

“Falling to Peaces”: Conciliatory Agreements and the Durability of Peace

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Abstract

States often experience disagreements such as competing territorial claims and sometimes they attempt to address these differences by negotiating explicit, written settlements. Can these agreements help ensure a durable peace? I examine the effect of agreements that attempt to address differences after significant conflict has occurred, such as peace agreements, as well as agreements designed to manage competing claims *before* they reach the level of violence. I refer to these two sets of agreements together as ‘conciliatory agreements’. Using the theoretical framework of the bargaining model of war, I argue that the provisions specified in conciliatory agreements make the existing peaceful equilibrium more robust against the potentially disruptive effect of environmental shocks, such as changes in relative capabilities or regime type. Furthermore, I argue that conciliatory agreements not only increase the likelihood that peace is maintained but also impact the kind of peace maintained. Specifically, competing states that experience disruptive changes may remain at peace either because they continue to accept the status quo or because they peacefully renegotiate a new settlement. I argue that varying agreement provisions can account for why, when conditions change, some states resort to force, while others peacefully renegotiate. I test my propositions concerning the effect of shocks and agreement provisions on the durability of peace and the likelihood of renegotiation using cases of territorial claims between 1919-1995, as identified by Huth and Allee (2002). I have collected conciliatory agreements for three regions (Middle East, the Americas and Europe) and present preliminary findings based on these regions.

A previous version of this paper was presented at the annual meeting of the International Studies Association, San Diego, California, March 22-25, 2006. I would like to thank Ashley Leeds, Cliff Morgan, and Randy Stevenson for their helpful comments on this project.

INTRODUCTION

In their international relations, states often experience disagreements with one another such as competing territorial claims, disputes over resources, or differences over policy choice. Sometimes states attempt to address these differences by negotiating explicit, written settlements. Can these agreements help ensure a durable peace between states with competing claims?

Empirically, attempts to address disagreements peacefully are abundant. Indeed, states aim at peaceful settlements far more often than they resort to force. Huth and Allee's (2002) work on 348 territorial claims between 1919 and 1995 shows that in 68 percent of the cases, major concessions happened without prior violence. Similarly, Hensel's (2001) analysis of 74 dyadic territorial claims in the Western Hemisphere between 1816 and 1992 reveals that bilateral negotiations, which take place in 91.9 percent of all cases, constitute the most common type of settlement attempt, while militarized interstate disputes (MIDs) make up less than one-fifth of all settlement attempts.

Given that policy-makers have clearly recognized the potential of peaceful settlement attempts, it seems appropriate that scholars devote their energies to the systematic study of such attempts, and more specifically to the design of conflict resolution or conflict management agreements. By examining the circumstances under which these agreements are successful at ensuring a long-lasting peace and which provisions tend to be particularly promising, scholars can give pertinent advice to policy-makers. Unlike factors such as contiguity and relative power, the design of agreements is amenable to manipulation by decision-makers, and scholarly findings on the 'optimal design' of conflict settlement agreements can be directly translated into helpful policy-making advice.

Furthermore, studying the design of conflict resolution and conflict management agreements can contribute significantly to the theoretical debate about the prospects for cooperation. When states have fundamental disagreements and have fought over these disagreements or have found themselves at the brink of war, cooperation should be particularly difficult to achieve. Showing that even under these circumstances cooperation does occur and often is successful lends support to the institutionalist argument about the importance of international institutions. Not only can studies of cooperation among adversaries show that agreements matter but they can also take the next step and show *how* they matter: which kinds of provisions are successful and under which conditions they are successful.

In this project, I examine the effect of agreements that attempt to address differences between pairs of states *after* significant conflict has occurred, such as peace agreements, as well as written agreements designed to manage competing claims *before* they reach the level of violence. I refer to these two sets of agreements together as ‘conciliatory agreements’— written agreements signed by official representatives of both states that help manage or resolve existing competing claims between the signatories.

