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Bargaining power and the arbitration and adjudication of territorial claims

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Abstract
To examine the political factors that influence the use of legal mechanisms to resolve territorial disputes, we model the decision to pursue arbitration and adjudication as part of a bargaining process in the shadow of war. We find that arbitration and adjudication can help prevent bargaining breakdown, but states only pursue and comply with such measures when the expected ruling reflects the balance of power between them. To test the theory, we examine compliance with arbitral and adjudicated rulings on territorial claims. In line with our expectations, states are less likely to comply when the stronger disputant is asked to make greater concessions. We conclude that power politics constrains the conditions under which legal mechanisms can be used to successfully manage contentious claims over territory.

Keywords
Adjudication, arbitration, bargaining, legal dispute resolution, territorial disputes, territory

In 1971, Argentina and Chile agreed to submit their long-standing border dispute in the Beagle Channel to arbitration by the UK. Among other things, the ruling would determine which state controlled three disputed islands in the Channel. Argentine leaders were not overly optimistic about their chances and expected to lose one or two of the islands. However, they were surprised when the British arbitrator awarded all three islands to Chile in 1977 and established a boundary that would potentially threaten Argentina’s control over maritime areas in the South Atlantic. Within a year, the Argentine government rejected the arbitration settlement and militarized the dispute in an attempt to achieve a more favorable outcome through other means. Eight decades earlier, on the opposite side of the continent,
Venezuela and the UK submitted their long-standing disputed claim over a large piece of territory in Guiana to arbitration by an international panel of five judges. In 1899, the panel awarded almost 90% of the disputed territory to the UK. Despite this highly unfavorable outcome, Venezuela accepted the arbitral ruling.\textsuperscript{3}

While both Argentina and Venezuela received highly unfavorable rulings that required them to give up the majority of their claimed territory, Venezuela complied with its arbitration while Argentina did not. This divergence in compliance behavior can be better understood once one considers the differing international political environments in the two cases. Engaged in a dispute with the most dominant global power of the nineteenth century, Venezuela was in a weak bargaining position compared with Britain. A distribution of territory in favor of the British reflected this power asymmetry, and Venezuela did not have the ability to demand a more favorable distribution through other means. On the other hand, Argentina was in a very different position vis-à-vis Chile. Argentina held a clear military advantage over its neighbor and was favored to win a war between the two countries. Given this power advantage, Argentine leaders found the arbitration ruling unacceptable, and they tried to use their military advantage to achieve a more favorable outcome.

While states comply with the vast majority of legal rulings on territorial claims (Mitchell and Hensel, 2007) and arbitration and adjudication have been shown to be highly effective means of resolving such issues (Gent and Shannon, 2010), the Argentina and Venezuela cases highlight that power in international relations constrains the ability of states to use legal mechanisms to resolve disputes over territory. These conflicts are political in nature: states are primarily interested in achieving outcomes that protect their own security and economic interests. Therefore, while the decisions of arbitration panels or international courts may be largely legal in nature, the choice of disputing states to pursue and comply with arbitration or adjudication is a political decision. The tension inherent in using a legal procedure to resolve a political dispute limits the use of arbitration and adjudication over contentious issues in the international system (Baratta, 1989; Northedge and Donelan, 1971).

To more fully investigate this tension, we model the choice to pursue and comply with international arbitration and adjudication as part of a political bargaining process in the shadow of military conflict. We find that arbitration and adjudication can help overcome commitment problems that would otherwise lead to bargaining breakdown. However, states are only willing to jointly agree to arbitration or adjudication when the expected outcome of such a process does not diverge significantly from a division based upon the balance of power between them. Given this, states will generally comply with legal rulings, but they will renege if they unexpectedly receive a ruling that does not reflect the underlying balance of power. Thus, just as the power balance constrains the set of bargaining agreements states will accept (Powell, 1999), it also constrains the conditions under which they will pursue and comply with legal dispute resolution. In an empirical analysis of arbitration and adjudication in territorial claims, we find that states are less likely to comply with a settlement if the stronger state in the dyad is asked to make greater concessions. Moreover, we find that arbitration and adjudication are more likely than bilateral agreements to require stronger states to make greater concessions. Noncompliance with legal settlements is largely the result of relinquishing decision control to a third party who brokers agreements less politically palatable than those which might have been attained under a different form of conflict management.

It is important to identify the factors that encourage legal dispute settlement of territory, particularly because territorial disputes are more likely than other issues to escalate to war.
and because arbitration and adjudication are highly effective at ending territorial disputes. In fact, arbitration and adjudication have proven two to four times more likely than bilateral and nonbinding third-party negotiations to end territorial claims (Gent and Shannon, 2010). Recent work highlights the importance of clear international legal principles in facilitating arbitration and adjudication between countries (Huth et al., 2011). We find that even in cases where international law is clear, arbitration and adjudication might be avoided if the ruling bucks the political balance of power between disputants. Yet when the conditions for legal dispute settlement are right, it is an important tool for overcoming commitment problems that often plague the management of territorial disputes.

**International arbitration and adjudication**

International arbitration and adjudication are distinct mechanisms of conflict management. They are both binding in the sense that disputants explicitly pledge to honor an agreement before it is brokered by the third party. Arbitration occurs when an individual, state, non-governmental organization or an ad-hoc panel hands down a decision, while adjudication is conducted by an international court. The international system is anarchic, so international arbitration and adjudication are not binding in the same way as they are at the domestic level. There are no global police to enforce an international binding agreement. Despite the lack of enforcement, binding mechanisms are effective in ending international disputes (Gent and Shannon, 2010).

