Supporting Information for *The Economic Leverage of International Organizations in Interstate Disputes*

Johannes Karreth
jkarreth@ursinus.edu

Forthcoming in *International Interactions* (doi: 10.1080/03050629.2018.1389728)

This supporting document contains additional information and tables mentioned in the main text. All data and code required to reproduce the results in this study are available in a replication package posted at https://dataverse.harvard.edu/dataverse/jkarreth.

Contents

1 The cost of conflict for IGOs

In the main text, I describe why interstate conflict is costly for IGOs — even those IGOs that are bound to be politically neutral and that do not have a conflict resolution mandate. Individual project reports from economic IGOs, e.g. from the World Bank, offer evidence to this point. One of the more comprehensive summaries of this assertion comes in the publication of the 2011 World Development Report (The World Bank 2011). Each year since 1978, the Bank has published one such report that focuses on one particular topic. The Bank's president chooses this topic three years before the year in which the report is published.[1] The 2011 WDR can be seen as a summary statement of the relevance of militarized conflict and political violence for the World Bank's mission, even long before its publication. It is unequivocal about the impact of conflict on development:

- "insecurity not only remains, it has become a primary development challenge of our time." (p. 1)
- "The death, destruction, and delayed development due to conflict are bad for the conflict-affected countries, and their impacts spill over both regionally and globally." (p. 5)
- "[...] organized violence [...] disrupts governance and compromises development [...]" (p. 53)
- "Poverty reduction in countries affected by major violence is on average nearly a percentage point slower per year than in countries not affected by violence." (p. 60)
- "The disruptive effect of violence on development and the widening gap between countries affected by violence and those not affected are deeply troubling." (p. 60)
- "Violence is the main constraint to meeting the MDGs." (p. 62)
- In the year following the report's release, the Bank established a separate unit aimed at dealing directly with the cost of conflict: the *Center on Conflict, Security and Development*.[2]

Other IGOs with economic leverage express similar concern. The World Development Report is only one example here. Some other examples are listed in the next section.

[1] For more background information on the World Development report, see Source S12.
[2] See Source S13.

2 Identifying IGOs with leverage

Beginning with the Correlates of War project's list of IGOs (Pevehouse, Nordstrom, and Warnke 2004), I identify all intergovernmental organizations whose activities yield tangible benefits for member states. This step separates those institutions identified in my theoretical argument from security-related or purely coordinating institutions. Tangible benefits can include the following typical functions or issues that IGOs cover: providing short-term or long-term loans, harmonizing currencies, harmonizing trade and enhancing market access, facilitating foreign investment, assisting with and coordinating the production of goods, and facilitating the extraction, processing, and sale of natural resources, such as regional trade agreements (Feng and Genna 2003; Haftel 2012). IGOs that cover at least one of these issues possess economic leverage. To avoid any oversights, I also consulted other lists of institutions that provide direct and tangible benefits to member states, in particular regional trade agreements. To that end, I used two lists of regional trade agreements from Feng and Genna (2003) and from Haftel (2012).

Next, I identify the IGOs that possess some capacity to make decisions at the institutional level, rather than being a forum or occasional meeting of heads of states. For this requirement, I use two previous studies that identified institutional characteristics (Boehmer, Gartzke, and Nordstrom 2004; Ingram, Robinson, and Busch 2005). From these studies' lists of intergovernmental organizations, I examined those that are at least "structured" (Boehmer et al. 2004, 37 and Ingram et al. 2005, 855). This feature requires that IGOs "contain structures of assembly, executive (nonceremonial), and/or bureaucracy to implement policy, as well as formal procedures and rules" (Ingram et al. 2005, 855), and thus captures my requirement. For my concept of leverage, these structures and the resulting legal-structural authority is a close-to-necessary condition. Without legal-structural authority, it is less likely that an IGO can credibly signal costs for using force to potentially disputant member states — unless all other IGO members strongly back such potential costs. As a check on this condition, I also cross-reference my coding of IGO decisionmaking with information from Hooghe and Marks (2015), who developed a measure of legal authority for 72 IGOs. Hooghe and Marks (2015) code legal authority along two dimensions, delegation and pooling. Both imply granting authority to an IGO, either by empowering its secretariat (delegation) or ceding veto power against a majority decision of IGO member states. Therefore, the IGOs I identify as having substantial leverage should also control legal authority, either through delegation or pooling or both. Of the IGOs that I consider in control of sufficient benefits to exercise leverage (see below) and that also appear in Hooghe and Marks (2015), all but one are ranked above the median of Hooghe and Marks' delegation measure. The only low-ranking IGO on the delegation measure, MERCOSUR, has exercised legal authority in the case of Paraguay's suspension in 2012 for domestic political irregularities. This example suggests that even without a high ranking on the delegation scale, MERCOSUR demonstrably fulfills my requirement for ascribing leverage to an organization.

Lastly, I collected more specific information on each institution to capture the aspects raised in my theoretical argument. For each of the IGOs with economic leverage and institutional prerequisites, I searched news archives (mostly through Lexis-Nexis) for evidence whether the IGO had previously and publicly expressed concern over a militarized conflict and mentioned potential consequences for member states. This captures the IGOs' ability and willingness to impose costs on member states that use force in interstate disputes.

If an IGO fulfills these conditions, it is rated as an IGO with high leverage. The combination of ability and clear signals gives these IGOs the kind of high leverage over member states described in

the theoretical argument. Based on this coding, 17 different IGOs with clearly identifiable leverage exist; they are listed in Table 1 in the main text.

Select examples for IGOs with high leverage that sent strong signals about the cost of conflict and the willingness to impose costs on states engaging in violence include the following:

- The *African Development Bank* temporarily relocated its headquarters from Cote d'Ivoire during violent conflict in that country. The AfDB has also issued many statements clarifying that it cannot operate in member countries that are engaged in active hostilities. For example, one report notes the need for a "secure environment for effective operations" (Source S14).

- The *Asian Development Bank* uses a "fragility index" to evaluate prospects for programs in member countries. This index incorporates the risk for militarized conflict. It is documented in Source S15.

- The *Caribbean Community* has frequently expressed concerns about tensions between member states, and has facilitated that member states seek international arbitration to resolve disputes and avoid costs to CARICOM. Examples include a maritime dispute between Guyana and Surinam (Sources S16, S17, Haftel 2012) and Barbados and Trinidad & Tobago (ibid.). A representative statement mentions the cost of conflict: "The community also wishes to remind the parties of their responsibility to the community for the maintenance of peace and stability, to which all member states are committed, and in the absence of which the wellbeing of the people of the Community can be so easily jeopardized" (Source S18). Importantly, in this case, CARICOM's active mediation efforts failed at first, but Guyana and Belize have kept attempting to resolve this dispute without violence (Source S19). CARICOM also has addressed problems arising from bargaining over resources that themselves may substantially alter the distribution of power, by guaranteeing an "equitable distribution of the proceeds deriving from any exploitative activities" in an area disputed between Guyana and Surinam (Source S20). And at a later point, the Foreign Minister of Suriname cited the cost of conflict (Source S21).

- The *Common Southern Market* or *MERCOSUR* has sent strong signals to member states about the cost of political violence. Paraguay was suspended for one year of domestic political instability. When Ecuador and Peru engaged in hostilities over a border conflict in early 1995, Mercosur issued strong concerns (Source S22).

- The *Commonwealth Secretariat* has repeatedly acted upon concerns about member states' domestic instability and resulting internal violence, including coups (Source S23).

- The *Economic Community of West African States* has dedicated major efforts toward conflict prevention. ECOWAS has intervened in member states and imposed sanctions following episodes of political violence within member states. While Sub-Saharan African countries have experienced more civil than interstate wars, the region is not free from interstate tensions that could trigger more serious disputes. For these situations, ECOWAS has created a number of conflict prevention initiatives and regulations, including a *Protocol Relating to the Mechanism for Conflict Prevention, Management, Resolution, Peacekeeping and Security* (Source S24).

- The *European Bank for Reconstruction and Development* has expressed that support from the Bank is contingent upon political stability and the absence of violence in recipient states. Examples include a statement from an EBRD director after the Yugoslav wars that any reconstruction assistance would be contingent upon stability in the formerly war-torn countries (Source S25).

- The *European Union* and its related institutions (previously, the *European Economic Community*, as well as the *European Investment Bank*) are a prime example for institutions with high economic leverage that raise the costs of conflict. One example of concerns about costs in a British-Spanish dispute is mentioned in the main text. Other examples are discussed in Eilstrup-Sangiovanni and Verdier (2005).

- The *World Bank* has a clear policy for countries in conflict: "When conflict breaks out between countries or within a country in which the Bank has an active lending portfolio, the changed circumstances may require the Bank to review the effectiveness of its risk management, macro-economic analysis, supervision, and monitoring and evaluation in relation to its portfolio. If the severity of the situation warrants, the Bank may undertake a conflict analysis of Bank-supported operations in the country, considering particularly the likelihood that they will be able to achieve their development objectives. As appropriate, the Bank and borrower may agree on changes in the design of these operations to reflect the changed circumstances, or the Bank may exercise its legal remedies" (Source S26). Other examples are discussed in the main text.

- The *International Fund for Agricultural Development* (IFAD) has clear rules about the suspension of programs and loans (see Article XII in Source S27). The Fund has also interrupted or reduced programs with direct reference to instability and violence, for example in Mali after domestic unrest in 2012/13 (section III 10. in Source S28).

- The *International Monetary Fund* mirrors the World Bank's relationship with conflict. IMF staff are quick in emphasizing that the Fund's mandate is a purely a-political one and that the Fund is exclusively concerned with economic and monetary affairs. However, this does not preclude a serious concern among all levels of IMF staff about the negative effect of conflict on economic and financial stability, the core mandates of the IMF. In October 2009, the then-managing director, Dominique Strauss-Kahn, delivered a speech on "Economic Stability, Economic Cooperation, and Peace — the role of the IMF" (Source S29). In this speech, Strauss-Kahn emphasizes the economic losses from military conflict and its detrimental effects on the Fund's efforts. He even goes so far to state that "we can attain a virtuous circle of peace and prosperity, and avoid a vicious circle of conflict and stagnation. On first glance, this might seem incidental to the role of the IMF. But it is not. It underpins our mandate." This statement is important because it qualifies the strictly apolitical role of institutions such as the IMF and the World Bank: interstate conflict and instability seriously undermine the purpose for which these institutions were created in the first place. In the past, the IMF has indeed taken steps to address political disputes in order to avoid economic and financial instability in a variety of cases:

  - At the 1991 Annual Meetings of the Fund, several high-ranking IMF staff members emphasized the challenge of Fund operations in client states engaged in political disputes

and, specifically, dedicating substantial resources to military spending and the armed forces (Source S30).

- A 2002 research paper addresses the "Fiscal Consequences of Armed Conflict and Terrorism in Low- and Middle-Income Countries" and emphasizes its detrimental effects on the IMF's key goal of macroeconomic stability (Source S31).
- In the aftermath of Vietnam's occupation of Cambodia, IMF assessments at a level as high as the Executive Board note and push for military demobilization "as aggressively as political condition will allow" (Source S32)
- A 2005 IMF Article IV consultation with Ethiopia notes concern about the disputed border with Eritrea with regard to the political background for macroeconomic stability (Source S33). Article IV consultations are regular discussions between the IMF and client countries that are required by Article IV of the IMF Articles of Agreement.
- Reports on earlier consultations had stated: "Meanwhile, the Development Assistance Group (DAG) in Ethiopia has underscored that the Government of Ethiopia should avoid escalating defense expenditures while the border dispute remains unresolved" (Source S34); "the border conflict with Eritrea increasingly hampered the government's efforts to consolidate stabilization gains;" "Ethiopia's economic situation deteriorated sharply as a result of [...] the impact of the border conflict" (Source S35).
- The recent tensions between China and Japan over the Senkaku/Diaoyu Islands led current IMF Director Christine Lagarde to state that "Both China and Japan are key economic drivers that do not want to be distracted by territorial division" and that "the shaky global economy could not afford to have the two nations embroiled in a territorial dispute after Chinese banks withdrew from the fund's annual meeting in Tokyo" (Source S36).

- The *Multilateral Investment Guarantee Agency* is the World Bank Group's risk insurance arm, and therefore probably the most risk-tolerant IGO in this list. The MIGA is particularly active in providing support for post-conflict recovery projects. Despite this, even the MIGA has suspended projects due to instability and violence. One example is the suspension of infrastructure projects in Cote d'Ivoire during the violence surrounding a contested election in 2010-11 (Source S37).

- The *Southern African Development Community* has used its economic leverage in a variety of contexts to help keep disputes between member states at a peaceful level. Countries in the Southern African region have faced lingering disputes over water resources. These disputes have remained peaceful so far partly due to the influence of the Southern African Development Community, a typical IGO with high leverage. The SADC provides a multilayered structure of benefits that states can count on if they keep disputes over water peaceful (Turton and Ashton 2008).

- The West African Economic and Monetary Union (WAEMU) has been encompassed, since 1971, by a Non-Aggression and Defence Assistance Agreement. For concrete steps toward violence prevention, a recent (domestic) example comes from Cote d'Ivoire, where the WAEMU "denied access to Ivory Coast state funds" to a President who refused to accept a negative election result, and used force to stay in power (Source S38).

3 Overlap between IGOs

Table A1. Overlap of IGOs with leverage and other IGO types used in empirical analyses. This table shows how different classifications of IGOs do and do not overlap. Almost all IGOs with high leverage are also structured IGOs, but IGOs with high leverage only make up about 10 percent of all structured IGOs. There is virtually no overlap between IGOs with high leverage and highly structured IGOs in the security realm, or IGOs with peace-brokering functions. Source: author's coding, Boehmer, Gartzke, and Nordstrom (2004), Ingram, Robinson, and Busch (2005), Shannon (2009).

IGO with high leverage	also listed as structured IGO	also listed as Security HSIGO	also listed as peace-brokering IGO
African Development Bank	Yes		
Asian Development Bank	Yes		
Caribbean Community	Yes		
Common Southern Market	Yes		
Commonwealth Secretariat	Yes		
Economic Community of West African States	Yes		Yes
European Bank for Reconstruction and Development	Yes		
European Economic Community	Yes		
European Investment Bank	Yes		
European Union	Yes	Yes	Yes
World Bank	Yes		
International Coffee Organization			
International Fund for Agricultural Development	Yes		
International Monetary Fund	Yes		
Multilateral Investment Guarantee Agency	Yes		
Southern African Development Community	Yes		
West African Economic and Monetary Union	Yes		
Remaining other (exclusive) IGOs in this category	177	10	19

4 Distribution of joint IGO memberships in crises and claims

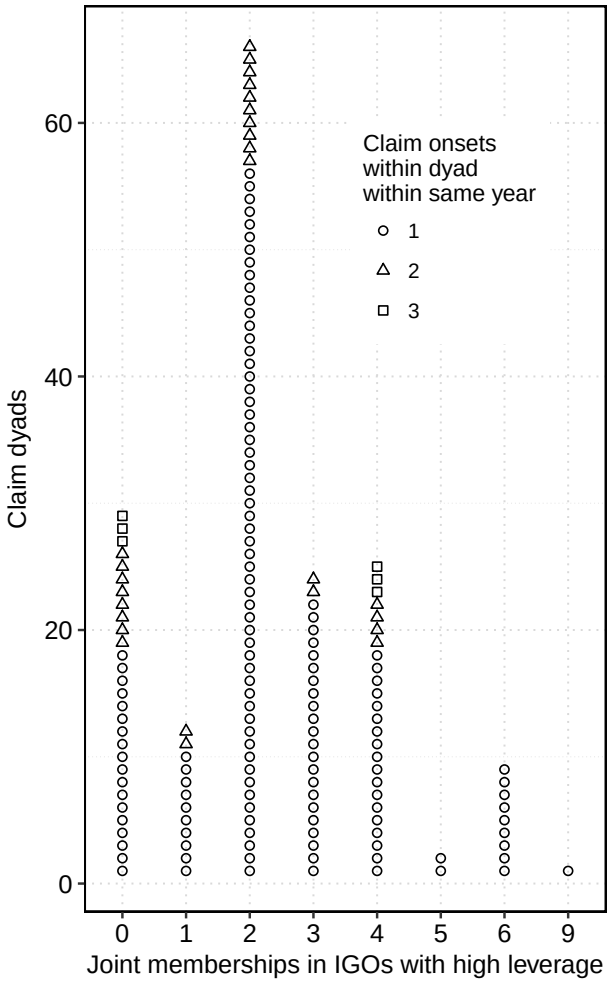

Figure A1. Distribution of joint memberships in IGOs with high leverage in the analyses of claims. See Table A15 for analyses that account separately for contemporaneous claims.

