished in terms of methodological sophistication, there remains room to refine analysis of key relationships through better theory and estimation techniques. In particular, little has been done to date to mate formal theoretical models with tests of hypotheses about international cooperation using COW IGO data and other sources. Given the compatibility of these data with other data sets, and the extensive use of formal modeling in the general conflict literature, this would seem to be an obvious course for future research. A related but more general challenge involves endogeneity. Studies to date explore the effects of IGOs on democracy, peace, and global governance, and of democracy and other variables on the tendency for states to join IGOs. Estimating these relationships separately is likely to bias apparent effects: Democracy both influences and is influenced by international institutions. Future research must tackle these challenges in order to provide more conclusive statements about the relationship between IGOs and international cooperation and conflict.

Recommended for further reading


Notes

1 Beckfield (2008) applies network analysis to the COW IGO data, finding that the structure of ties among organizations implies important challenges to major sociological theories of the organization of international affairs. Previous theoretical work on IGOs and even data-driven research underestimated the extent to which IGOs exhibit structural inequality.

2 European Union research has provided particularly important insights into the possibilities for data collection on IGOs more broadly. For example, the Decision-making in the European Union (DEU) data set (https://easy.dans.knaw.nl/ui/datasets/id/easy-dataset:31896) measures the policy positions of member-states, the Commission, and the European Parliament on 70 legislative proposals adopted between 1999 and 2001 (Thomson et al. 2006). Similarly, Warntjen et al. (2008) collected data on the ideological composition of governmental coalitions in the Council of Ministers. We do not attempt to summarize data on regional organizations here.

3 See Strezhnev and Voeten (2012) for the codebook.

4 Note that there does not exist one integrated data set as the different efforts focus on different time periods.

5 Abouharb and Cingranelli (2009) updated the dataset.

6 For an exception, see Gartzke et al. (2009).

References

All websites accessed 10 September 2012.