The effectiveness of arbitration and adjudication results from several advantages that these procedures have over bilateral and nonbinding third party negotiations. First, arbitral and adjudicative decisions are often made by interpreting and applying existing legal provisions found in bilateral and multilateral treaties. Once principles of international law are applied to a dispute and referenced in an agreement, it is difficult for disputants to reject an agreement without similarly rejecting well-established legal code. Second, the legality of binding conflict management generates international reputation costs. Arbitral and adjudicative agreements become a focal point for the rest of the world, and the decisions are perceived as legitimate because they are founded in legal provisions that the community has brokered (Fischer, 1982). Should disputants choose to break a binding agreement, they face potential reputation costs imposed by the global community (Mitchell and Hensel, 2007; Simmons, 2002). Finally, legal dispute resolution is effective because it provides political cover at the domestic level. Leaders reluctant to settle disputes can use binding conflict management to assuage domestic opposition, since concessions based on international law are perceived by a domestic audience as more legitimate than concessions offered in bilateral negotiations (Allee and Huth, 2006; Franck, 1990).

While binding conflict management is beneficial in terms of its effectiveness, it also has costs. Arbitration and adjudication require disputants to give up decision control to a third party over the distribution of benefits in an agreement (Gent and Shannon, 2011). While the disputants make arguments and present their cases to the third party, in the end, the arbitrator or court uniquely determines the outcome. Certainly, the disputants can choose whether to uphold the agreement or not, but reneging comes with costs. Therefore, if disputants value decision control, they weigh the additional costs of giving up such control against the benefit of resolving their claims when choosing to undergo arbitration and adjudication.
Explaining arbitration and adjudication of territorial claims

Two predominant rationalist explanations for arbitration and adjudication are that they provide legal focal points for negotiations and domestic political cover for political leaders. According to the focal point perspective, when disputing leaders are uncertain as to the legally appropriate outcome on a given issue, they benefit from international adjudication because it provides a focal point upon which the disputants can coordinate. Ginsburg and McAdams (2004) argue that such a focal point is particularly helpful when leaders face each other in a “Hawk/Dove” (or “Chicken”) game. Huth et al. (2011) find that clear legal focal points help states peacefully resolve territorial disputes either bilaterally or through legal dispute resolution. While there may be some situations in which states merely need a focal point to coordinate upon, it is not always clear why a state would commit to a focal point that results in an unfavorable outcome, especially on a highly salient security issue like territory. A second rationalist explanation of arbitration and adjudication argues that leaders choose these mechanisms primarily for domestic political purposes. Because arbitration and adjudication provide decisions based upon international legal principles, domestic audiences generally see them as legitimate (Allee and Huth, 2006; Simmons, 2002). Given this, arbitration and adjudication provide political cover to leaders who would face potential audience costs if they were to make bilateral concessions to a rival state.

While these rationalist approaches illustrate important motivations behind arbitration and adjudication, they do not fully consider how the international strategic environment constrains states in using legal options. In the model below, we explore how the strategic interaction between leaders helps or hinders the use of legal conflict management mechanisms. To capture the distributional consequences inherent in conflicts over territory, we model the decision to pursue arbitration or adjudication as part of a bargaining process. International legal dispute resolution often requires the consent of both disputants. Two claimants must consent to arbitration, while international adjudication requires joint consent unless the states have agreed beforehand that a court or other judicial body has jurisdiction over disputes in a given issue area. Given this, we treat the choice to pursue arbitration and adjudication as a joint outside option. A joint outside option, unlike a standard outside option, requires the consent of both actors in a bargaining process (Manzini and Mariotti, 2004).

The need for mutual consent often makes it difficult for states to pursue arbitration or adjudication to resolve disputes. In a two-state bargaining model with dispute resolution as a unilateral outside option, Fang (2010) finds that both states can never jointly prefer institutional dispute resolution to bilateral negotiations because one state will always prefer the political terms of a bilaterally negotiated agreement to the ruling that will be made by a third party. Similarly, in a model of arbitration as a joint outside option, Manzini and Mariotti (2001) find that, as long as arbitration is costly, it can never occur in equilibrium. In light of these previous findings, one may wonder why rational actors would ever be willing to jointly choose to pursue arbitration or adjudication in a bargaining framework. We expect that states sometimes jointly choose arbitration or adjudication because they provide a more effective mechanism of resolving disputes than bilateral negotiations in situations where states face commitment problems.

To understand the role of arbitration and adjudication in resolving territorial disputes, we assume that international bargaining occurs in the shadow of war. Disagreements over territory always have the potential to lead to military conflict (Vasquez, 1995), which can influence both the outcome of a bilateral negotiation and the decision to pursue arbitration. In
the model below, we treat war as a standard outside option (Fearon, 1995; Powell, 1999). Our model also includes an exogenous shift in military power that can potentially create a commitment problem that leads to war. While we believe that such an assumption is appropriate in a model of territorial conflicts, this specific mechanism is not necessary to derive many of the implications of the model. In particular, as long as there is some chance that bilateral bargaining will break down and states have an outside option of war, one would expect states to choose arbitration or adjudication and comply with the ruling in similar situations to those identified below.

**Game-theoretic model**

Consider a game-theoretic model in which two states, A and B, are engaged in an ongoing dispute over a contentious issue such as the control of a piece of territory. Assume that the issue space, X, can be defined on the unit interval; that is, $X = [0, 1]$. Let $x \in X$ be a policy, and without loss of generality, assume that A’s ideal policy is $x_A = 1$ and that B’s ideal policy is $x_B = 0$. For example, in the case of a territorial dispute, $x = 0$ corresponds to the case where B controls all of the territory, while $x = 1$ corresponds to the case where A has complete control. Assuming that both players are risk-neutral, their respective utilities for policy $x$ are $u_A(x) = x$ and $u_B(x) = 1 - x$.

At the beginning of the game, the two states simultaneously decide whether to pursue arbitration or not. If both states choose arbitration, they enter the Arbitration Subgame. If either state chooses not to pursue arbitration, then they enter the Bilateral Bargaining Subgame. There are two periods of play in the Bilateral Bargaining Subgame. In the first period, A makes an offer of $x_1 \in X$ to B. If B accepts the offer, the policy for that period is $x_1$, and the players move to a second period of bargaining. If B rejects the offer, war occurs. In the case of a war in the first period, A wins with probability $p$ and B wins with probability $1 - p$, and both players pay a cost of war, $c_l$. If there is a first-period war, the path of play ends, and the winning state is able to impose its ideal policy in both periods. Assuming that the payoffs for the second period are discounted with common discount factor of $\delta < 1$, A’s expected utility of a first-period war is $(1 + \delta)p - c_A$, and B’s expected utility of a first-period war is $(1 + \delta)(1 - p) - c_B$.