Using the theoretical framework of the bargaining model of war, I develop an argument to explain under which conditions states with competing claims are able to maintain a durable peace and what role conciliatory agreements play in achieving this desirable outcome. I argue that the provisions specified in conciliatory agreements make the existing peaceful equilibrium more robust against the potentially disruptive effect of environmental shocks, such as changes in relative capabilities, regime type, or alliances. Furthermore, I argue that conciliatory agreements not only increase the likelihood that peace is maintained but also impact the kind of peace maintained. Specifically, competing states that experience disruptive changes may remain at

peace either because they continue to accept the status quo or because they peacefully renegotiate a new settlement. I argue that varying agreement provisions can account for why, when conditions change, some states resort to force, while others peacefully renegotiate, and still others maintain their original agreement.

In order to evaluate my propositions, I use an existing list of territorial claims between 1919 and 1995, provided by Huth and Allee's (2002) research. For each of these cases, I collect all conciliatory agreements between the claimants and use these to test my theoretical expectations about the impact of agreement provisions on the durability of peace and the occurrence of renegotiation. Currently I have finished collecting data for three regions: Middle East, the Americas, and Europe. I present preliminary findings based on these three regions.

The paper proceeds as follows: the first section introduces the debate between Suzanne Werner (1999b, 2005) and Page Fortna (2003, 2004) concerning the effect of environmental changes and agreement provisions on the durability of peace. I show how the project proposed here synthesizes the two seemingly conflicting arguments, answers an important question that remains open in Werner's work, and extends the empirical scope of Werner's and Fortna's studies. The second section presents the theoretical argument and derives testable hypotheses concerning the effect of environmental shocks and conciliatory agreement provisions on the durability of peace and the occurrence of renegotiation. The third section contains the research design. I discuss the selection of cases, the coding of the independent and dependent variables, and the statistical method applied. The fourth section presents some preliminary findings. Finally, I conclude with a brief review of the central argument and preliminary findings of this project.

THE WERNER-FORTNA DEBATE: ENVIRONMENTAL CHANGES OR AGREEMENTS

Unfortunately, at this point, scholarly work can neither provide solid advice to decision-makers about whether and how to design conciliatory agreements, nor can we confirm or disconfirm the institutionalist argument about the effect of such arrangements. There still exists considerable disagreement with respect to the question of whether agreements between opponents lead to a more durable peace.

On one side of the debate we find scholars that argue that carefully designed agreements intended to manage conflicts do indeed increase the chances for a lasting peace, both in interstate and civil conflict (Holsti 1991, Miall 1992, Hartzell 1999, Hoddie and Hartzell 2003, Hampson 1996). With respect to interstate conflict, recent work by Fortna (2003, 2004) provides the most encompassing treatment of the effects of post-war agreements on the durability of peace between former belligerents. Fortna argues that not only are cease-fires formed under those circumstances where conflict seems most likely to re-erupt, but they also tend to be quite effective at ensuring this fragile peace.

On the other side of the debate we find scholars who assert that agreements have little or no direct effect on whether former opponents are able to maintain a lasting peace. Maoz (1984) and Senese and Quackenbush (2004) argue that a central factor accounting for the recurrence of conflict between opponents is whether the previous military confrontation ended in an imposed or a negotiated settlement, with imposed settlements leading to more stable peace. This suggests that agreements and their specific design do not matter, but rather that the durability of peace is a function of the balance of military power at the end of the confrontation. In her 1999 article on the "Precarious Nature of Peace", Werner finds further support for this notion: the existence of formal peace agreements appears to have no effect on the recurrence of conflict. Instead, she

argues that the best explanation for the recurrence of conflict is that changes in relative capabilities and regime type introduce new uncertainty into the relationship between the belligerents. Given these changes, at least one side might believe that it should receive a better deal than the existing one. Changes lead to an incentive to renegotiate, and if renegotiation fails, conflict may recur. External circumstances and changes in such circumstances, such as shifts in relative power and regime changes, explain the recurrence of conflict, while agreements designed to reduce the chance of recurrent conflict seem to have no effect (see also Goertz and Diehl 1995).