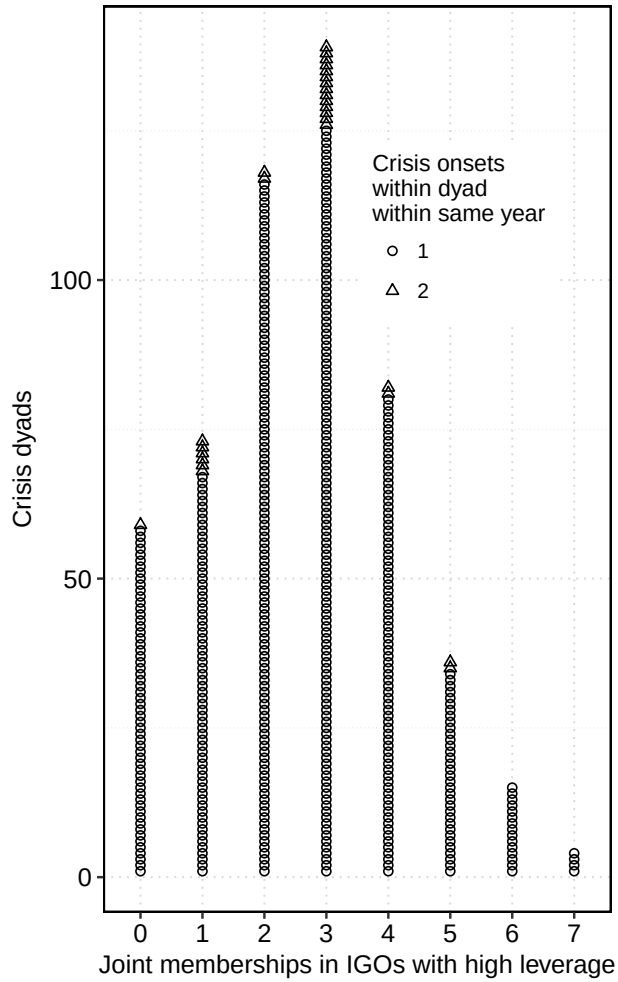

Figure A2. Distribution of joint memberships in IGOs with high leverage in the analyses of crises. See Tables A32 and A33 for analyses that account separately for multi-party crises and contemporaneous crises.

5 Conditional distribution of IGOs

The following two figures show the average dyadic characteristics across the IGO types used in this study. Each figure is based on the sample of claims or crises analyzed in the analyses below. I calculated the average values of the variables in the rows (joint democracy, strategic rivalry, UNGA ideal point difference, alliance, and difference in CINC scores) for four groups for each type of IGOs: the dyads that fall in the first quartile of the joint membership count for the respective IGO, the second quartile of the joint membership count for the respective IGO, etc. The figures then show whether any of the variables in the rows are systematically associated with higher joint membership counts for any of the IGOs. For example, the plot on the top right of Figure A3 reveals that democratic dyads share more memberships in peace-brokering IGOs.

For the purpose of this study, both figures show that there are few systematic relationships between the variables in the rows and states' joint memberships in IGOs with high leverage — compared to other types of IGOs.

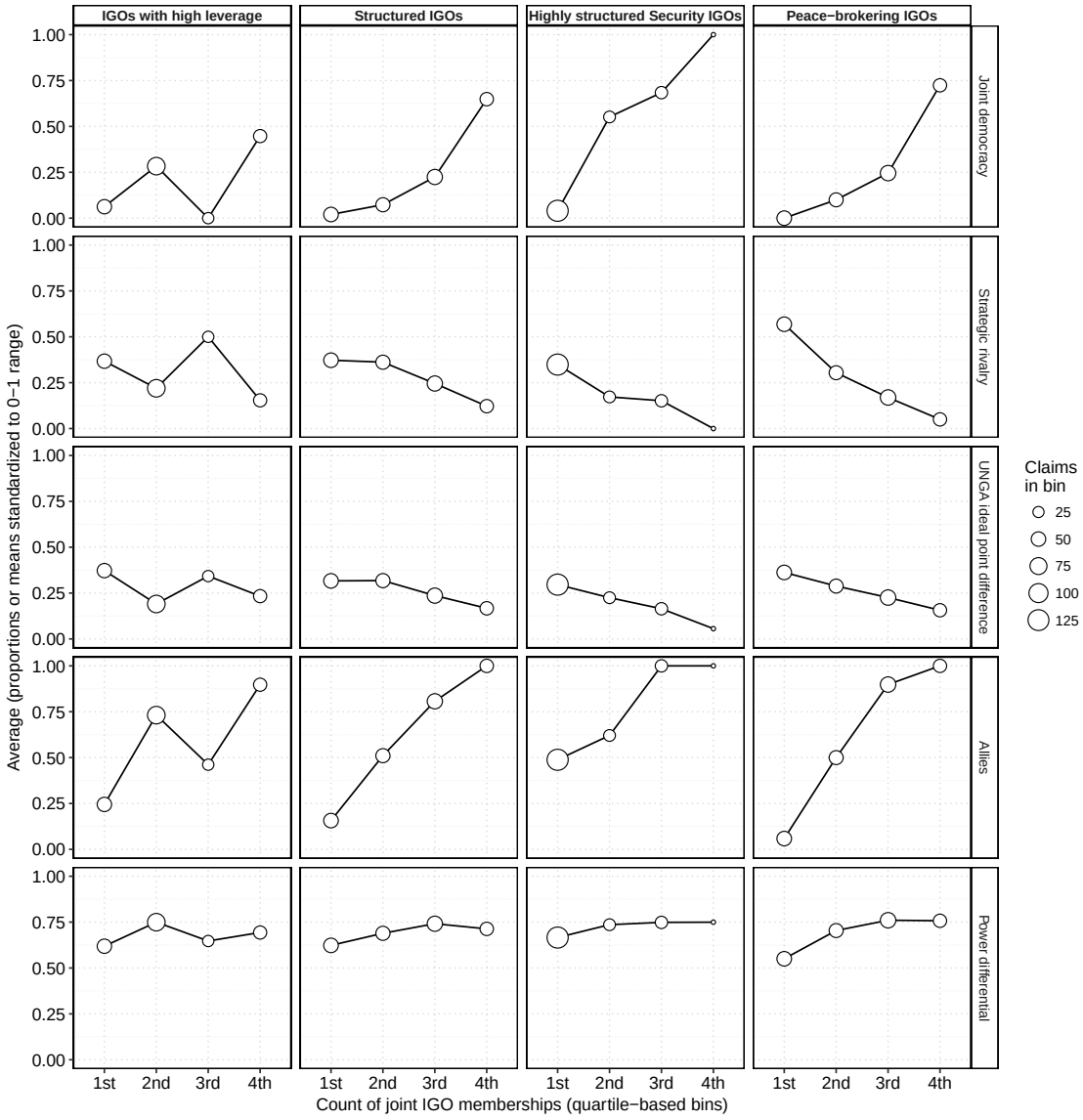

Figure A3. Average characteristics of claim dyads across IGO types. Each dot shows the average value of the variable in each row for the first, second, third, and fourth quartile of membership counts in the respective IGO type. Average values are means for continuous variables (UNGA ideal point difference and power differential) and proportions for binary variables (all others).

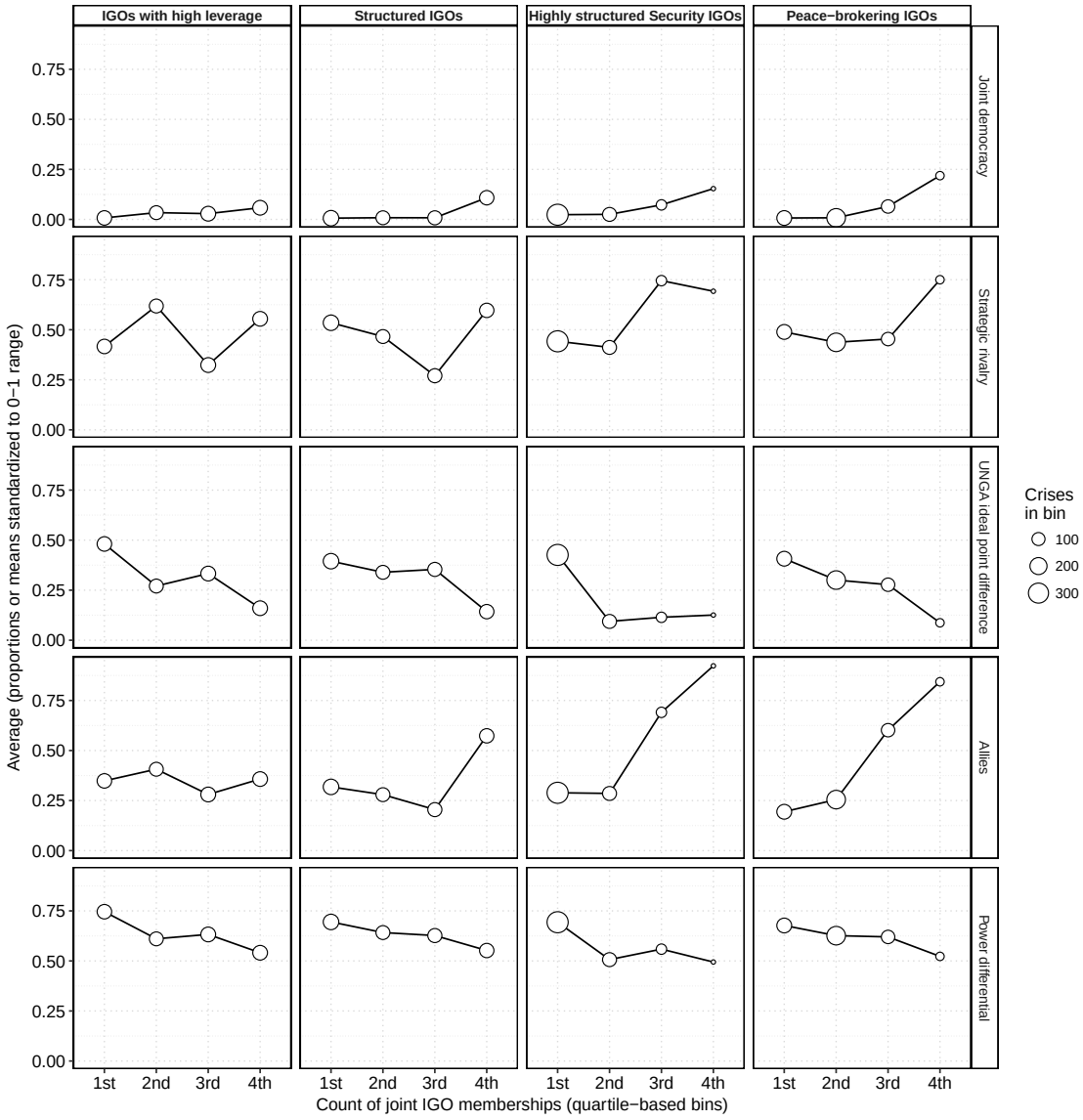

Figure A4. Average characteristics of crisis dyads across IGO types. Each dot shows the average value of the variable in each row for the first, second, third, and fourth quartile of membership counts in the respective IGO type. Average values are means for continuous variables (UNGA ideal point difference and power differential) and proportions for binary variables (all others).

6 Spatial distribution of IGOs with high leverage

The following two figures show that IGOs with high leverage are present across all world regions.

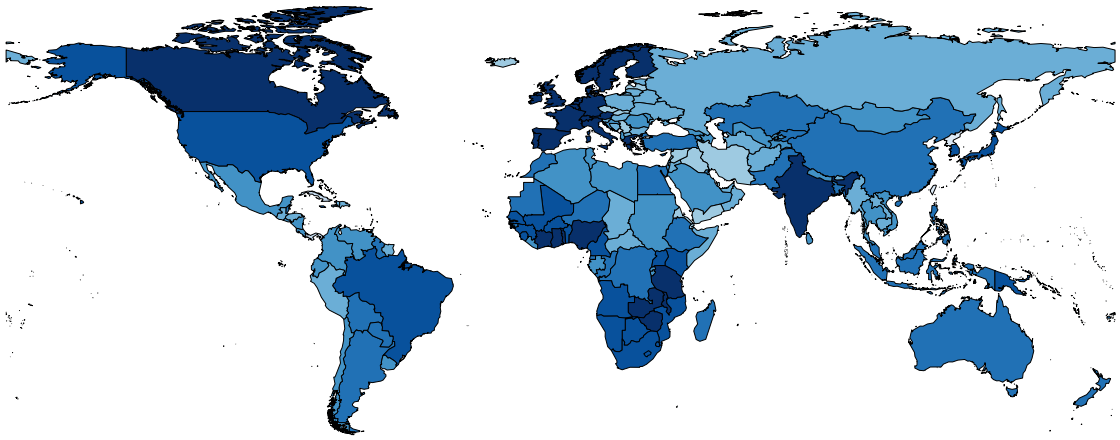

Figure A5. Countries' (monadic) membership counts in IGOs with high leverage in 2000.

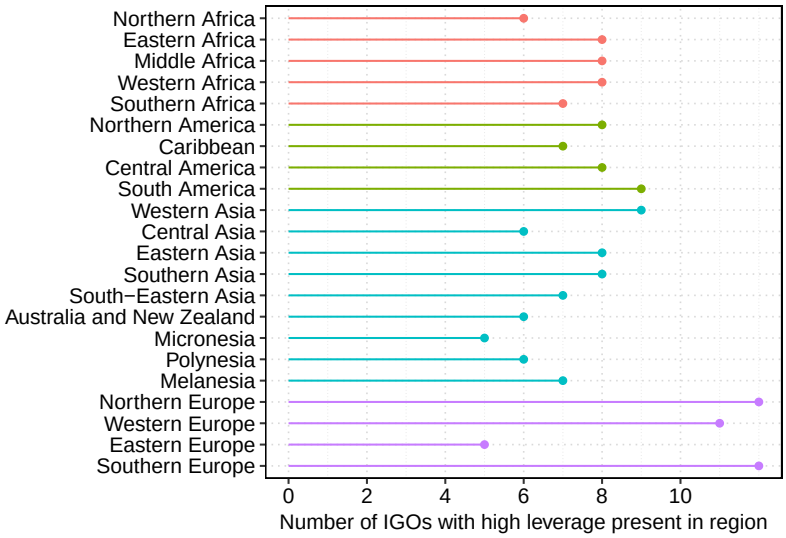

Figure A6. The presence of IGOs with high leverage across world regions. This figure shows how many IGOs with high leverage have at least one member state in each of the regions listed in the figure.