After the first period, we assume that there is an exogenous shift of power in favor of A. In particular, A’s probability of winning a war increases to $p + \Delta$. In the second period, A makes a new offer $x_2 \in X$ to B. If B accepts the offer, the policy for the second period is $x_2$, and the game ends. If B rejects the offer, war occurs, and the probabilities of victory for A and B are $p + \Delta$ and $1 - p - \Delta$, respectively. The cost of war to each player remains $c_l$.

The Arbitration Subgame also contains two periods. In the first period, an arbitration ruling, $a \in X$ is handed down. To incorporate the possibility that the states may be uncertain about the arbitration ruling *ex ante*, the outcome of arbitration is probabilistic. In particular, $a = a_L$ with probability $q$, and $a = a_H$ with probability $1 - q$, where $a_L < a_H$. The payoffs for A and B in the first period are $u_A(x)$ and $1 - u_A(x)$, respectively. As in the Bilateral Bargaining Subgame, there is an exogenous shift in power in favor of A after the first period. At the beginning of the second period, the players simultaneous decide whether to comply with the arbitration ruling. If both comply, the arbitration outcome is maintained in the second period. If a state does not comply, it pays a noncompliance cost of $k_i$. In the case of noncompliance by either state, there is a single round of bargaining equivalent to the second period of the Bilateral Bargaining Subgame.
**Equilibrium conditions**

To derive the subgame perfect equilibrium for the game, first consider the Bilateral Bargaining Subgame. In the second period, $B$ will prefer accepting an offer $x_2$ to war if:

$$1 - x_2 \geq 1 - p - \Delta - c_B$$
$$x_2 \leq p + \Delta + c_B = x_2^*.$$  

Given that war is costly and $A$ prefers higher values of $x$, $A$ will propose $x_1^*$, which $B$ will accept. In the first period, $B$’s utility for accepting an offer $x_1$ is $1 - x_1 + \delta u_B(x_2^*)$. Thus, $B$ will prefer accepting $x_1$ to fighting a war in the first period if:

$$1 - x_1 + \delta (1 - p - \Delta - c_B) \geq (1 + \delta) (1 - p) - c_B$$
$$x_1 \leq p - \delta \Delta + (1 - \delta) c_B = x_1^*.$$  

If $x_1^* \geq 0$, $A$ will propose $x_1^*$, and $B$ will accept. On the other hand, if $x_1^* < 0$, there is no offer that $B$ prefers to fighting a war. Thus, war will occur in the Bilateral Bargaining Subgame if $x_1^* < 0$, or

$$\Delta > \frac{1}{\delta} [p + (1 + \delta)c_B].$$

Thus, if there is a significant shift in power between the two periods, the states face a commitment problem that results in bargaining failure (Powell, 2006). Otherwise, $A$ and $B$ will be able to successfully agree to $x_1^*$ and $x_2^*$ in the two periods of bargaining.

Now consider the Arbitration Subgame. If either state does not comply with the arbitration ruling, $A$ and $B$ will face the same bargaining situation as in the second period of the Bilateral Bargaining Subgame. Thus, they will make an agreement at $x_2^*$. $A$ will comply with the arbitration settlement if:

$$a \geq u_A(x_2^*) - k_A$$
$$a \geq p + \Delta + c_B - k_A.$$  

Similarly, $B$ will comply with the arbitration settlement if:

$$1 - a \leq 1 - p - \Delta - C_B - k_B$$
$$a \leq p + \Delta + c_B + k_B.$$  

Now that we have determined the equilibrium behavior in each of the subgames, we can turn to the states’ decisions to pursue arbitration or bilateral bargaining at the beginning of the game. Since we are primarily interested in the conditions under which states pursue arbitration and adjudication, we will focus our analysis on identifying the conditions under which arbitration occurs in equilibrium. To simplify the discussion, we will assume that, if a state is indifferent between bilateral bargaining and arbitration, it will choose bilateral bargaining. First, consider the case where the states will be able to successfully reach bargains in both periods of the Bilateral Bargaining Subgame. Unless arbitration will provide the same expected policy distribution as the equilibrium bargaining outcome, one of the states can obtain a more preferred policy outcome with bilateral bargaining than through arbitration.13 Therefore, arbitration can only occur in equilibrium if the parties expect bargaining
to break down. Second, given that there are positive noncompliance costs, at least one state will always prefer bilateral bargaining to arbitration if it is expected that there will noncompliance with either possible arbitration outcome.  

Therefore, arbitration will only occur in equilibrium if it is expected that bilateral bargaining will break down and there will be joint compliance with at least one of the potential arbitration outcomes. If these conditions hold, both states will opt to pursue arbitration if the expected utility of arbitration is greater than the expected utility of war. Let $a = qa_L + (1 - q)a_H$ be the expected arbitration ruling. The following proposition indicates the necessary and sufficient conditions for arbitration to occur in equilibrium.

**Proposition 1.** Arbitration will occur in equilibrium iff $\Delta > \frac{1}{\delta} [p + (1 + \delta)c_B]$ and one of the following sets conditions holds:

1. **Compliance with $a_L$ and $a_H$**
   - $p + \Delta + c_B - k_A < a_L \leq a_H \leq p + \Delta + c_B + k_B$
   - $p - \frac{c_A}{1 + \delta} < a < p + \frac{c_B}{1 + \delta}$

2. **Noncompliance with $a_L$, Compliance with $a_H$**
   - $a_L < p + \Delta + c_B - k_A$
   - $\max \left\{ p + \Delta + c_B - k_A, p - \frac{c_A}{1 + \delta} \right\} < a_H < p + \frac{c_B}{1 + \delta}$
   - $q < q^* \leq 1$