In a more recent article that reacts to Fortna's work, Werner and Yuen (2005) argue further that changes in relative capabilities should be particularly prone to result in conflict if the opponents' beliefs about who should get how much from fighting did not converge at the end of war, either because a third party forced the states to stop fighting or because the pattern of battle victories was inconsistent. In their empirical analysis, Werner and Yuen find strong support for the impact of "informational" variables on the durability of peace: changes in relative capabilities, wars interrupted by third parties, and inconsistent battle patterns are significantly and negatively related to the durability of peace. While Werner and Yuen find that these variables add significantly to the explanatory power of the empirical model, the addition of a variable that measures agreement strength (as proposed by Fortna) improves the statistical fit only slightly. They conclude that changes in relative power explain the recurrence of conflict, while agreement design is much less significant.

In this project, I attempt to synthesize the work by Fortna and Werner and Yuen, provide an answer to a question that remains open in Werner's work, and extend the argument about changes and agreement provisions to a larger set of cases. In order to provide a more powerful

explanation for why conflict occurs between opponents I incorporate pieces from both arguments: following Werner, I argue that changes in the environment such as changes in relative capabilities may lead to hostilities; following Fortna, I argue that the existence of agreements is an important factor in preventing the outbreak of fighting, even when changes occur. In fact, it is exactly when changes occur that we should observe agreements to matter most.

I also argue that the existence of specific provisions in conciliatory agreements can explain why some states renegotiate. In her original work, Werner (1999) concludes that incentives to renegotiate, created through changes in relative capabilities, are the most convincing explanation for the recurrence of war between former enemies. However, she does not explain why sometimes states are able to renegotiate but fail other times. “While this argument explains well why a former belligerent may attempt to renegotiate a settlement, it does not explain fully why such attempts sometimes result in violence” (p.919). I argue that the answer lies, at least partially, in the design of conciliatory agreements.

Finally, I extend the empirical scope of cases that are considered. While Fortna and Werner focus on post-war agreements (cease-fire and peace agreements respectively), I examine cases in which states have fought a war but also cases in which states have competing claims but these claims have not resulted in violence. The literature on war as part of the bargaining process (especially Filson and Werner 2002) reveals that the dynamics of bargaining at the end of war do not differ from the dynamics of bargaining at the beginning of a war. This suggests that the argument developed in this paper applies to cases in which conflict has occurred as well as to cases in which conflict might occur. Provisions that help maintain a durable peace after the end of a war should also help prevent fighting in the first place.

THEORETICAL ARGUMENT

The Bargaining Model of War

This project conceptualizes the effect of both environmental changes, such as changes in relative capabilities, and the design of conciliatory agreements in terms of the bargaining model of war (Fearon 1995; Powell 1996, 1999, 2002, 2004; Morrow 1989; Morgan 1994; Slantchev 2003; Wagner 2000, 2004; Werner 1999a, 1999b, 2000; Filson and Werner 2002, 2004).

The basic set-up of the bargaining model is as follows: two states, A and B are bargaining over the division of an issue. Each side prefers to obtain as much as possible: A prefers itself to get everything and B to get nothing and vice versa. If the two states end up fighting, A will obtain its preferred outcome with probability p and B will win with probability $1-p$. If A and B go to war they will have to pay costs c_A and c_B respectively. This means that A's expected utility for fighting is $p-c_A$ (i.e. its probability of winning and obtaining its ideal outcomes minus the costs of fighting) and B's expected utility is $p+c_B$. The area between $p-c_A$ and $p+c_B$ is called the bargaining range. Any point in this range is preferred by both parties to fighting.

If the status quo (SQ) lies within the bargaining range both parties are considered satisfied. It is when the SQ falls out of the bargaining range, then there is a dissatisfied party.¹ If $SQ < p-c_A$ then A is dissatisfied and if $SQ > p+c_B$ B is dissatisfied.