7 Details on coding the outcome variables

Using force in claims. This outcome is based on the ordinal hostility measure in the ICOW data for each claim. I code it as 1 if the highest hostility level throughout a claim reached the use of force by at least one state in the dyad or if a full-scale war ensued. If hostilities remained below that level — if states only threatened with the use of force, displayed force, or no militarized dispute at all occurred — the variable is coded as 0.

Major clashes or war during crises. Because my argument suggests that the costs of using force derived from IGOs with leverage should reduce the probability of states choosing to use force, I use the ICB data's coding of the highest level of violence during the crisis as the outcome variable for this test. That variable, "violence", identifies the severity of clashes between two states involved in a crisis. I recode all "serious clashes" and "full-scale wars" values as 1 and "minor clashes" and "no violence" values as 0, aligning the measure to the variable I used in the test of my argument on claims.

8 Data sources

Table A2. Sources for variables used in all analyses. All explanatory variables are measured in the first year of a claim or crisis.

Analyses	Variable	Description	Source
Claims	Use of force in claims	See above	ICOW (Hensel 2001, Hensel, Mitchell, Sowers, and Thyne 2008)
Claims	IGOs with high leverage	Count of IGOs with high leverage to which both states are formal members	Author's coding
Claims	Highly structured Security IGOs	Count of IGOs rated as structured and in the security domain to which both states are formal members	Boehmer, Gartzke, and Nordstrom (2004), Ingram, Robinson, and Busch (2005)
Claims	Peace-brokering IGOs	Count of IGOs listed as peace brokers to which both states are formal members	Boehmer, Gartzke, and Nordstrom (2004), Ingram, Robinson, and Busch (2005)
Claims	All other IGOs	Count of all IGOs (minus IGOs with high leverage) to which both states are formal members	Shannon (2009)
Claims	Intangible Salience	Salience index, based on homeland territory, identity basis, and historical sovereignty	ICOW (Hensel 2001, Hensel, Mitchell, Sowers, and Thyne 2008)
Claims	Tangible Salience	Salience index, based on economic resources, strategic location, and permanent population in the claimed territory	ICOW (Hensel 2001, Hensel, Mitchell, Sowers, and Thyne 2008)
Claims	Territorial Claim	Binary indicator for claims over territory (vs. maritime zone or rivers)	ICOW (Hensel 2001, Hensel, Mitchell, Sowers, and Thyne 2008)
Claims	Joint Democracy	Binary indicator set to 1 if both states score ≤ 7 on the Polity IV scale (-10 to 10)	Marshall and Jaggers (2009)
Claims	Strategic Rivalry	Binary indicator for dyads listed as rivalry	Thompson and Dreyer (2011)
Claims	Power Differential	Difference in CINC scores, logged	Singer, Bremer, and Stuckey (1972)
Claims	Alliance	Binary indicator for dyads listed as allies in the ATOP data version 3.0	Leeds, Ritter, Mitchell, and Long (2002)
Claims	UNGA ideal point difference	Absolute difference of ideal points based on votes in the UNGA	Bailey, Strezhnev, and Voeten (2017)
Claims	Trade dependence (lower)	Bilateral trade divided by GDP (lower value of two states, logged)	Gleditsch (2002)
Claims	GDPpc (lower)	GDP per capita (lower value of two states, logged)	Gleditsch (2002)
Claims	Cold war	Binary indicator for claims that began prior to 1991	
Claims	Salience of claim (aggregate measure)	Index of the salience or importance of the claimed territory, river, or maritime zone to the two participants	ICOW (Hensel 2001, Hensel, Mitchell, Sowers, and Thyne 2008)
Crises	Major clashes or war during crisis	See above	ICB (Brecher and Wilkenfeld 2000, Hewitt 2003)
Crises	Joint High-Leverage IGOs	See above	See above
Crises	Joint Structured IGOs	See above	See above
Crises	Joint Security HSIGOs	See above	See above
Crises	Joint Peace-Brokering IGOs	See above	See above
Crises	Existential threat	Binary indicator for crises marked as threat to influence, grave damage, or existence	ICB (Brecher and Wilkenfeld 2000, Hewitt 2003)
Crises	Territorial dispute	Binary indicator for crises involving territorial threats	ICB (Brecher and Wilkenfeld 2000, Hewitt 2003)
Crises	Joint Democracy	See above	See above
Crises	Strategic Rivalry	See above	See above
Crises	Power Differential	See above	See above
Crises	Alliance	See above	See above
Crises	UNGA ideal point difference	See above	See above
Crises	Trade dependence (lower)	See above	See above
Crises	GDPpc (lower)	See above	See above
Crises	Cold war	Binary indicator for crises that began prior to 1991)	See above
IGO memberships	Joint High-Leverage IGOs	See above	See above
IGO memberships	MIDs	Binary indicator set to 1 if a militarized interstate dispute occurred in the past 10 years	Maoz (2005)
IGO memberships	Trade dependence (lower)	See above	See above
IGO memberships	GDPpc (lower)	See above	See above
IGO memberships	Alliance	See above	See above
IGO memberships	Joint Democracy	See above	See above
IGO memberships	UNGA ideal point difference	See above	See above

9 Discussion of control variables

This section discusses motivations and results for all control variables used in the regressions in this study.

- Intangible Salience
  - Source: ICOW
  - Motivation: Claim salience has been a core component of analyses of violence during claims (Hensel 2001; Hensel, Mitchell, Sowers, and Thyne 2008; Hensel and Mitchell 2017).
  - Results: Higher intangible salience (more likely for non-territorial claims) is associated with a lower risk of the use of force during claims, similar to findings from Hensel and Mitchell (2005).
- Tangible Salience
  - Source: ICOW
  - Motivation: Claim salience has been a core component of analyses of violence during claims (Hensel 2001; Hensel et al. 2008; Hensel and Mitchell 2017).
  - Results: Some evidence that claims with higher tangible salience are more likely to experience the use of force, but the effect is comparatively small and the estimate uncertain. Much of the tangible salience impact is likely captured by the indicator for territorial claims.
- Existential crisis
  - Source: ICB
  - Motivation: Similar to claim salience, the gravity of a crisis has previously featured as a key factor in explaining how crises evolve (Brecher and Wilkenfeld 2000).
  - Results: High-gravity crises (those coded as threats to at least one state's influence, threats of grave damage, or threats to at least one state's existence) are substantially more likely to experience major clashes or war.
- Territorial claim/dispute
  - Source: ICOW/ICB
  - Motivation: One of the strongest findings in the conflict literature is that disputes over territory are more likely to lead to militarized confrontations (Vasquez 2000).
  - Results: Both disputes over territory and crises involving threats to territory are substantially more likely to experience the use of force/major clashes or war.
- Joint democracy
  - Source: Marshall and Jaggers (2009)

  - Motivation: This control variable captures a potential pacifying impact of democracy on state behavior during claims, although the outcomes of interest (use of force or major clashes/war) fall short of the full-scale wars typically examined in the democratic peace literature.
  - Results: Democratic dyads are somewhat less likely to use force during claims. There is no appreciable difference between democratic and non-democratic dyads' behavior during crises once crises have begun.

- Strategic rivalry
  - Source: Thompson and Dreyer (2011)
  - Motivation: Rivals have been found to be more likely to resort to violence in disputes (Diehl and Goertz 2000; Colaresi, Rasler, and Thompson 2007).
  - Strategic rivals are more likely to use force during claims. There is no appreciable difference between rivalrous and other dyads' behavior during crises once crises have begun.

- UNGA ideal point difference
  - Source: Bailey, Strezhnev, and Voeten (2017)
  - Motivation: Differences in ideal points (and thus preference divergence/similarity) is a possible common cause of states' behavior during disputes *and* their joint IGO membership patterns.
  - Claims: There is no appreciable difference in behavior during claims between dyads with closer or more distant ideal points. However, dyads that are further apart on this measure are substantially more likely to begin claims against each other, as the estimates from the selection model in Table A19 show.
  - Crises: Country pairs with more distant ideal points are less likely to engage in major clashes during crises. While this finding may be surprising, it is consistent with arguments (e.g. in Gartzke and Hewitt 2010) that the informational value of preference similarity has no impact once a crisis has begun. In this logic, it is also possible that underlying contentions in crises between countries with more similar preferences are more severe; otherwise, the countries would have managed their dispute before arriving at a crisis. In more severe crises, violence is then more likely. Another possibility is that crises over territory, which are more prone to violence, are more likely to happen between more similar countries ($d = 0.31$ SD, $p = 0.001$).

- Allies
  - Source: Leeds, Ritter, Mitchell, and Long (2002)
  - Motivation: Allies may be more trusting toward each other and thus less likely to fight over issues, but Powell and Wiegand (2010) also find allies to be less likely to negotiate over claims.
  - Results: Allies are somewhat more likely to use force during claims, but less likely to experience major clashes or war during crises.

- Power differential
  - Source: Singer, Bremer, and Stuckey (1972)
  - Motivation: Key theories of international conflict (balance-of-power theory and power transition theory) offer competing hypotheses about the influence of the distribution of power on the probability of conflict and conflict escalation. Reed, Clark, Nordstrom, and Hwang (2008) offer an overview of these arguments.
  - Results: Dyads with a more lopsided distribution of power are less likely to experience the use of force during claims and less likely to see crises lead to major clashes or war. This is broadly consistent with arguments that power parity increases the risk of war, and with some implications of power transition theory.
- Trade dependence (lower)
  - Source: Gleditsch (2002)
  - Motivation: This control variable captures a possible liberal peace.
  - Results: Consistent with liberal theory, crises among trade-dependent dyads are less likely to experience major clashes or war.
- GDP per capita (lower)
  - Source: Gleditsch (2002)
  - Motivation: This control variable captures the possibility that wealthier dyads are more (or less) sensitive to the cost of conflict. The partial effect of IGO-imposed costs might be different for a dyad of wealthy countries that depend less on IGO-based benefits—compared to a dyad of less wealthy states whose economy draws more strongly on resources from IGOs with leverage. Adjusting for the economic development of the dyad addresses this possibility by establishing the same baseline for the evaluation of joint memberships in IGOs with leverage.
  - Results: Wealthier dyads are less likely to experience the use of force in claims, and less likely to experience major clashes or war during crises.
- Indicators for geographic regions and the Cold War period
  - Motivation: These indicators are used to isolate estimates of IGO-related coefficients from spatial and temporal trends.

10 Bayesian estimation: Principles and motivation

The Bayesian approach treats the parameters of interest (in this case, regression coefficients) as part of a distribution, rather than fixed (unobserved) values that are asymptotically approximated in frequentist regression models. This allows evaluating the probability of a meaningful relationship or effect in a naturally interpretable and robust way. Not having to rely on asymptotic properties is particularly useful considering the somewhat small sample of claims in this study (Albert and Chib 1993, 678). For this and other reasons, Bayesian estimation has recently been used more frequently in the empirical international relations literature; for examples, see Beazer and Woo (2016), Cao and Ward (2017), Chaudoin, Milner, and Pang (2015), Danneman and Ritter (2014), and Welch (Forthcoming).

Coefficient estimates are obtained by sampling from the posterior distribution. This posterior distribution is a combination of prior information about each coefficient's value and the observed relationship in the data. The prior information used here can include complete ignorance; in this case, a prior distribution assigns equal or near-equal probabilities to all possible values of a coefficient. For prior distributions in the analyses in this study, I use normal distributions with wide tails (mean of 0, and standard deviation of 10) that contain no meaningful prior information about the value of all estimated (logistic regression) coefficients.

Uncertainty about coefficient estimates is based on the posterior distribution of these estimates. The share of draws from the posterior distribution that falls in the predicted direction (for H1 and H2: below 0) can be interpreted as probability that the data are consistent with the hypotheses.

In the main text (Figures 1 and 2), I show the posterior distribution of first differences with a central tendency (the median unless otherwise noted). These first differences express the differences in the estimated probability of using force (claims) or major clashes/war (crises) between two set values of the explanatory variables of interest. For these key values, I use the 10$^{\text{th}}$ and 90$^{\text{th}}$ percentile, or 0 and 1 for binary variables, as indicated in the labels in the figures. Formally, the first differences are equivalent to:

$$\Pr(y = 1)_{\text{X(high)}} - \Pr(y = 1)_{\text{X(low)}} \tag{1}$$

I also show how much of the posterior distribution of these first differences falls to the left (or right) of a "region of practical equivalence" (ROPE). The ROPE is the range of differences that would be practically equivalent to no difference in the outcome, in this case defined as the standard error of the ratio of cases where force was used. This concept leans on the definition in Kruschke (2013). Using the distribution outside of the region of practical equivalence allows for evaluating clearly how much of the probability of an effect (or a difference) is *practically* near zero and how much is consistent with a meaningful effect (or difference).

In all regression tables below, I provide the mean and standard deviation of the posterior distributions for each coefficient, as is standard for reporting results from regressions fit with Bayesian estimation.

For all regressions fit with Bayesian estimation, posterior distributions passed standard tests for the convergence of the Markov chains that are used to retrieve posterior parameter estimates. These tests include the potential scale reduction factor (Gelman and Rubin 1992) and trace plots. These and other diagnostics can be obtained by using the posterior distributions provided in the replication materials for this study.

The posterior distributions for the key coefficient for joint memberships in IGOs with high leverage in the analyses of claims and crises are visualized below in Figures A7 and A8. Similar to the posterior distributions for first differences in the main text, the main take-away from these figures (aside from the size of the relationship) is that the vast majority of posterior draws falls to the left of 0. This shows a high probability that the relationship between these IGOs and conflict behavior is consistent with hypotheses H1 and H2.

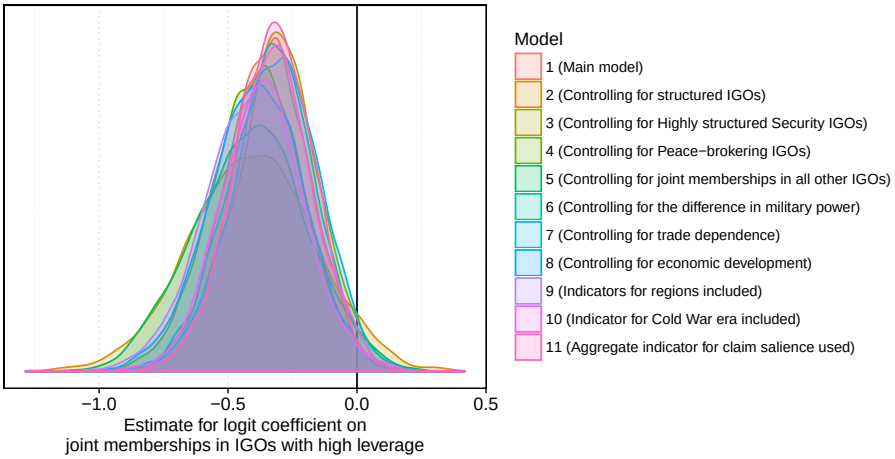

Figure A7. Claims: Posterior distributions of logit coefficient estimates for joint memberships in IGOs with high leverage. Full regression results are printed in the tables below.