3. **Compliance with $a_L$, Noncompliance with $a_H$**
   - $a_H > p + \Delta + c_B + k_B$
   - $\max \left\{ p + \Delta + c_B - k_A, p - \frac{c_A}{1 + \delta} \right\} < a_L < p + \frac{c_B}{1 + \delta}$
   - $q > q_B^* > 0$

4. **Compliance with $a_L$, Noncompliance with $a_H$ (only if $k_A > \Delta + \frac{c_A}{1 + \delta} + c_B$)**
   - $a_H > p + \Delta + c_B + k_B$
   - $p + \Delta + c_B - k_A < a_L < p - \frac{c_A}{1 + \delta}$
   - $0 < q_B^* < q \leq q_A^* < 1$

In the model, a state’s bargaining power is increasing in its value for the outside option of war. According to the proposition, states will only choose arbitration when the expected ruling does not significantly deviate from a distribution based upon the balance of power between the states. This is due to two factors. First, in order to pursue arbitration, both players must prefer arbitration to the outside option of war. In the case where there will always be compliance, this implies that the expected ruling must be in the range
In the cases where there is a chance of noncompliance, arbitration only occurs if the probability of a potential outcome outside of that range is sufficiently low. Thus, while it is possible that arbitration can lead to an outcome that does not reflect the balance of power in equilibrium, states will avoid arbitration if they expect this to be the case. Second, given the costs involved, states prefer to avoid arbitration when they expect noncompliance. In the model, both states will comply with an arbitration ruling if the arbitration outcome does not deviate significantly from a bargaining outcome reflective of the balance of power in the second period. In particular, there will be joint compliance if:

\[
p + \Delta + c_B - k_A \leq a \leq p + \Delta + c_B + k_B.
\]  

According to Proposition 1, states will only choose arbitration if the probability of an arbitration outside of that range is sufficiently low. Thus, a state's bargaining power, as reflected in its willingness to pursue the outside option of war, constrains the situations in which arbitration can effectively resolve disputes between states.

The model provides clear expectations about compliance behavior of states. In general, we should expect a high rate of compliance with arbitration and adjudication decisions. This is due to two complementary factors. First, the high noncompliance costs associated with these processes decrease the incentives of states to renege on agreements. Since states never choose to arbitrate in the model if they could successfully reach a bilateral agreement, arbitration only occurs in cases that would otherwise result in war in the absence of arbitration. Owing to the noncompliance costs, arbitration can help states overcome commitment problems that would otherwise lead to bargaining breakdown. Second, states strategically choose to arbitrate in cases where they expect to comply. As noted above, states will prefer to comply when the ruling reflects the balance of power between the states. Thus, we expect that noncompliance will be rare and that it will occur when arbitration unexpectedly results in an outcome that is not acceptable to one of the states. This leads to the following hypothesis:

**Hypothesis 1.** While rare, noncompliance with arbitration is more likely as arbitral or adjudicative settlements deviate from a distribution based upon the balance of power between disputants.

While the model above is general in nature, it is especially applicable to the use of arbitration and adjudication to resolve disputed territorial claims between states. First, since settlements of territorial claims have distributional consequences, the bargaining framework is appropriate to model these situations. Second, given the salience of territory to states, such disputes often play out in the shadow of armed conflict. The bargaining power of states in territorial disputes is, at least in part, a function of their value for the outside option of war. Thus, we expect that decisions to pursue and comply with arbitration and adjudication will be influenced by considerations of the relative military power of disputants. In the next section, we empirically examine compliance with arbitral and adjudicative settlements in territorial disputes.

**Compliance with arbitration and adjudication**

From the theoretical model, we expect that arbitration and adjudication will be more effective at resolving territorial disputes when they result in outcomes reflective of the relative
bargaining power of the disputants. In particular, given the omnipresent option of war in territorial conflicts, we expect that states will be less likely to comply with arbitral or adjudicative settlements when they significantly diverge from a distribution reflective of the military power of the states. To test this hypothesis, we examine compliance with arbitration and adjudication in territorial claims identified by the Issue Correlates of War (ICOW) project (Hensel, 2001). The ICOW data are useful because they track efforts and success of conflict management at various stages, including compliance with settlements. Using the ICOW dataset, we identify 37 cases of arbitration and adjudication in territorial claims in the Americas and Western Europe from 1816 to 2001. For each settlement, we note whether all parties complied with the terms of an arbitrated or adjudicated ruling. In particular, the ICOW project codes compliance with an agreement if signatories honor the terms within five years or within the time frame stipulated by the agreement if it is longer than five years (Mitchell and Hensel, 2007).

To test our hypothesis, we must identify cases in which the arbitration or adjudication outcome did not reflect the balance of power between the states. It would be difficult to systematically map the distribution of territory to the military power balance between disputants across cases. However, we can observe the balance of concessions required of both sides in a settlement. In general, one would expect that an arbitration ruling is more unfavorable to a side if it is asked to make more concessions than its rival. In situations in which the states are relatively equal in capabilities, it is difficult to determine if the requirement of one side to make greater concessions significantly diverges from an outcome reflective of the balance of power. On the other hand, if there is a significant power disparity between the disputants, it is possible to make such a distinction. In this situation, if the stronger state is asked to make more concessions than its counterpart, it is likely that the ruling greatly diverges from a settlement reflective of the balance of power between the states. However, if the weaker state must make greater concessions or both make equal concessions, the outcome more closely mirrors the power balance between the states. Therefore, we focus our analysis on the rate of compliance with arbitration and adjudication in situations where there is an asymmetry of power.

To identify cases where there is a significant power disparity between disputants, we use the Composite Index of Capabilities (CINC) data from the Correlates of War project (Singer et al., 1972). CINC scores measure the demographic, industrial and military material capabilities of states. States that have more material power are arguably more capable of exerting political influence in the global arena, so the political balance of power favors a disputant with greater material capabilities. While CINC is a good measure of overall bargaining power, we recognize that it may not fully capture bargaining power related to issue claims, and in particular, territorial claims. For example, CINC does not necessarily reflect other sources of bargaining power, such as reputation and historical resolve. While a subjective measure of bargaining power might be able to incorporate such factors, it would be difficult to measure systematically and consistently across countries and time. Therefore, we opt to use CINC scores to operationalize relative bargaining power in our analysis.