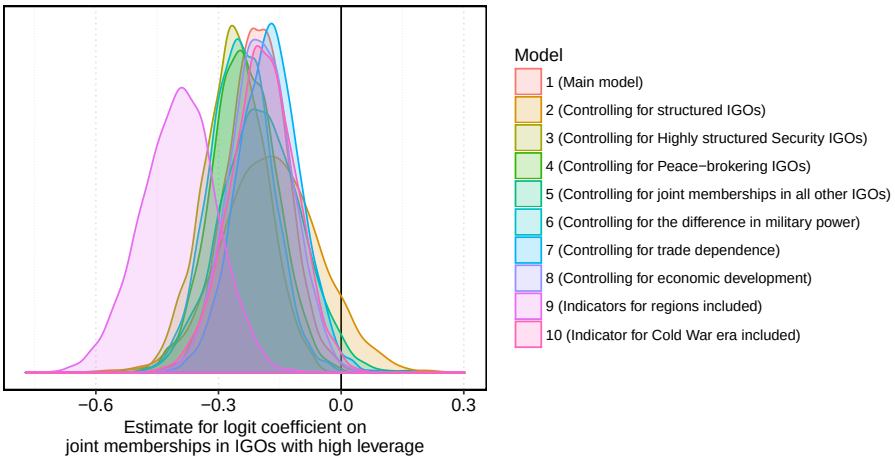

Figure A8. Crises: Posterior distributions of logit coefficient estimates for joint memberships in IGOs with high leverage. Full regression results are printed in the tables below.

Full posterior distributions of all regressions shown in this study are part of the replication materials for this study, posted at `https://dataverse.harvard.edu/dataverse/jkarreth`. All Bayesian estimations were performed using Stan (Stan Development Team 2015) and rstan (Stan Development Team 2016).

11 Regression results: Claims

11.1 Main model

Table A3. Determinants of using force in claims: main model. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.35	0.16
Intangible salience of claim	-1.08	0.38
Tangible salience of claim	0.16	0.14
Territorial claim	2.03	0.72
Joint democracy	-1.09	0.67
Strategic rivalry	0.89	0.49
UNGA ideal point difference	-0.14	0.24
Allies	1.04	0.52
Intercept	-0.14	1.02
Log-posterior density	-92.40	2.26
Claims		168

11.2 Robustness tests

Table A4. Determinants of using force in claims: Controlling for structured IGOs (measuring socialization). Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.40	0.24
Structured IGOs	0.01	0.04
Intangible salience of claim	-1.10	0.38
Tangible salience of claim	0.16	0.15
Territorial claim	2.07	0.71
Joint democracy	-1.18	0.73
Strategic rivalry	0.87	0.50
UNGA ideal point difference	-0.16	0.25
Allies	0.95	0.61
Intercept	-0.19	1.03
Log-posterior density	-93.79	2.31
Claims	168	

Table A5. Determinants of using force in claims: Controlling for Highly structured Security IGOs (measuring information provision). Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.32	0.17
Highly structured Security IGOs	-0.49	0.44
Intangible salience of claim	-1.12	0.38
Tangible salience of claim	0.20	0.15
Territorial claim	1.97	0.70
Joint democracy	-0.64	0.78
Strategic rivalry	1.01	0.52
UNGA ideal point difference	-0.16	0.24
Allies	1.06	0.51
Intercept	-0.20	0.98
Log-posterior density	-93.25	2.25
Claims	168	

Table A6. Determinants of using force in claims: Controlling for Peace-brokering IGOs. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.39	0.17
Peace-brokering IGOs	0.23	0.33
Intangible salience of claim	-1.02	0.39
Tangible salience of claim	0.13	0.15
Territorial claim	1.97	0.71
Joint democracy	-1.21	0.70
Strategic rivalry	0.93	0.48
UNGA ideal point difference	-0.17	0.25
Allies	0.76	0.69
Intercept	-0.40	1.07
Log-posterior density	-93.58	2.26
Claims	168	

Table A7. Determinants of using force in claims: Controlling for joint memberships in all other IGOs (those without a high degree of leverage). Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.41	0.22
All other IGOs	0.02	0.04
Intangible salience of claim	-1.09	0.39
Tangible salience of claim	0.15	0.15
Territorial claim	2.09	0.71
Joint democracy	-1.21	0.72
Strategic rivalry	0.86	0.49
UNGA ideal point difference	-0.16	0.23
Allies	0.89	0.62
Intercept	-0.22	1.03
Log-posterior density	-93.70	2.24
Claims	168	

Table A8. Determinants of using force in claims: Controlling for the difference in military power between the two states in the claim. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.34	0.17
Intangible salience of claim	-1.39	0.43
Tangible salience of claim	0.26	0.15
Territorial claim	2.35	0.75
Joint democracy	-1.27	0.73
Strategic rivalry	0.63	0.50
UNGA ideal point difference	0.06	0.25
Allies	1.40	0.54
Power differential	-0.24	0.10
Intercept	-1.53	1.19
Log-posterior density	-91.23	2.27
Claims	168	

Table A9. Determinants of using force in claims: Controlling for trade dependence. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.31	0.17
Intangible salience of claim	-1.23	0.42
Tangible salience of claim	0.17	0.15
Territorial claim	2.03	0.76
Joint democracy	-0.90	0.72
Strategic rivalry	0.77	0.52
UNGA ideal point difference	-0.18	0.25
Allies	0.94	0.56
Trade dependence (lower)	-0.09	0.09
Intercept	-0.73	1.41
Log-posterior density	-88.64	2.22
Claims	162	

Table A10. Determinants of using force in claims: Controlling for economic development. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.39	0.18
Intangible salience of claim	-1.31	0.44
Tangible salience of claim	0.24	0.16
Territorial claim	2.18	0.80
Joint democracy	-0.04	0.87
Strategic rivalry	0.70	0.52
UNGA ideal point difference	-0.09	0.26
Allies	1.11	0.57
GDP per capita (lower)	-1.02	0.51
Intercept	8.24	4.13
Log-posterior density	-87.55	2.24
Claims	162	

Table A11. Determinants of using force in claims: Indicators for regions included. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.40	0.18
Intangible salience of claim	-1.15	0.40
Tangible salience of claim	0.18	0.15
Territorial claim	2.12	0.81
Joint democracy	-1.08	0.67
Strategic rivalry	0.80	0.53
UNGA ideal point difference	-0.17	0.24
Allies	1.16	0.54
Europe (vs. Western Hemisphere)	-0.41	0.58
Middle East (vs. Western Hemisphere)	0.17	0.71
Intercept	0.03	1.06
Log-posterior density	-95.03	2.37
Claims	168	

Table A12. Determinants of using force in claims: Indicator for Cold War era included. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.34	0.17
Intangible salience of claim	-1.05	0.37
Tangible salience of claim	0.15	0.15
Territorial claim	1.92	0.71
Joint democracy	-1.17	0.69
Strategic rivalry	0.83	0.49
UNGA ideal point difference	-0.17	0.24
Allies	1.08	0.53
Cold War	0.55	0.61
Intercept	-0.59	1.14
Log-posterior density	-93.53	2.26
Claims	168	

Table A13. Determinants of using force in claims: Aggregate indicator for claim salience used instead of separate indicators for tangible and intangible salience. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.33	0.15
Salience of claim (aggregate index)	0.05	0.10
Territorial claim	0.82	0.53
Joint democracy	-0.54	0.60
Strategic rivalry	0.43	0.45
UNGA ideal point difference	-0.03	0.21
Allies	1.01	0.50
Intercept	-1.70	0.81
Log-posterior density	-95.41	1.94
Claims	168	

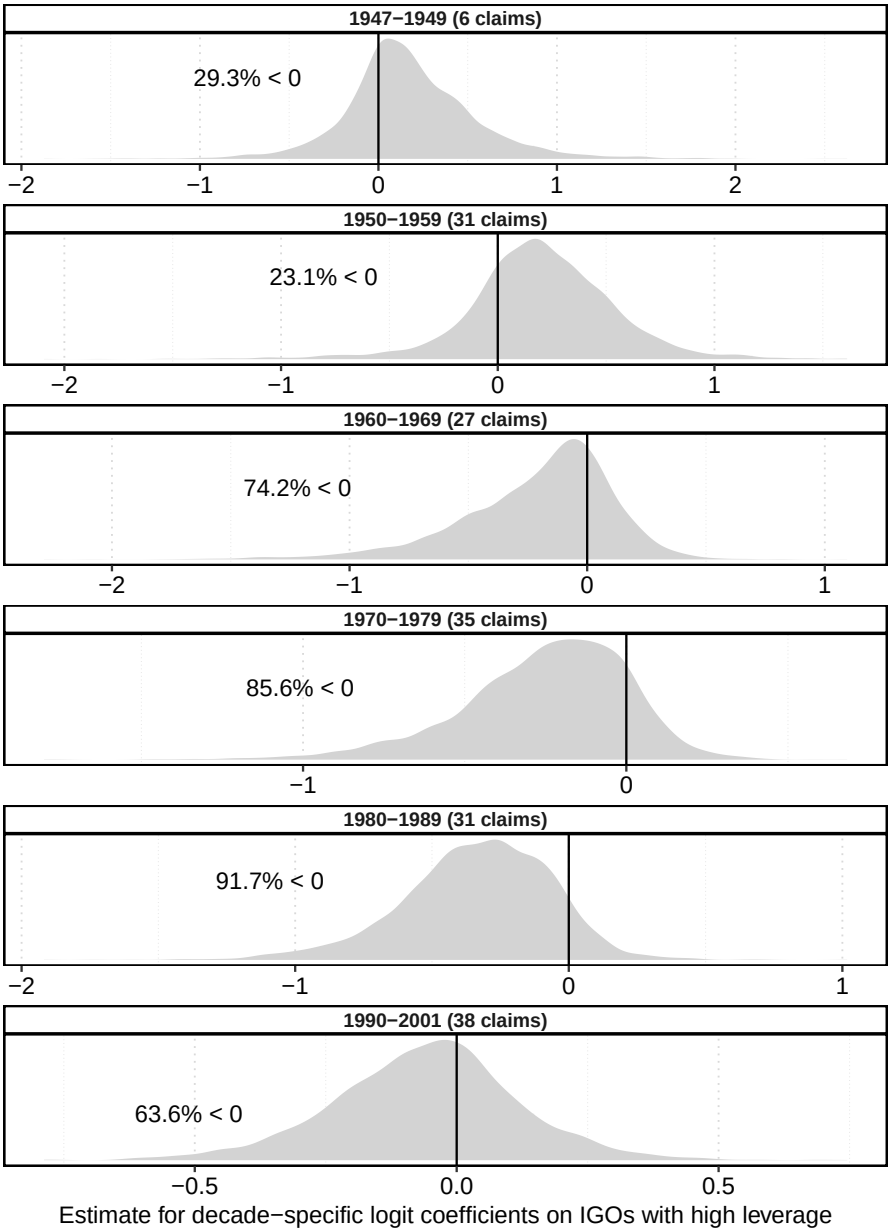

Figure A9. Posterior distributions of decade-specific logit coefficients for joint memberships in IGOs with high leverage. These results are based on a logit model with decade-specific varying slopes for joint memberships in IGOs with high leverage. Formally, this model is specified as $\Pr(\text{Use of Force}) = \text{logit}^{-1}(\alpha_t + \beta_t \text{IGOs} + \beta \text{Controls})$, where t is an index for the decades shown in the figure.

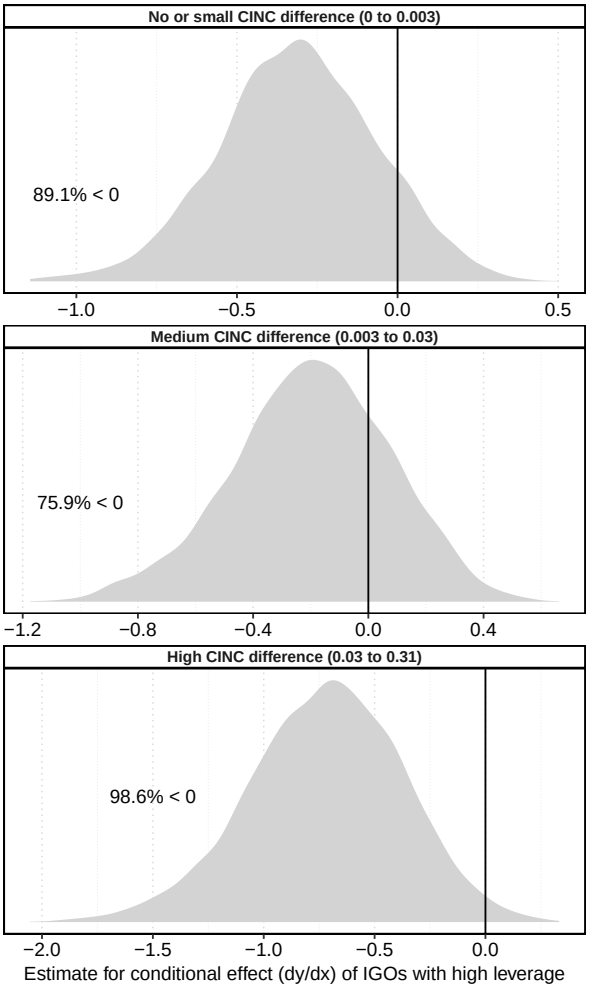

Figure A10. Posterior distributions of conditional coefficients for joint memberships in IGOs with high leverage. For this model, the power differential variable was split into three groups (as shown in the figure) and interacted with the IGO variable. The displayed estimates are conditional on each of the three levels, i.e. they show (in simplified terms) $\frac{\partial \text{Use of force}}{\partial \text{IGOs}} = \beta_{\text{IGOs}} + \beta_{\text{CINC}}\text{CINC}$.