To measure power as a function of material strength, we consider the stronger disputant’s share of the dyad’s total capabilities, which theoretically ranges from 0.50 (power parity) to 1 (one state has all of the capabilities of the dyad). In our analysis, we consider two thresholds to demarcate cases with a power disparity: a 2:1 power advantage (CINC ratio ≥ 0.667) and a 3:2 power advantage (CINC ratio ≥ 0.6). To operationalize our independent variable, we examine the balance of concessions required of both parties by the settlement. The ICOW
dataset indicates whether a settlement required the target or the challenger to make more concessions or whether there was an equal level of concessions. Following Mitchell and Hensel (2007), we create a dummy variable that indicates whether the stronger state in a dyad (in terms of CINC scores) was asked to make more concessions than its opponent. This variable is coded as zero if the weaker state was asked to make more concessions or if there was an equal level of concessions.

A tabular analysis indicates that compliance with arbitration and adjudication is less likely for settlements where the stronger state is asked to make concessions. Table 1 presents the cases where one state has at least a 2:1 power advantage. In those situations, disputants only comply with arbitration 56% of the time when the stronger state is asked to make more concessions. On the other hand, there is always compliance when the stronger state is not asked to make greater concessions. The Pearson’s \( \chi^2 \) provides evidence that the variables are not independent of each other, with \( p = 0.01 \). Table 2 presents the compliance rates when the stronger state in a dyad has a 3:2 power advantage. In this case, compliance is also significantly less likely when the stronger state is asked to make greater concessions than when it is not. This bivariate analysis provides evidence that strong states unhappy with arbitral and adjudicative rulings that do not reflect the balance of power are sometimes willing to pay the cost of noncompliance to achieve a more favorable outcome through other means.

To more fully explore the influence of concessions and power on compliance, we conduct a probit analysis of all cases of arbitration and adjudication in territorial claims in the ICOW dataset. As noted above, we expect noncompliance to be more likely when the stronger state in an asymmetric dyad is asked to make greater concessions than the weaker state. To test this conditional hypothesis, we incorporate three independent variables. First, we include a dummy variable that indicates whether the stronger state in the dyad (in terms of CINC scores) is required to make more concessions. Second, we include a measure of the \textit{Power}
Asymmetry in the dyad, which is operationalized as the stronger state’s share of the dyad’s total capabilities, as measured by the CINC score. Finally, we include an interaction term between these two variables. In addition to our main variables of interest, we control for the dyad’s level of democracy, as democracies are arguably more likely to comply with international agreements (Gaubatz, 1996; Leeds, 1999). The variable Weak Link Democracy reflects the state with a lower score on the Polity IV index of institutional democracy (Marshall and Jaggers, 2002). As the weak link becomes more democratic, we should observe more compliance with settlements.

The results of the probit analysis can be found in Table 3. Since it is difficult to directly interpret interaction terms in probit models, we used simulation methods to examine the marginal effect of stronger concessions by the stronger state for different levels of power asymmetry (Brambor et al., 2006). Figure 1 displays these marginal effects along with 95% confidence intervals. In line with our theoretical expectations, as the level of power asymmetry increases, compliance with arbitration and adjudication is less likely when the stronger state is required to make more concessions. In particular, the marginal effect of a stronger state making concessions is negative and statistically significant for levels of power asymmetry greater than about 0.77, which is approximately a 3:1 power ratio.

As one would expect from our theory, the effect of power asymmetry on compliance depends upon the nature of the concessions required by the legal ruling. When the stronger state is asked to make greater concessions, power asymmetry decreases the likelihood of compliance. On the other hand, when the stronger state is not asked to make greater concessions, compliance is more likely as the degree of power asymmetry increases. These effects are statistically significant at the $p < 0.05$ level. Substantively, our simulations indicate that as one moves from a condition of power parity (CINC ratio = 0.5) to complete power asymmetry (CINC ratio = 1), the expected probability of compliance decreases from 0.95 to 0.33 when the stronger state is asked to make greater concessions. However, the same shift in power asymmetry increases the expected probability of compliance from 0.72 to 0.99 when the ruling does not require greater concessions by the stronger state. All in all, the multivariate analysis provides support for our theoretical argument that states will be less likely to comply with legal settlements that widely diverge from the balance of power between the disputants.

**Arbitration and adjudication vs bilateral negotiations**

The analysis so far provides evidence that the willingness of states to comply with arbitration decisions on territorial claims depends in part on the distributional consequences of the
ruling. When significantly stronger states, in terms of material capabilities, are asked to make greater territorial concessions than their counterparts, compliance is less likely. According to the theoretical model, these cases of noncompliance are the result of the unique characteristics of arbitration and adjudication. In these binding procedures, states give up decision control to a third party who determines the specific terms of the settlement. Thus, the arbitration panel or court may impose an outcome that one of the states never would have agreed to if it had maintained control of the decision. While our theory predicts that states will not choose arbitration or adjudication if they expect an unpalatable outcome, the exact terms of the settlement are not known beforehand. Owing to this uncertainty, sometimes states unexpectedly receive an unfavorable ruling that they are not willing to accept.

To further examine the role that decision control plays in this process, we compare the behavior of states in arbitration and adjudication vs bilateral negotiations. In bilateral negotiations, states maintain decision control, so they are free to reject any potential agreement they find politically unacceptable. Thus, states generally only sign bilateral agreements that reflect their relative bargaining power and only agree to concessions that they are willing make. If this is the case, in territorial disputes, we would expect fewer bilateral settlements to require the stronger state to make greater concessions than arbitral or adjudicative settlements.

Table 4 presents the balance of concessions in substantive settlements of ICOW territorial claims where the stronger state has at least a 3:2 advantage in material capabilities. In these cases, stronger states in bilateral negotiations agree to make greater concessions only 16% of the time. On the other hand, arbitration and adjudication rulings require stronger states to make greater concession in 37% of cases. A chi-square test indicates that we can reject the null hypothesis that these variables are independent. Thus, bilateral negotiations are more likely to result in settlements that are reflective of the balance of power between states than arbitration and adjudication. This finding is in line with previous theoretical expectations.