11.3 MLE estimates

Table A14. Determinants of using force in claims: logistic regression estimates (fit with maximum likelihood).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
Intercept	−0.18	−0.24	−0.26	−0.41	−0.27	−1.46	−0.74	7.47*	−0.05	−0.56	−1.66*
	(0.99)	(1.01)	(0.99)	(1.05)	(1.02)	(1.17)	(1.40)	(4.06)	(1.02)	(1.11)	(0.81)
IGOs with high leverage	−0.32*	−0.38	−0.29*	−0.35*	−0.37*	−0.31*	−0.29*	−0.35*	−0.36*	−0.31*	−0.31*
	(0.16)	(0.25)	(0.16)	(0.17)	(0.21)	(0.16)	(0.17)	(0.18)	(0.18)	(0.16)	(0.15)
Intangible salience of claim	−0.99*	−0.99*	−1.01*	−0.92*	−0.99*	−1.25*	−1.13*	−1.19*	−1.03*	−0.94*	
	(0.38)	(0.38)	(0.38)	(0.38)	(0.37)	(0.42)	(0.42)	(0.43)	(0.39)	(0.38)	
Tangible salience of claim	0.15	0.14	0.18	0.11	0.14	0.24	0.16	0.22	0.17	0.14	
	(0.14)	(0.14)	(0.15)	(0.15)	(0.14)	(0.15)	(0.15)	(0.16)	(0.15)	(0.14)	
Territorial claim	1.89*	1.91*	1.81*	1.82*	1.91*	2.16*	1.92*	2.04*	1.90*	1.77*	0.81
	(0.69)	(0.69)	(0.70)	(0.70)	(0.69)	(0.74)	(0.76)	(0.78)	(0.79)	(0.70)	(0.52)
Joint democracy	−0.97	−1.06	−0.55	−1.09	−1.09	−1.13	−0.78	0.01	−0.94	−1.03	−0.47
	(0.65)	(0.71)	(0.76)	(0.68)	(0.72)	(0.71)	(0.71)	(0.85)	(0.66)	(0.66)	(0.59)
Strategic rivalry	0.81*	0.79	0.94*	0.83*	0.79	0.57	0.69	0.64	0.74	0.76	0.42
	(0.48)	(0.49)	(0.51)	(0.49)	(0.49)	(0.50)	(0.51)	(0.51)	(0.51)	(0.49)	(0.45)
UNGA ideal point difference	−0.12	−0.14	−0.14	−0.15	−0.15	0.05	−0.16	−0.07	−0.14	−0.15	−0.01
	(0.23)	(0.24)	(0.23)	(0.24)	(0.24)	(0.25)	(0.25)	(0.25)	(0.24)	(0.24)	(0.21)
Allies	0.97*	0.86	1.00*	0.68	0.82	1.28*	0.87	1.03*	1.06*	0.99*	0.96*
	(0.51)	(0.60)	(0.52)	(0.66)	(0.62)	(0.54)	(0.54)	(0.56)	(0.54)	(0.51)	(0.51)
Structured IGOs		0.02									
		(0.05)									
Highly structured Security IGOs			−0.43								
			(0.42)								
Peace-brokering IGOs				0.22							
				(0.32)							
All other IGOs					0.02						
					(0.04)						
Power differential						−0.22*					
						(0.10)					
Trade dependence (lower)							−0.09				
							(0.09)				
GDP per capita (lower)								−0.94*			
								(0.50)			
Europe (vs. Western Hemisphere)									−0.37		
									(0.55)		
Middle East (vs. Western Hemisphere)									0.11		
									(0.70)		
Cold war										0.45	
										(0.58)	
Salience of claim (aggregate index)											0.05
											(0.10)
AIC	172.47	174.34	173.41	174.01	174.29	169.38	164.24	161.71	175.96	173.85	179.68
BIC	200.58	205.58	204.65	205.25	205.53	200.62	195.11	192.58	210.32	205.09	204.67
Log Likelihood	-77.23	-77.17	-76.70	-77.01	-77.15	-74.69	-72.12	-70.85	-76.98	-76.93	-81.84
Deviance	154.47	154.34	153.41	154.01	154.29	149.38	144.24	141.71	153.96	153.85	163.68
Claims	168	168	168	168	168	168	162	162	168	168	168

* $p < 0.05$, one-tailed tests.

11.4 Multiple contemporaneous claims collapsed

Table A15. Determinants of using force in claims: Multiple claims between the same dyad reduced to the claim experiencing the highest level of violence. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.40	0.18
Intangible salience of claim	-1.11	0.39
Tangible salience of claim	0.15	0.15
Territorial claim	2.18	0.76
Joint democracy	-1.04	0.68
Strategic rivalry	1.09	0.51
UNGA ideal point difference	-0.18	0.26
Allies	0.88	0.54
Intercept	0.28	1.05
Log-posterior density	-87.30	2.14
Claims		151

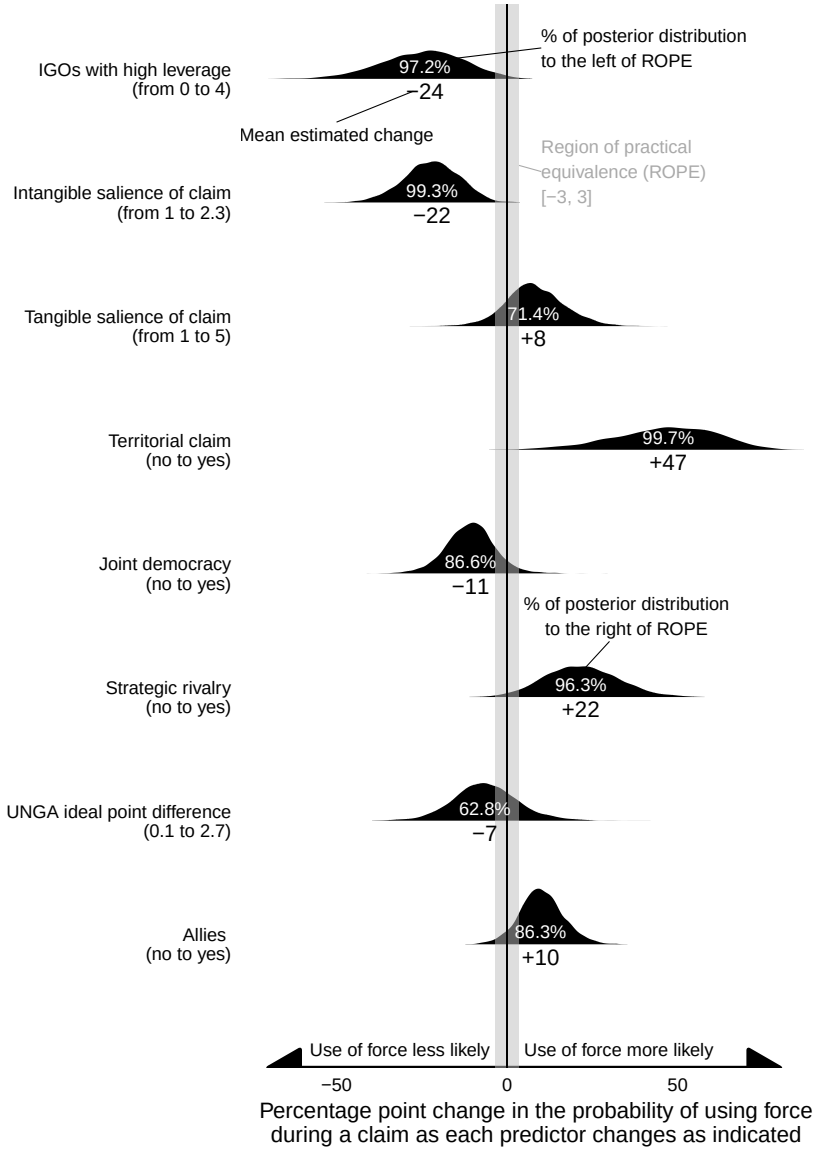

Figure A11. First differences for claims, where multiple claims between the same dyad are reduced to the claim experiencing the highest level of violence. Each density plot represents the estimated percentage-point difference in the probability of using force when comparing small (its 10th percentile or 0 for binary variables) and large (its 90th percentile or 1 for binary variables) values for each explanatory variable. Numbers underneath the density plots indicate the average estimated difference in percentage points. Numbers within the density plots show the percentage of the posterior distribution that is outside of the region of practical equivalence (ROPE) and on the same side as the mean of the posterior distribution. The ROPE is the range of differences that would be practically equivalent to no difference in the outcome, in this case defined as the standard error of the ratio of cases where force was used. All other covariates are held at their medians to calculate these first differences. $N = 151$ claims, full regression results printed in Table A15.

11.5 Analyses at the claim-year level

Table A16. Determinants of using force and peaceful bilateral settlement attempts in claim-years: logistic regression estimates (fit with maximum likelihood, using rare events bias correction per King and Zeng 2001).

	Using force	Peaceful settlement attempts
IGOs with high leverage (lagged)	−0.023	0.044*
	(0.060)	(0.027)
Intangible salience of claim	−0.436*	0.180*
	(0.143)	(0.070)
Tangible salience of claim	0.154*	0.138*
	(0.071)	(0.032)
Territorial claim	0.605*	0.182
	(0.282)	(0.145)
Joint democracy (lagged)	−0.239	0.423*
	(0.279)	(0.121)
Strategic rivalry (lagged)	0.738*	0.640*
	(0.227)	(0.107)
UNGA ideal point difference (lagged)	−0.253*	−0.104*
	(0.106)	(0.049)
Allies (lagged)	0.093	−0.298*
	(0.251)	(0.115)
Intercept	−3.416*	−2.798*
	(0.472)	(0.223)
AIC	992.731	3188.713
BIC	1049.337	3245.319
Log Likelihood	-487.366	-1585.357
Deviance	974.731	3170.713
Claim-years	3982	3982

*$p < 0.05$, one-tailed tests.

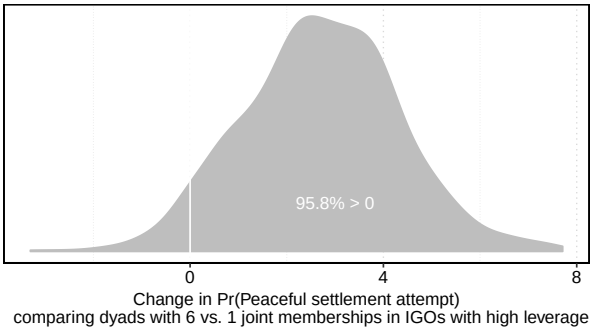

Figure A12. First difference estimates for the analysis of peaceful settlement attempts at the claim-year, based on Model 2 in Table A16. The density plot represents the simulation-based distribution of estimated percentage-point differences in the probability of a peaceful settlement attempt when comparing a dyad with 1 (10^{th} percentile) to a dyad with 6 (90^{th} percentile) joint memberships in IGOs with high leverage. All other covariates are held at their medians to calculate this first difference. $N = 3982$ claim-years. Simulation results obtained using Zelig (Owen, Imai, King, and Lau 2013).

Table A17. Determinants of using force. Unit of analysis claim-year. Results obtained from logistic regression, including varying intercepts for dyads, fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage (lagged)	0.05	0.07
Intangible salience of claim	-0.42	0.25
Tangible salience of claim	0.23	0.13
Territorial claim	0.59	0.54
Joint democracy (lagged)	-0.25	0.36
Strategic rivalry (lagged)	0.31	0.38
UNGA ideal point difference (lagged)	-0.43	0.15
Allies (lagged)	-0.41	0.37
Intercept	-4.05	0.76
Log-posterior density	-727.75	12.70
Claim-years	3982	

Table A18. Determinants of peaceful settlement attempts. Unit of analysis: claim-year. Results obtained from logistic regression, including varying intercepts for dyads, fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage (lagged)	0.056	0.038
Intangible salience of claim	0.290	0.196
Tangible salience of claim	0.247	0.082
Territorial claim	-0.258	0.409
Joint democracy (lagged)	0.385	0.192
Strategic rivalry (lagged)	0.550	0.234
UNGA ideal point difference (lagged)	-0.234	0.089
Allies (lagged)	0.323	0.204
Intercept	-3.737	0.505
Log-posterior density	-1606.139	14.628
Claim-years	3982	

11.6 Selection model

I re-estimate the core model of using force in claims with a correction for potential sample selection, following a strategy used in similar contexts (e.g., Shannon, Morey, and Boehmke 2010; Hansen, Mitchell, and Nemeth 2008; Brochmann 2012). This helps indicate whether the negative relationship between IGOs with leverage and the use of force in claims is robust to controlling for selection into claims. This type of sample selection model estimates two equations, one for selection of all dyad-years into claims, and one for the use of force in claims (akin to Models 1 through 10 above). The latter (outcome) equation is identical with the main models reported above.

The population for the selection equation is all pairs of states in all years for which data is available; the dependent variable here is the onset of a claim. To identify the selection equation, I use indicators for contiguity because states are far more likely to express claims against states in their proximity. For other predictors of claim onset, I use the two states' difference in affinity scores (Bailey et al. 2017) from the year prior to the claim to avoid simultaneity bias. I include the count of joint memberships in IGOs with high leverage to test whether these IGOs are also associated with lower odds of making claims in the first place. Lastly, I include an indicator for ongoing strategic rivalries, reflecting the fact that rivals are more likely to engage in claims (Rasler and Thompson 2006).

Under this specification (Table A19) the negative relationship between IGOs with high leverage and the use of force in claims hardly changes compared to the main models in this study. Note that the coefficients themselves diverge slightly because the coefficients in the selection model are probit coefficients, while all other results reported in this study are logit coefficients.

IGOs with leverage are not associated with the odds of states' pursuit of claims. This is also consistent with my argument: IGOs with leverage raise the cost of actual conflict involving the use of force, while a disputatious claim alone does not compromise the mission of these IGOs. Therefore, IGOs with leverage only help states resolve serious commitment problems around the use of force, but do not eliminate claims and disputes altogether.

The estimate for the ρ parameter is statistically indistinguishable from 0, which suggests no bias from sample selection under this model specification.

Table A19. Heckman probit estimates of determinants of selection into claim onsets (bottom) and claims experiencing the use of force (top). Unit of analysis: dyad-year.

Outcome: Use of force during claim	
IGOs with high leverage	-0.27*
	(0.10)
Intangible salience of claim	-0.53*
	(0.22)
Tangible salience of claim	0.059
	(0.10)
Territorial claim	0.74*
	(0.39)
Joint democracy	-0.57
	(0.40)
Strategic rivalry	0.061
	(0.48)
UNGA ideal point difference	-0.21
	(0.15)
Allies	0.38
	(0.33)
Constant	1.21
	(1.39)
Selection: Claim onset	
IGOs with high leverage	-0.010
	(0.015)
UNGA ideal point difference (lagged)	0.076*
	(0.038)
Strategic rivalry	0.53*
	(0.14)
Contiguity	1.11*
	(0.12)
Constant	-3.71*
	(0.090)
ρ	-0.18
	(0.32)
Dyad-years	464662

* $p < 0.05$, one-tailed tests.

12 Model checks: Claims

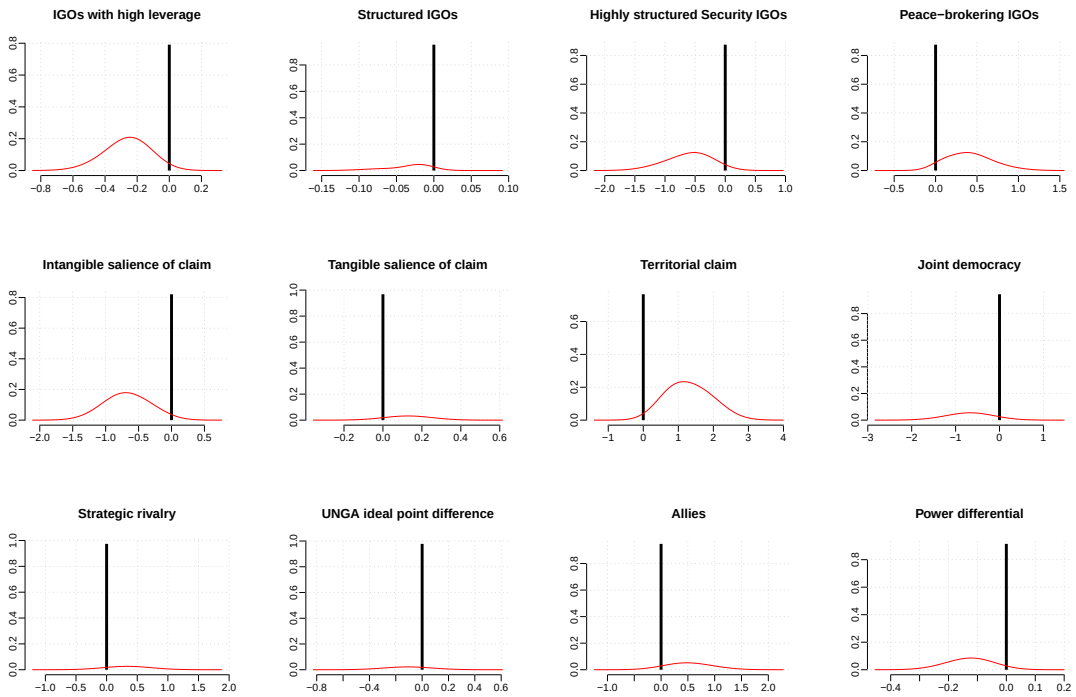

Figure A13. Bayesian Model Averaging: results of analyses of claims experiencing the use of force. These posterior coefficient plots show the conditional posterior probability for each variable's coefficient in the models in which it is included. The vertical line at 0 shows the posterior probability of models that exclude the respective variable. Overall, these results show that the variable counting joint memberships in IGOs with high leverage has among the highest posterior probabilities among all variables of being included in the model space.

Table A20. Model comparison of analyses of claims, using leave-one-out cross-validation, following the approach described in Vehtari, Gelman, and Gabry (2016). This table lists the difference in expected log pointwise predictive densities between a model of claims that includes joint memberships in IGOs with high leverage and control variables (Table A3) and the same model without the IGO measure. A positive difference suggests that the reference model (including joint memberships in IGOs with high leverage) fits the data better than the comparison model. Note that the standard deviation of the difference of in expected log pointwise predictive densities is expected to be large due to the small N (Vehtari, Gelman, and Gabry 2016, 15).

IGOs with high leverage versus...	Difference in expected log pointwise predictive densities	Standard deviation of the difference
No IGOs	0.8	2.1

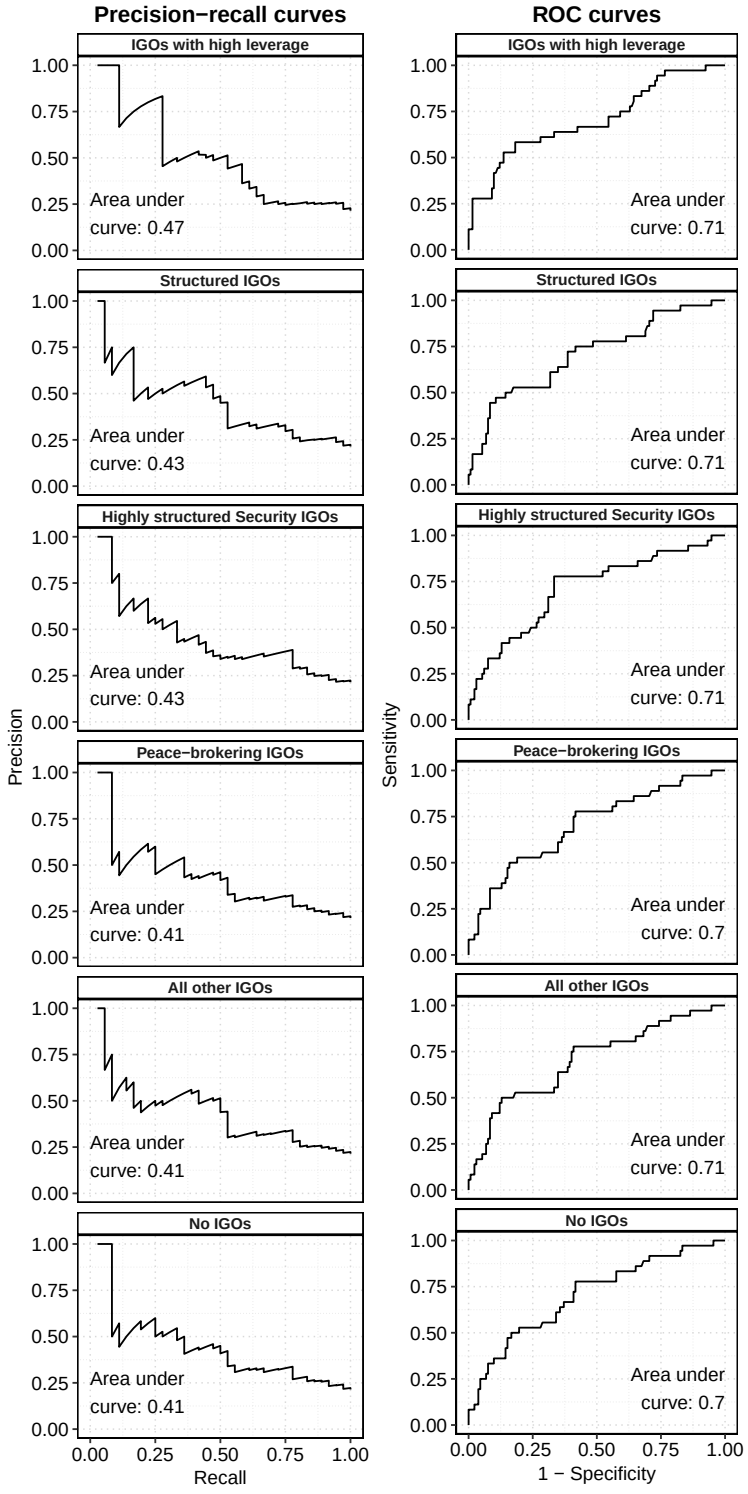

Figure A14. Model fit assessment via precision-recall curves (left) and receiver operating characteristic curves (right). Each plot shows the PR/ROC curves for one specification of the main model (Table A3), with separate IGO measures included. Curves in the top row are based on the results in Table A3; curves in the second row are based on the same model specification, but replacing joint memberships in IGOs with high leverage with joint memberships in structured IGOs, etc. Higher areas under the curve indicate better model fit.

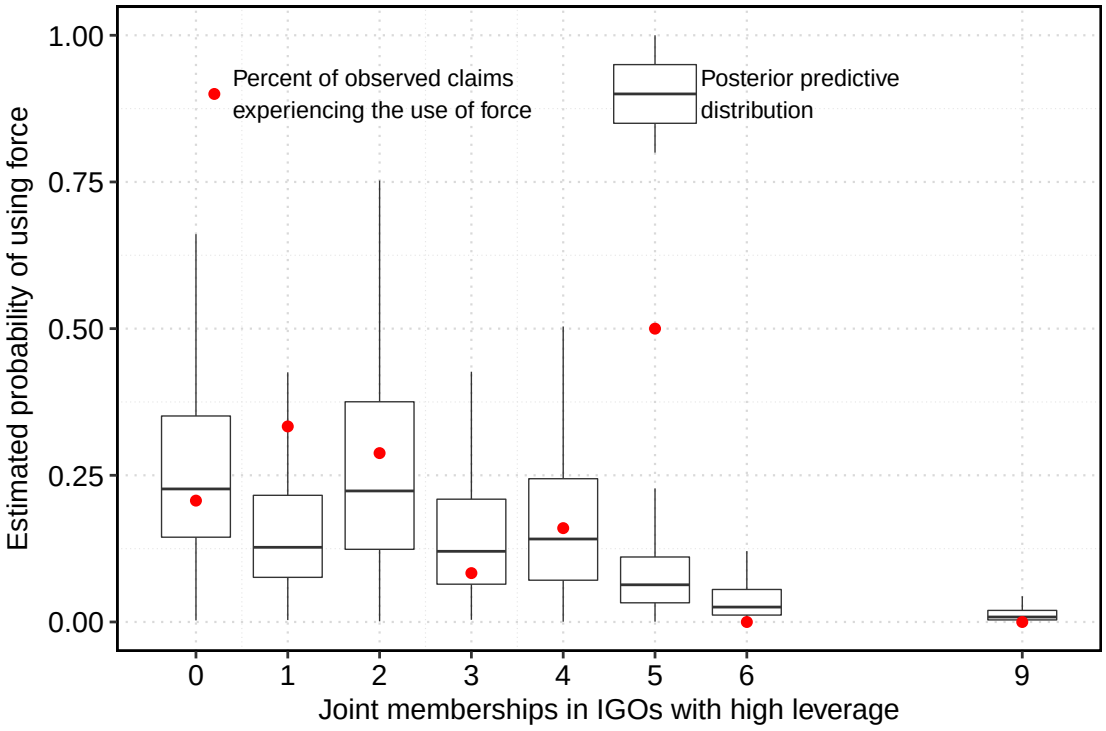

Figure A15. This figure compares the posterior predictive distribution to the observed incidents of use of force during claims across all levels of joint memberships in IGOs with high leverage. The box plots show the posterior distribution of the estimated probability of using force for a generic claim dyad (with all control variables set to their median value) with 0, 1, 2, ... 9 joint memberships in IGOs with high leverage. These estimates are calculated based on the main model (Table A3). The red dots show the observed ratio of claims that experienced the use of force for each sub-sample of IGO memberships: the dot on the far left shows that roughly 22% of claim dyads that shared no memberships in these IGOs at all experienced the use of force, etc. In the box plots, the thick line in the middle shows the median of the posterior distribution, and the thin lines above and below show the 75th and 25th percentile. When the red dot is within the 25th and 75th percentiles, the model fits this particular subsample well.

13 Regression results: Crises

13.1 Main model

Table A21. Determinants of major clashes or war during crises: main model. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.20	0.07
Existential threat	2.04	0.25
Territorial dispute	0.68	0.26
Joint democracy	0.45	0.78
Strategic rivalry	-0.26	0.20
UNGA ideal point difference	-0.61	0.09
Allies	-0.94	0.22
Intercept	1.08	0.33
Crises	526	

13.2 Robustness tests

Table A22. Determinants of major clashes or war during crises: Controlling for structured IGOs (measuring socialization). Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.17	0.12
Structured IGOs	-0.01	0.02
Existential threat	2.07	0.26
Territorial dispute	0.68	0.27
Joint democracy	0.54	0.83
Strategic rivalry	-0.26	0.21
UNGA ideal point difference	-0.61	0.09
Allies	-0.91	0.23
Intercept	1.18	0.39
Log-posterior density	-317.70	2.07
Crises	526	

Table A23. Determinants of major clashes or war during crises: Controlling for Highly structured Security IGOs (measuring information provision). Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.26	0.08
Highly structured Security IGOs	0.38	0.15
Existential threat	2.09	0.25
Territorial dispute	0.71	0.27
Joint democracy	0.41	0.84
Strategic rivalry	-0.33	0.21
UNGA ideal point difference	-0.56	0.09
Allies	-1.06	0.23
Intercept	1.00	0.32
Log-posterior density	-314.81	2.09
Crises	526	

Table A24. Determinants of major clashes or war during crises: Controlling for Peace-brokering IGOs. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.24	0.08
Peace-brokering IGOs	0.14	0.13
Existential threat	2.07	0.25
Territorial dispute	0.70	0.27
Joint democracy	0.31	0.82
Strategic rivalry	-0.27	0.21
UNGA ideal point difference	-0.61	0.09
Allies	-1.03	0.24
Intercept	0.92	0.36
Log-posterior density	-317.21	2.10
Crises	526	

Table A25. Determinants of major clashes or war during crises: Controlling for joint memberships in all other IGOs (those without a high degree of leverage). Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.20	0.10
All other IGOs	-0.00	0.02
Existential threat	2.06	0.26
Territorial dispute	0.69	0.27
Joint democracy	0.51	0.85
Strategic rivalry	-0.26	0.19
UNGA ideal point difference	-0.61	0.09
Allies	-0.92	0.24
Intercept	1.13	0.40
Log-posterior density	-317.75	2.12
Crises	526	

Table A26. Determinants of major clashes or war during crises: Controlling for the difference in military power between the two states in the claim. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.25	0.07
Existential threat	2.07	0.26
Territorial dispute	0.70	0.27
Joint democracy	0.73	0.82
Strategic rivalry	-0.39	0.21
UNGA ideal point difference	-0.50	0.10
Allies	-0.90	0.22
Power differential	-0.17	0.06
Intercept	0.17	0.46
Log-posterior density	-313.37	2.10
Crises	526	

Table A27. Determinants of major clashes or war during crises: Controlling for trade dependence. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.18	0.08
Existential threat	1.87	0.27
Territorial dispute	0.72	0.29
Joint democracy	0.37	0.82
Strategic rivalry	-0.37	0.22
UNGA ideal point difference	-0.46	0.09
Allies	-0.61	0.25
Trade dependence (lower)	-0.15	0.04
Intercept	-0.48	0.50
Log-posterior density	-282.91	2.13
Crises	476	

Table A28. Determinants of major clashes or war during crises: Controlling for economic development. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.20	0.07
Existential threat	2.13	0.27
Territorial dispute	0.71	0.28
Joint democracy	0.55	0.80
Strategic rivalry	-0.37	0.22
UNGA ideal point difference	-0.37	0.10
Allies	-0.59	0.25
GDP per capita (lower)	-0.50	0.16
Intercept	4.50	1.20
Log-posterior density	-286.38	2.15
Crises	476	

Table A29. Determinants of major clashes or war during crises: Indicators for regions included. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.40	0.09
Existential threat	2.15	0.27
Territorial dispute	0.71	0.28
Joint democracy	0.68	0.88
Strategic rivalry	-0.38	0.22
UNGA ideal point difference	-0.60	0.11
Allies	-0.49	0.25
Africa (vs. different continents)	0.40	0.39
Americas (vs. different continents)	-1.38	0.47
Asia/Oceania (vs. different continents)	-0.23	0.29
Europe (vs. different continents)	-2.82	0.55
Intercept	1.66	0.40
Log-posterior density	0.56	0.03
Crises	526	

Table A30. Determinants of major clashes or war during crises: Indicator for Cold War era included. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.19	0.08
Existential threat	2.09	0.26
Territorial dispute	0.69	0.26
Joint democracy	0.44	0.79
Strategic rivalry	-0.28	0.20
UNGA ideal point difference	-0.61	0.09
Allies	-0.94	0.22
Cold War	0.13	0.27
Intercept	0.95	0.43
Log-posterior density	-317.59	2.05
Crises	526	

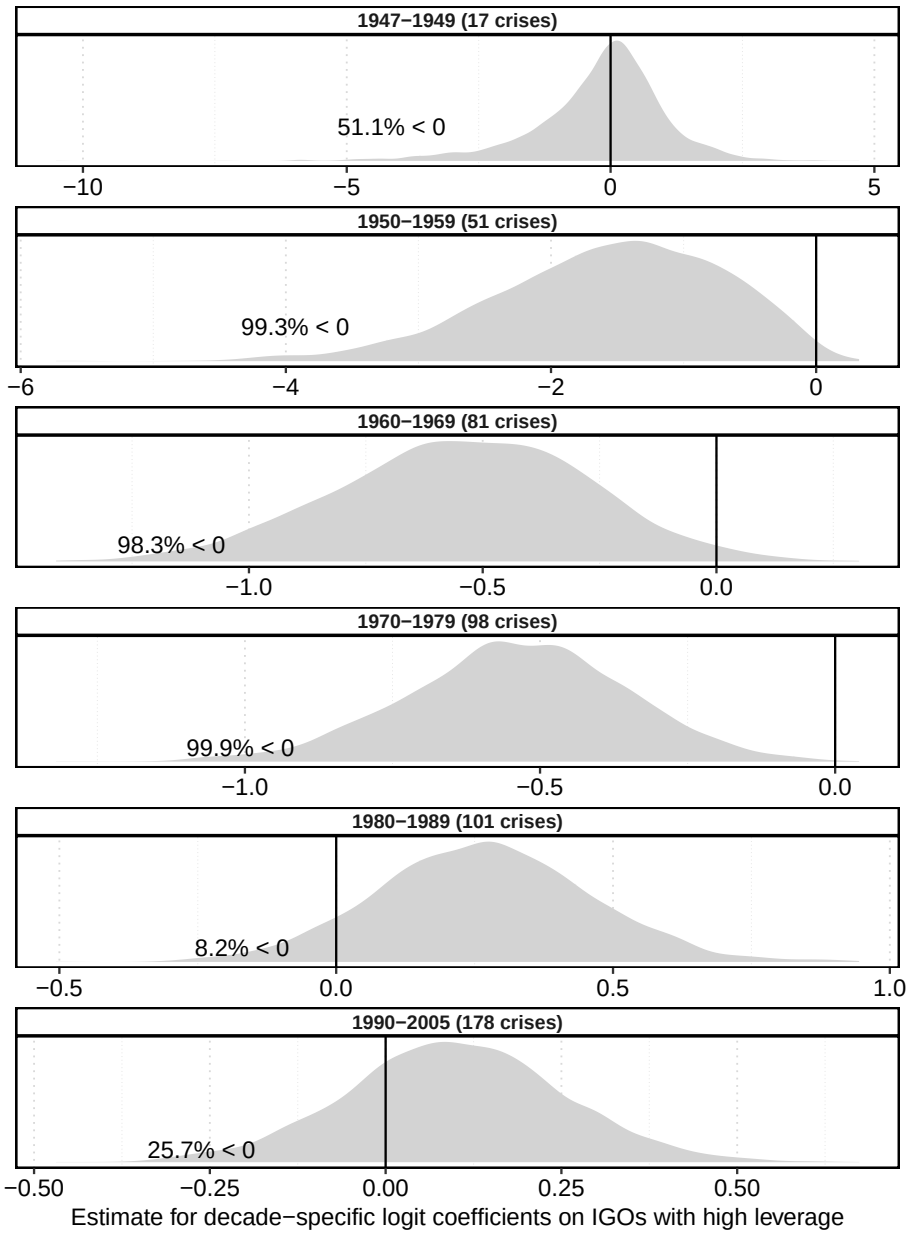

Figure A16. Posterior distributions of decade-specific logit coefficients for joint memberships in IGOs with high leverage. These results are based on a logit model with decade-specific varying slopes for joint memberships in IGOs with high leverage. Formally, this model is specified as Pr(Major clashes or war) = $\text{logit}^{-1}(\alpha_t + \beta_t \text{IGOs} + \beta \text{Controls})$, where t is an index for the decades shown in the figure.