**Figure 1.** Marginal effect of concessions by stronger state on compliance. Dashed lines are 95% confidence intervals.
that the involvement of a third party makes it more likely that an agreement will not represent the relative bargaining power of the disputants (Werner and Yuen, 2005).21

As noted above, since disputants maintain decision control in bilateral negotiations, we also expect that, when stronger states do make concessions in these situations, they do so willingly. For example, in some cases, there may be other factors (such as resolve or patience) that give militarily weaker states significant bargaining power and make a militarily stronger state willing to concessions. Thus, there is no reason to expect the rate of compliance to be lower when stronger states make greater concessions in bilateral agreements. Table 5 presents the rate of compliance with bilateral agreements over territorial claims given the balance of concessions for dyads in which the stronger state has a 3:2 advantage in capabilities. While the rate of compliance is actually higher when stronger states make greater concessions in bilateral negotiations (78 vs 70%), a chi-square test indicates that there is not a statistically significant relationship between these variables ($\chi^2 = 0.58, p = 0.448$).

Thus, unlike the case of arbitration and adjudication, states are not empirically more likely to renege on bilateral settlements that do not reflect the balance of material capabilities. This does not imply that power considerations do not play a role in the decision of states to abide by territorial settlements after bilateral negotiations. Instead, the evidence indicates that states avoid making bilateral settlements over territory that so significantly deviate from the balance of power that they are politically unacceptable in the long run. Thus, it does appear that the requirement of states to give up decision control in arbitration and adjudication influences compliance with these rulings.

**Conclusion**

The above theoretical and empirical analysis indicates that the balance of power between states plays an important role in their decisions to pursue and comply with arbitration and

---

**Table 4.** Balance of concessions by type of settlement (cases with 3:2 power advantage)

<table>
<thead>
<tr>
<th>Greater concessions by stronger state</th>
<th>Type of settlement</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bilateral</td>
<td>Arbitration/adjudication</td>
</tr>
<tr>
<td>No</td>
<td>122 (84.14)</td>
<td>17 (62.96)</td>
</tr>
<tr>
<td>Yes</td>
<td>23 (15.86)</td>
<td>10 (37.04)</td>
</tr>
<tr>
<td>Total</td>
<td>145 (100)</td>
<td>27 (100)</td>
</tr>
</tbody>
</table>

Percentages in parentheses; $\chi^2 = 6.58, p = 0.010$.

**Table 5.** Compliance with bilateral agreements (cases with 3:2 power advantage)

<table>
<thead>
<tr>
<th>Greater concessions by stronger state</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td>No</td>
<td>36 (29.51)</td>
</tr>
<tr>
<td>Yes</td>
<td>86 (70.49)</td>
</tr>
<tr>
<td>Total</td>
<td>122 (100)</td>
</tr>
</tbody>
</table>

Percentages in parentheses; $\chi^2 = 0.58, p = 0.448$. 
adjudication of territorial claims. The canonical bargaining models in international relations show that successful bilateral bargaining outcomes roughly reflect the balance of power between states (Fearon, 1995; Powell, 1999). Our model indicates that a similar mechanism conditions the willingness of states to pursue arbitration or adjudication. Arbitration and adjudication are better able to resolve disagreements over territory when distributional outcomes roughly reflect the balance of power between disputants. However, since rulings in arbitration and adjudication are generally based upon principles of international law, such procedures cannot guarantee politically acceptable outcomes. The tension inherent in the use of a legal process to resolve a political dispute perhaps limits the opportunities for arbitration or adjudication to be used to resolve issues that affect the security interests of states.

It should be noted that the empirical analysis above is based upon a small number of cases. Arbitration and adjudication of territorial claims is a rare event, and noncompliance with these rulings is even rarer. This is not surprising given the theoretical model, which points to two factors that explain the high rate of compliance with legal decisions. First, high noncompliance costs make states reluctant to renege on a settlement from arbitration or adjudication. Second, given these noncompliance costs, states only pursue legal dispute resolution when they expect to comply. The small number of “off the path” outcomes is consistent with our theoretical expectations, and the characteristics of these settlements reveal the situations in which states avoid arbitration or adjudication.

While it is appropriate to incorporate the possibility of war in a model of bargaining over territory, many situations in which states turn to legal dispute resolution do not occur in the shadow of war. Nevertheless, we expect that our main theoretical predictions about the relationship between the balance of power and legal dispute resolution also apply outside the realm of armed conflict. Since the outcomes of international arbitration and adjudication always have political consequences, the decisions to pursue and comply with legal rulings are contingent upon the relative bargaining power of states. In the model above, we explore the bargaining power that results from a favorable outside option of war, but the implications extend to other sources of bargaining power. In particular, as long as states must jointly enter into arbitration or adjudication but can unilaterally reject a ruling, anything that provides bargaining power in bilateral negotiations influences decisions to pursue and comply with legal dispute resolution. Thus, other types of unilateral outside options, as well as inside options, could play a similar role in other bargaining situations that the outside option of war does in our model. Gaining a better understanding of the politics behind the use of binding conflict management mechanisms will hopefully identify how to most effectively resolve disputes over highly contentious issues.

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Notes
1. Previous versions of the paper were presented at the 2010 annual meeting of the Peace Science Society and the 2011 annual meeting of the International Studies Association. The authors would like to thank Phil Arena, Navin Bapat, Kyle Beardsley, Bernd Beber, Mark Crescenzi, Paul Diehl,
Paul Hensel, Sara Mitchell, Tricia Sullivan, members of the Folke Bernadotte Academy Conflict Prevention Working Group, and the anonymous reviewers for helpful comments on this project.

2. For background on the Beagle Channel dispute, see Garrett (1985) and Mares (2001). For the Venezuela–British Guiana arbitration, see Braveboy-Wagner (1984) and Schoenrich (1949). Although these motivating cases take place in Latin America, our theoretical argument should hold across geographic regions. Our empirical analyses include cases outside of Latin America.