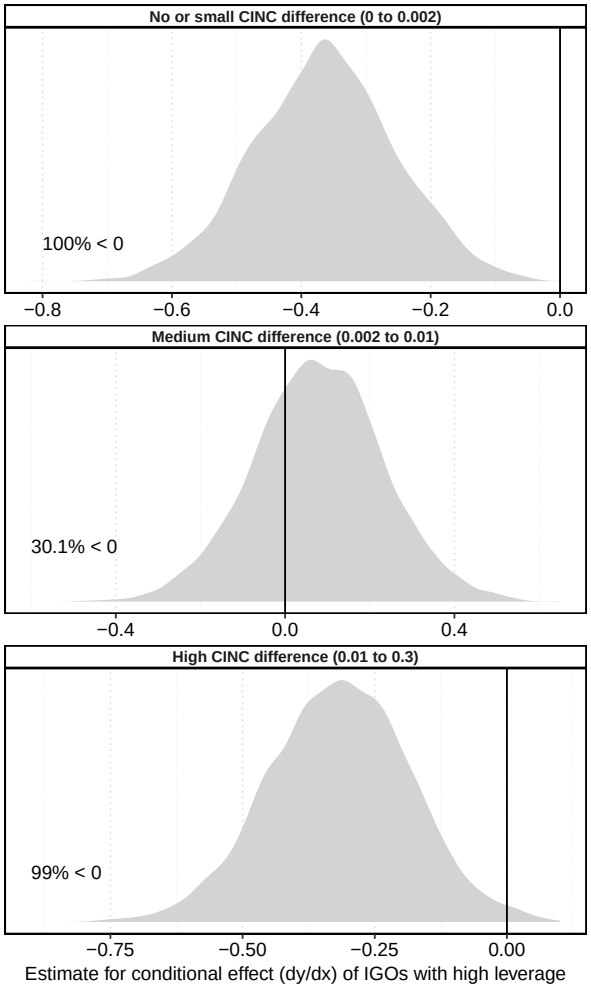

Figure A17. Posterior distributions of conditional coefficients for joint memberships in IGOs with high leverage. For this model, the power differential variable was split into three groups (as shown in the figure) and interacted with the IGO variable. The displayed estimates are conditional on each of the three levels, i.e. they show (in simplified terms) $\frac{\partial \text{Major clashes or war}}{\partial \text{IGOs}} = \beta_{\text{IGOs}} + \beta_{\text{CINC}}\text{CINC}$.

13.3 MLE estimates

Table A31. Determinants of major clashes or wars during crises: logistic regression estimates (fit with maximum likelihood).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	1.07*	1.15*	0.97*	0.89*	1.11*	0.17	−0.49	4.36*	1.62*	0.93*
	(0.33)	(0.40)	(0.33)	(0.37)	(0.40)	(0.45)	(0.49)	(1.19)	(0.41)	(0.44)
IGOs with high leverage	−0.20*	−0.17	−0.25*	−0.23*	−0.19*	−0.24*	−0.17*	−0.19*	−0.39*	−0.19*
	(0.07)	(0.12)	(0.08)	(0.08)	(0.10)	(0.08)	(0.08)	(0.08)	(0.09)	(0.08)
Existential threat	2.02*	2.03*	2.05*	2.03*	2.02*	2.04*	1.83*	2.08*	2.10*	2.05*
	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.27)	(0.27)	(0.27)
Territorial dispute	0.68*	0.67*	0.70*	0.68*	0.68*	0.68*	0.71*	0.69*	0.69*	0.68*
	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.28)	(0.28)	(0.28)	(0.27)
Joint democracy	0.37	0.44	0.34	0.24	0.40	0.64	0.30	0.48	0.59	0.37
	(0.78)	(0.80)	(0.79)	(0.79)	(0.80)	(0.79)	(0.79)	(0.79)	(0.87)	(0.78)
Strategic rivalry	−0.26	−0.26	−0.32	−0.27	−0.26	−0.38*	−0.36	−0.36*	−0.37*	−0.27
	(0.20)	(0.20)	(0.21)	(0.20)	(0.20)	(0.21)	(0.22)	(0.22)	(0.22)	(0.21)
UNGA ideal point difference	−0.60*	−0.60*	−0.54*	−0.60*	−0.60*	−0.49*	−0.45*	−0.36*	−0.59*	−0.60*
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.10)	(0.09)	(0.10)	(0.11)	(0.09)
Allies	−0.92*	−0.89*	−1.03*	−1.01*	−0.91*	−0.89*	−0.59*	−0.58*	−0.48*	−0.92*
	(0.23)	(0.24)	(0.24)	(0.25)	(0.24)	(0.23)	(0.25)	(0.25)	(0.25)	(0.23)
Structured IGOs		−0.01								
		(0.02)								
Highly structured Security IGOs			0.37*							
			(0.15)							
Peace-brokering IGOs				0.13						
				(0.13)						
All other IGOs					−0.00					
					(0.02)					
Power differential						−0.16*				
						(0.06)				
Trade dependence (lower)							−0.14*			
							(0.04)			
GDP per capita (lower)								−0.48*		
								(0.16)		
Africa (vs. different continents)									0.38	
									(0.39)	
Americas (vs. different continents)									−1.30*	
									(0.47)	
Asia/Oceania (vs. different continents)									−0.23	
									(0.29)	
Europe (vs. different continents)									−2.72*	
									(0.55)	
Cold war										0.13
										(0.27)
AIC	621.49	623.34	617.65	622.44	623.46	614.65	553.65	560.63	589.58	623.27
BIC	655.61	661.73	656.03	660.83	661.85	653.04	591.14	598.12	640.77	661.66
Log Likelihood	-302.74	-302.67	-299.82	-302.22	-302.73	-298.33	-267.82	-271.32	-282.79	-302.63
Deviance	605.49	605.34	599.65	604.44	605.46	596.65	535.65	542.63	565.58	605.27
Crises	526	526	526	526	526	526	476	476	526	526

* $p < 0.05$, one-tailed tests.

13.4 Multiple contemporaneous crises collapsed

Table A32. Determinants of major clashes or war during crises: Multiple crises between the same dyad reduced to the crisis experiencing the highest level of violence. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.20	0.07
Existential threat	2.08	0.26
Territorial dispute	0.73	0.27
Joint democracy	0.37	0.82
Strategic rivalry	-0.22	0.20
UNGA ideal point difference	-0.60	0.09
Allies	-0.90	0.23
Intercept	1.03	0.32
Log-posterior density	-312.29	2.00
Crises	520	

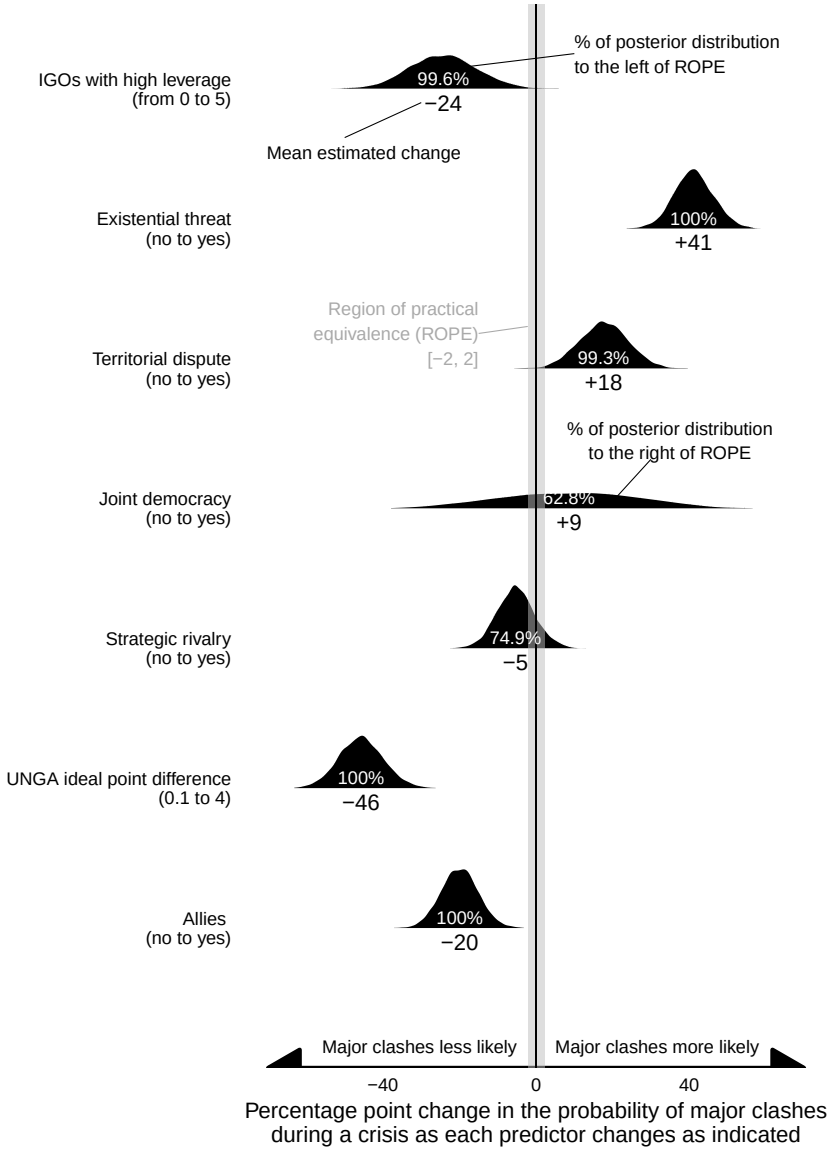

Figure A18. First differences for crises, where multiple crises between the same dyad are reduced to the crisis experiencing the highest level of violence. Each density plot represents the estimated percentage-point difference in the probability of major clashes or war when comparing small (its 10th percentile or 0 for binary variables) and large (its 90th percentile or 1 for binary variables) values for each explanatory variable. Numbers underneath the density plots indicate the average estimated difference in percentage points. Numbers within the density plots show the percentage of the posterior distribution that is outside of the region of practical equivalence (ROPE) and on the same side as the mean of the posterior distribution. The ROPE is the range of differences that would be practically equivalent to no difference in the outcome, in this case defined as the standard error of the ratio of cases where major clashes or wars occurred. All other covariates are held at their medians to calculate these first differences. $N = 520$ crises, full regression results printed in Table A32.

Table A33. Determinants of major clashes or war during crises: Crises involving multiple participants reduced to the dyad consisting of the largest two countries involved. Results obtained from logistic regression fit with Bayesian estimation. Cell entries are means and standard deviations of the posterior distribution of logistic regression coefficients.

Variable	Mean	Standard deviation
IGOs with high leverage	-0.24	0.07
Existential threat	1.62	0.26
Territorial dispute	0.67	0.27
Joint democracy	0.72	0.78
Strategic rivalry	-0.05	0.21
UNGA ideal point difference	-0.62	0.09
Allies	-0.93	0.23
Intercept	1.07	0.32
Log-posterior density	-293.30	1.96
Crises		464

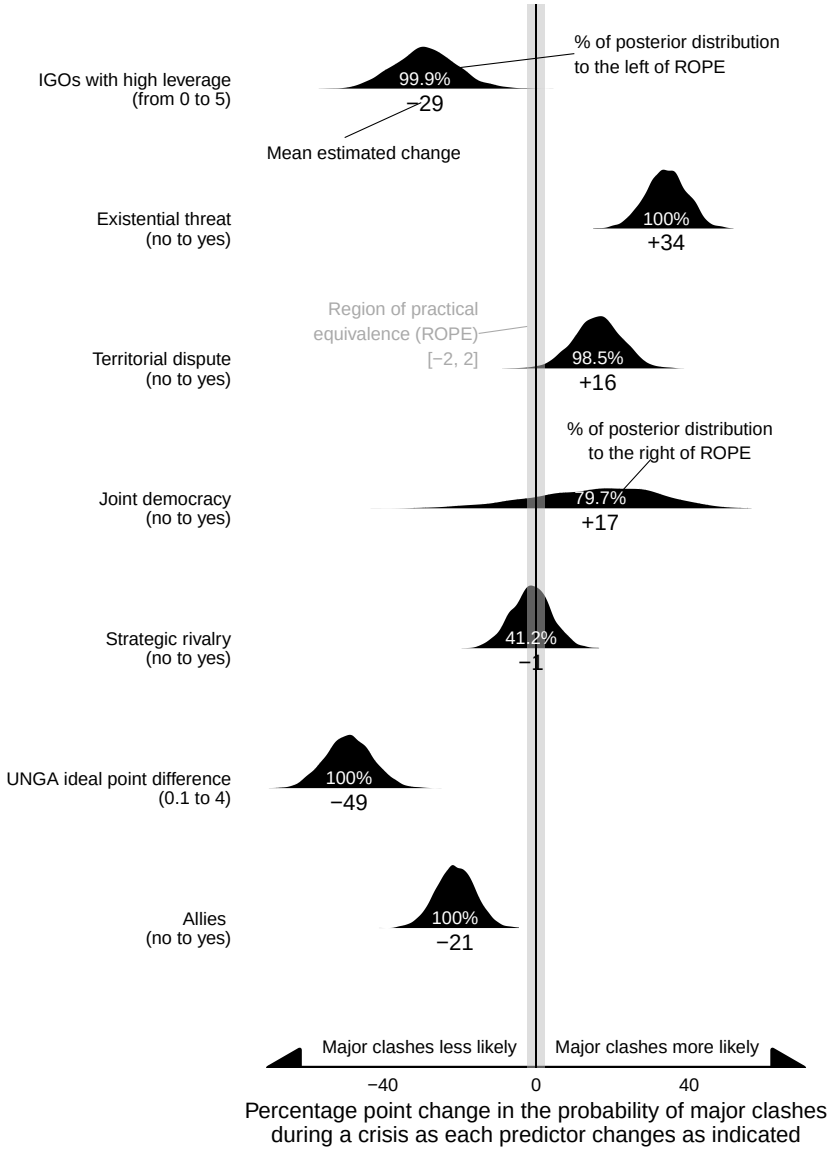

Figure A19. First differences for crises, where crises involving multiple participants are reduced to the dyad consisting of the largest two countries involved. Each density plot represents the estimated percentage-point difference in the probability of major clashes or war when comparing small (its 10th percentile or 0 for binary variables) and large (its 90th percentile or 1 for binary variables) values for each explanatory variable. Numbers underneath the density plots indicate the average estimated difference in percentage points. Numbers within the density plots show the percentage of the posterior distribution that is outside of the region of practical equivalence (ROPE) and on the same side as the mean of the posterior distribution. The ROPE is the range of differences that would be practically equivalent to no difference in the outcome, in this case defined as the standard error of the ratio of cases where major clashes or wars occurred. All other covariates are held at their medians to calculate these first differences. $N = 464$ crises, full regression results printed in Table A33.