3. Venezuela complied with the agreement for over 60 years. It renewed the claim in 1962 only after new information about the bias of the arbitral panel was revealed.

4. Huth and Prorok (2012) argue that such outcomes can be sustained by third-party enforcement of international law.

5. We should note that our model is not necessarily inconsistent with other rationalist explanations for arbitration and adjudication. While our model does not explicitly incorporate focal points or domestic political cover, one can view these as processes that increase the cost of not complying with legal rulings. Thus, these mechanisms provide theoretical support for the inclusion of non-compliance costs in our model of arbitration.

6. Both arbitration and adjudication require the consent of both parties. This consent can either be expressed ad hoc with regard to a specific dispute or in general and in advance with regard to certain kinds of disputes (Cede, 2009). Our model applies most directly to cases where states must jointly consent to legal dispute resolution. Our model would not apply in cases where disputants can unilaterally submit claims to arbitration, such as when they have accepted compulsory jurisdiction of the International Court of Justice through an “optional clause” declaration or in trade disputes within the World Trade Organization.

7. In the model below, we assume that arbitration is costless. Assuming that there is a cost to intervention would narrow the range for which arbitration occurs in equilibrium.

8. Urpelainen (2009) does present a model in which disputants will choose a joint outside option of arbitration in equilibrium. Unlike most bargaining models, he assumes that disputants do not have single-peaked preferences over the division of the good.

9. While there is a growing literature that treats war as an inside option (Powell, 2004; Slantchev, 2003), states rarely decide to pursue arbitration or adjudication during an ongoing conflict. (The border war between Ethiopia and Eritrea is an exception.) Thus, we feel that in the context of the decision to pursue arbitration, it is appropriate to treat war as an outside option.

10. Owsiak and Rider (2013) similarly argue that territorial disputes are largely rooted in commitment problems, rather than informational problems.

11. To avoid cumbersome language, we will only refer to “arbitration” in the model rather than “arbitration or adjudication”. However, our model applies to both forms of dispute resolution. Also, one could alternatively assume that the states make sequential decisions to pursue arbitration. The results are equivalent as long as arbitration requires the approval of both states.

12. We do not specifically model the source of this exogenous power shift. As noted above, we incorporate such a shift into the model to allow for the possibility that bargaining will break down into war. The main implications of the model should still hold if one were to assume an alternative mechanism for bargaining breakdown and war.

13. See Lemma 1 in the Appendix.

14. See Lemma 2 in the Appendix.

15. The proof can be found in the Appendix.

16. We only explore compliance with substantive agreements that aimed to end part or all of an issue claim.

17. We also investigated a third threshold of a 3:1 power advantage, and the results were consistent.

18. In all simulations, we set Weak Link Democracy to its median value (−2).

19. As in the previous analysis, we only consider settlement attempts that aimed to resolve all or part of the territorial claim and exclude functional and procedural attempts.
20. We found consistent results for this relationship and the one examined in the following paragraph when we only considered cases in which the stronger state had at least a 3:1 or a 2:1 advantage.

21. While Werner and Yuen note that the involvement of third parties detracts from the efficiency of bargaining, other work argues that third-party characteristics such as bias can enhance the efficiency and success of the bargaining process (Crescenzi et al., 2011; Kydd, 2003; Princen, 1992).

References


**Appendix**

**Lemma 1.** If $A$ and $B$ will agree to $x_1^*$ and $x_2^*$ in the Bilateral Bargaining Subgame, at least one state will prefer bilateral bargaining to arbitration.

**Proof.** Let $\bar{a} = qa_L + (1-q)a_H$, and let $U_i(t_2)$ be player $i$’s utility in period 2 of the Arbitration Subgame. $A$ will prefer bilateral bargaining to arbitration if

\[
\bar{a} + \delta U_A(t_2) \leq x_1^* + \delta x_2^* \\
\bar{a} \leq x_1^* + \delta x_2^* - \delta U_A(t_2).
\]  

\[(A1)\]

Similarly, $B$ will prefer bilateral bargaining to arbitration if

\[
1 - \bar{a} + \delta U_B(t_2) \leq 1 - x_1^* + \delta (1 - x_2^*) \\
\bar{a} \geq x_1^* + \delta x_2^* - \delta + \delta U_B(t_2).
\]  

\[(A2)\]
One state will always prefers bilateral bargaining to arbitration if

\[
x_1 + \delta x_2 - \delta U_A(t_2) \geq x_1^* + \delta x_2^* - \delta + \delta U_B(t_2)
- \delta U_A(t_2) \geq - \delta + \delta U_B(t_2)
U_A(t_2) + U_B(t_2) \leq 1.
\]  

(A3)

Since the payoffs of period 2 of the Arbitration Subgame are either the policy benefits of an arbitration outcome or a bargaining agreement (less any noncompliance costs), this condition is always true.

**Lemma 2.** If there will be noncompliance with both \(a_L\) and \(a_H\), at least one state will prefer bilateral bargaining to arbitration.

**Proof.** The proof for the case where bilateral bargaining results in agreements at \(x_1^*\) and \(x_2^*\) follows from Lemma 1. Now consider the case where bilateral bargaining leads to war. If \(A\) does not comply with both \(a_L\) and \(a_H\), \(B\) prefers bilateral bargaining if

\[
1 - \bar{a} + \delta (1 - x_2^*) \leq (1 + \delta)(1 - p) - c_B
1 - \bar{a} + \delta (1 - p - \Delta - c_B) \leq (1 + \delta)(1 - p) - c_B
\bar{a} \geq p - \delta \Delta + (1 - \delta)c_B
\bar{a} \geq x_1^*.
\]  

(A4)

Since \(x_1^* < 0\), this condition is always satisfied. Since \(B\) pays a cost of \(k_B\) if it does not comply with an arbitration ruling, it will also prefer bilateral bargaining if it would not comply with \(a_L\) and/or \(a_H\).

**Proof of Proposition 1**

**Proof.** From Lemma 1, arbitration will only be chosen if the states would not successfully reach a bargain in the Bilateral Subgame. Thus, arbitration will only be possible if

\[
\Delta > \frac{1}{\delta} [p + (1 + \delta)c_B].
\]

From Lemma 2, it follows that arbitration will only be chosen in equilibrium if there will be joint compliance with at least one of the potential arbitration rulings. First, consider Case 1 in which both states comply with \(a_L\) and \(a_H\). In this case, \(p + \Delta + c_B - k_A \leq a_L \leq a_H \leq p + \Delta + c_B + k_B\). \(A\) prefers successful arbitration to war if:

\[
(1 + \delta)[qa_L + (1 - q)a_H] > (1 + \delta)p - c_A
\bar{a} > p - \frac{c_A}{1 + \delta}.
\]  

(A5)

Similarly, \(B\) will prefer successful arbitration to war if:

\[
(1 + \delta)[q(1 - a_L) + (1 - q)(1 - a_H)] > (1 + \delta)(1 - p) - c_B
\bar{a} < p + \frac{c_B}{1 + \delta}.
\]  

(A6)
Second, consider the case where both states will comply with $a_H$ but $A$ will not comply with $a_L$. In this case, $a_L < p + \Delta + c_B - k_A \leq a_H \leq p + \Delta + c_B + k_B$. $B$ will prefer arbitration to war if:

$$q[1 - a_L + \delta(1 - x_B^*)] + (1 - q)(1 + \delta)(1 - a_H) > (1 + \delta)(1 - p) - c_B. \quad (A7)$$

From the proof of Lemma 2, we know that $(1 + \delta)(1 - p) - c_B > 1 - a_L + \delta(1 - x_B^*)$. So $B$ will only choose arbitration if $(1 + \delta)(1 - a_H) > 1 - a_L + \delta(1 - x_B^*)$. Thus we can rearrange Equation (A7) to show that $B$ will choose arbitration if:

$$q < \frac{(1 + \delta)p + c_B - (1 + \delta)a_H}{a_L + \delta x_B^* - (1 + \delta)a_H} \equiv q_B^*. \quad (A8)$$

If

$$a_H < p + \frac{c_B}{1 + \delta}, \quad q_B^* > 0$$

and there exists a range of values of $q$ for which $B$ will arbitrate. Since $a_L + \delta x_B^* > (1 + \delta)p + c_B$, $q_B^* < 1$. $A$ will prefer arbitration to war if:

$$q(1 + \delta)(a_L + \delta x_B^*) + (1 - q)a_H > (1 + \delta)p - c_A. \quad (A9)$$

Given that $A$ complies with $a_H$, $a_H \geq x_B^* - k_A$. Thus we can rearrange Equation (A9) to show that $A$ will choose arbitration if:

$$q < \frac{(1 + \delta)a_H - (1 + \delta)p + c_A}{(1 + \delta)a_H - a_L - \delta(x_B^* - k_A)} \equiv q_A^*. \quad (A10)$$

If

$$a_H > p - \frac{c_A}{1 + \delta}, \quad q_A^* > 0.$$  

Let $q^* = \min\{q_A^*, q_B^*\}$. Both $A$ and $B$ will choose arbitration if $q < q^*$. It has been shown that $q^* > 0$ iff $p - \frac{c_A}{1 + \delta} < a_H < p + \frac{c_B}{1 + \delta}$.

Next consider the case where both states will comply with $a_L$ but $B$ will not comply with $a_H$. In this case, $p + \Delta + c_B - k_A \leq a_L \leq p + \Delta + c_B + k_B < a_H$. $B$ will prefer arbitration to war if:

$$q(1 + \delta)(1 - a_L) + (1 - q)[1 - a_H + \delta(1 - x_B^* - k_B)] > (1 + \delta)(1 - p) - c_B. \quad (A11)$$

From the proof of Lemma 2, we know that $(1 + \delta)(1 - p) - c_B > 1 - a_H + \delta(1 - x_B^* - k_B)$. So $B$ will only choose arbitration if $(1 + \delta)(1 - a_L) > 1 - a_H + \delta(1 - x_B^* - k_B)$. Thus we can rearrange Equation (A11) to show that $B$ will choose arbitration if:

$$q > \frac{a_H + \delta(x_B^* + k_B) - (1 + \delta)p - c_B}{a_H + \delta(x_B^* + k_B) - (1 + \delta)a_L} \equiv q_B^{**}. \quad (A12)$$

If
\[ a_L < p + \frac{c_B}{1+\delta}, \quad q_B^{**} < 1 \]

and there exists a range of values of \( q \) for which \( B \) will arbitrate. Since \( a_H + \delta(x_2^* + k_B) > (1 + \delta)p + c_B, \quad q_B^{**} > 0. \) \( A \) will prefer arbitration to war if:

\[
q(1 + \delta)a_L + (1 - q)(a_H + \delta x_2^*) > (1 + \delta)p - c_A. \tag{A13}
\]

Since \( B \) will not comply with \( a_H, \ a_H > x_2^* > p. \) Thus, if

\[
a_L > p - \frac{c_A}{1+\delta}.
\]

Equation (A13) is satisfied for all values of \( q. \) Therefore, both \( A \) and \( B \) will choose arbitration if

\[
q > q_B^{**} \quad \text{and} \quad p - \frac{c_A}{1+\delta} < a_L < p + \frac{c_B}{1+\delta}.
\]

If

\[
a_L < p - \frac{c_A}{1+\delta},
\]

Equation (A13) is satisfied if:

\[
q < \frac{a_H + \delta x_2^* - (1 + \delta)p + c_A}{a_H + \delta x_2^* - (1 + \delta)a_L} \equiv q_A^{**} < 1. \tag{A14}
\]

Thus, \( A \) and \( B \) will arbitrate if \( q_B^{**} \leq q \leq q_A^{**}. \) Since both states comply with \( a_L, \) this can only hold if

\[
p + \Delta + c_B - k_A < a_L < p - \frac{c_A}{1+\delta}.
\]

Thus, this case is only possible if

\[
k_A > \Delta + \frac{c_A}{1+\delta} + c_B.
\]