14 Model checks: Crises

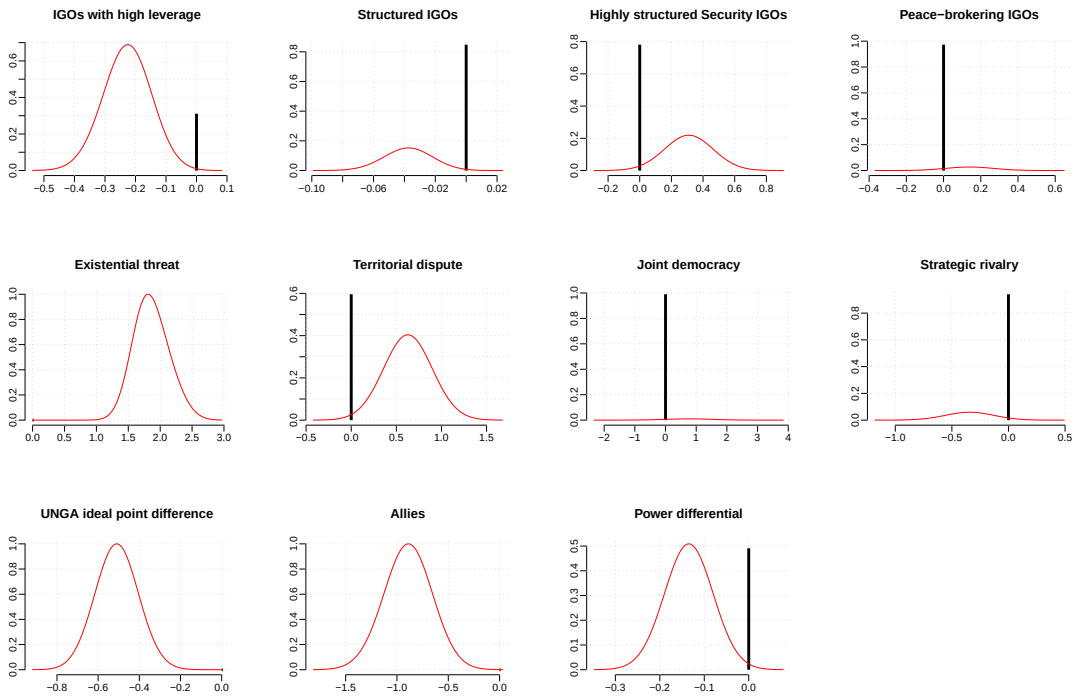

Figure A20. Bayesian Model Averaging: results of analyses of crises experiencing major clashes or war. These posterior coefficient plots show the conditional posterior probability for each variable's coefficient in the models in which it is included. The vertical line at 0 shows the posterior probability of models that exclude the respective variable. Overall, these results show that the variable counting joint memberships in IGOs with high leverage has among the highest posterior probabilities among all variables of being included in the model space.

Table A34. Model comparison of analyses of crises, using leave-one-out cross-validation, following the approach described in Vehtari, Gelman, and Gabry (2016). This table lists the difference in expected log pointwise predictive densities between a model of crises that includes joint memberships in IGOs with high leverage and control variables (Table A3) and the same model without the IGO measure. A positive difference suggests that the reference model (including joint memberships in IGOs with high leverage) fits the data better than the comparison model. Note that the standard deviation of the difference of in expected log pointwise predictive densities is expected to be large due to the small N (Vehtari, Gelman, and Gabry 2016, 15).

IGOs with high leverage versus...	Difference in expected log pointwise predictive densities	Standard deviation of the difference
No IGOs	2.9	3.0

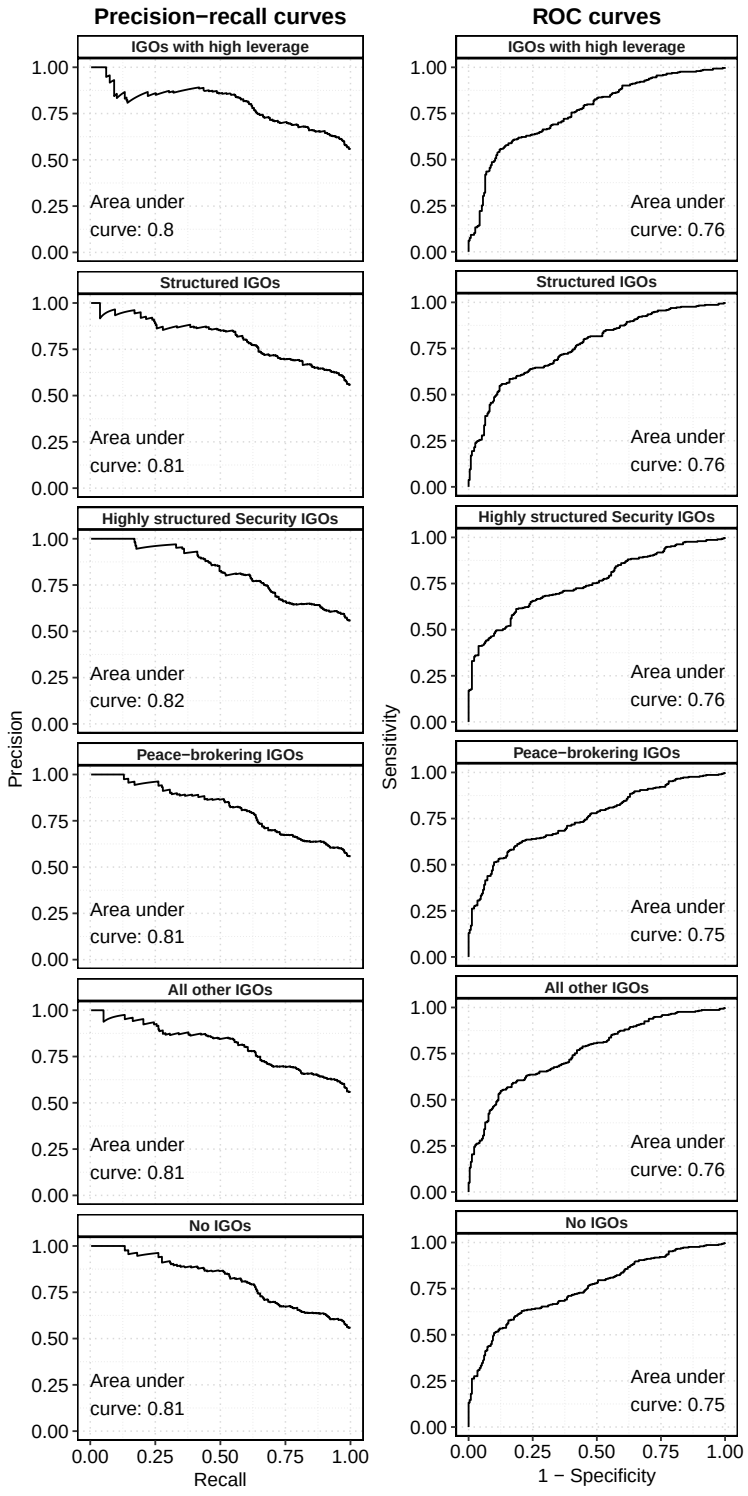

Figure A21. Model fit assessment via precision-recall curves (left) and receiver operating characteristic curves (right). Each plot shows the PR/ROC curves for one specification of the main model (Table A21), with separate IGO measures included. Curves in the top row are based on the results in Table A21; curves in the second row are based on the same model specification, but replacing joint memberships in IGOs with high leverage with joint memberships in structured IGOs, etc. Higher areas under the curve indicate better model fit.

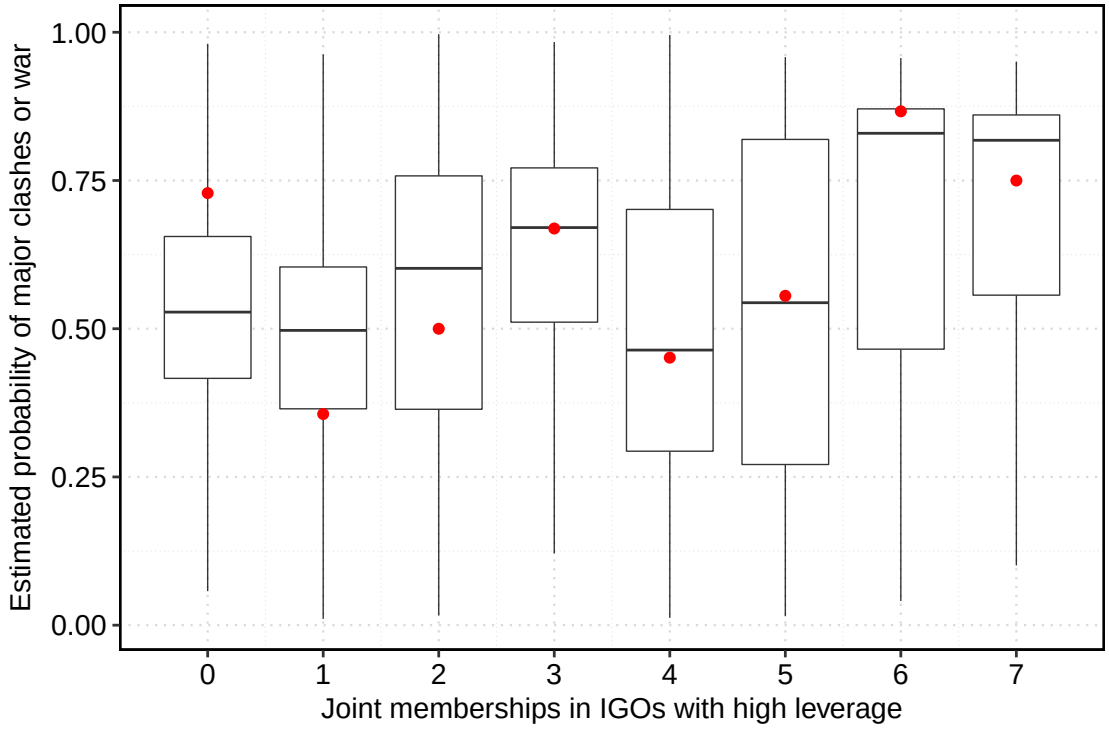

Figure A22. This figure compares the posterior predictive distribution to the observed incidents of major clashes or war during crises across all levels of joint memberships in IGOs with high leverage. The box plots show the posterior distribution of the estimated probability of using force for a generic claim dyad (with all control variables set to their median value) with 0, 1, 2, ... 7 joint memberships in IGOs with high leverage. These estimates are calculated based on the main model (Table A21). The red dots show the observed ratio of crises that experienced major clashes or war for each sub-sample of IGO memberships: the dot on the far left shows that roughly 73% of crisis dyads that shared no memberships in these IGOs at all engaged in major clashes or war during the crisis, etc. In the box plots, the thick line in the middle shows the median of the posterior distribution, and the thin lines above and below show the 75th and 25th percentile. When the red dot is within the 25th and 75th percentiles, the model fits this particular subsample well.

15 Determinants of memberships in IGOs

The unit of analysis for this test is the dyad-year in the post-World War II era. The outcome variable is the predictor from the previous analyses of violence during claims and crises: the count of two states' joint memberships in high-leverage IGOs in a given year. As hostile dyads — those that putatively select out of IGOs with leverage — I identify those that engaged militarized interstate disputes (MIDs) in the 10 years before the current dyad-year, using the Correlates of War Militarized Interstate Dispute data (Maoz 2005). The lowest bar for including a MID here is the occurrence of a MID within the dyad with no specific militarized action. I assume several other economic and political variables to have an impact on states' joint participation in high-leverage IGOs.[3]

Table A35. Determinants of the number of joint memberships in High-Leverage IGOs, 1951-2001. Results obtained from zero-inflated poisson regression, fit using maximum likelihood. Cell entries are coefficient point estimates and standard errors for the count equation. As an exposure term, the count of IGOs with high leverage in the system in a given year is used.

	Model 1	Model 2
Any MID (last 10 years)	−0.019*	
	(0.008)	
MID with use of force (last 10 years)		−0.015*
		(0.009)
GDPpc (lower, lagged)	−0.082*	−0.082*
	(0.001)	(0.001)
Trade dependence (lower, lagged)	0.023*	0.023*
	(0.000)	(0.000)
Alliance (lagged)	0.087*	0.087*
	(0.003)	(0.003)
Joint democracy (lagged)	0.187*	0.186*
	(0.004)	(0.004)
Ideal point distance (lagged)	−0.095*	−0.094*
	(0.001)	(0.001)
Intercept	−0.486*	−0.488*
	(0.012)	(0.012)
AIC	1269626.426	1269552.455
Log Likelihood	−634799.213	−634762.228
Num. obs.	379311	379311

*$p < 0.05$, one-tailed tests.
Outcome variable: number of joint memberships in IGOs with leverage in a given dyad-year.

[3] See Table A2 for all data sources.

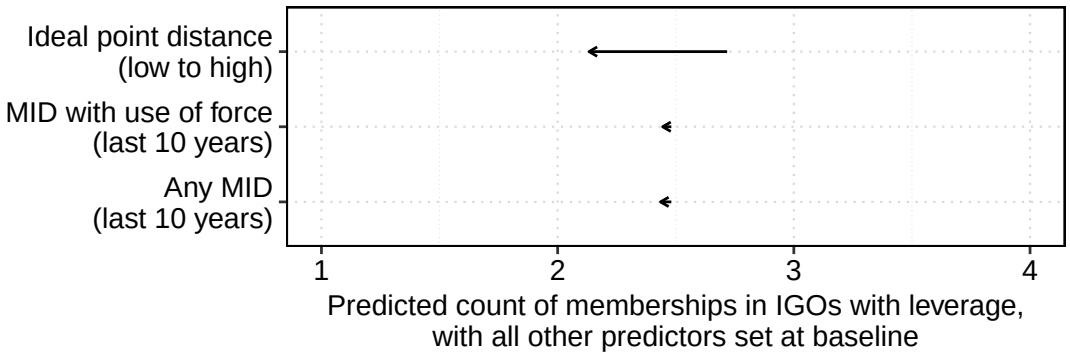

Figure A23. Predicted counts and changes in joint memberships in high-leverage IGOs of states, 1951-2001. Estimates based on Models 1 and 2 in Table A35. The arrows show differences in the predicted count of memberships in IGOs with high leverage comparing dyads with low and high values of each explanatory variable shown in the figure.

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