Intuitively, whenever a state becomes dissatisfied and prefers fighting over maintaining the SQ, conflict becomes more likely. If a state is dissatisfied, it is more likely to make a revisionist demand. This demand may then be rejected by the other side which, in turn, may lead to conflict. It is important to note, however, that in order for conflict to occur it is not enough for a state to become dissatisfied. While the dissatisfied state will try to obtain a new, more

¹ Powell shows that it is at most one state that can be dissatisfied. This follows from the assumptions that states are risk neutral or risk averse, that they agree on the distribution of power (i.e. on p) and that fighting is costly (Powell 1996, fn.26). However, if any of these assumptions is relaxed both states can be dissatisfied.

favorable settlement, conflict will be averted if the other side accepts its demand. In this case the division of the issue will be renegotiated and peace will continue on new terms. Only if the other side rejects the demand war will ensue. Under which conditions would the satisfied state reject the dissatisfied state's demands leading to costly conflict?

A central explanation of bargaining failure is uncertainty.² If both states have complete information, i.e. both states know the probability of winning (p) and their respective costs (c_A and c_B), the dissatisfied state, A, will simply make the largest demand that B will accept and they will peacefully renegotiate.³ On the other hand, if A is unsure about B's reservation point (i.e. it either does not know the value of p or of c_B) it faces the dilemma of either making a demand that is too large and would be rejected by B and therefore lead to conflict, or a demand that is too small, which would be inefficient since it leaves B with a too favorable division of the issue. This implies that when there is complete information the states will always be able to renegotiate peacefully, while if there is uncertainty it is possible that A's demand will be rejected and conflict ensues.⁴

² Another explanation for conflict invokes commitment problems (Fearon 1995, Powell 2004). This explanation asserts that states are unable to reach a settlement because neither side can trust the other to uphold a deal in the future. A scenario in which commitment problems play a role is one in which one state, which is temporarily weak, is becoming more powerful over time. The other state, i.e. the one that is temporarily stronger, has an incentive to fight the state that is experiencing rapid shifts in order to prevent it from becoming stronger. Fighting could be avoided if the state that is gaining power could buy off the temporarily strong state. However, sometimes resource constraints require the buy-off to stretch over a longer period of time. But during this phase the initially weak state is becoming increasingly strong and will likely renege on its promise. Because a temporarily weak state's commitment to buy-off the temporarily strong state is not credible, the temporarily strong state will prefer to use force. It is important to understand that what leads to commitment problems are shocks in the distribution of power that require such large amount of concessions to buy off the other side that, given resource constraints, the temporarily weak state is unable to do so in one transaction. This suggests that the shifts in the distribution of power have to be very large and fast in order for a commitment problem to develop. It seems that such significant shifts may not be very frequent in the relations between states. Thus, while commitment problems may play a role in some cases of international wars, the informational approach seems more broadly applicable.

³ It will demand $p+c_B$ because this is the point where B is indifferent between fighting and accepting the deal. Any demand that asks for a more favorable division for A will be rejected because B prefers fighting. Any smaller demand is inefficient for A— it can gain more without provoking violent resistance from B.

⁴ If uncertainty can lead to costly conflict, why do rational state leaders not simply exchange information on their military capabilities and their resolve? Fearon (1995) argues that states suffer from an incentive to misrepresent: in an effort to get as good a deal as possible they will exaggerate their military capabilities and resolve. Only costly

Changes and the Bargaining model

The preceding discussion suggests that conflict occurs when a dissatisfied state demands a greater share of the issue at stake and this demand is rejected by its opponent. Furthermore, rejection of the demand and bargaining failure are a consequence of uncertainty. Thus we can point to SQ dissatisfaction combined with uncertainty as the central factor in the occurrence of conflict. Anything that makes a state dissatisfied and introduces or exacerbates uncertainty increases the risk of violent clashes. I argue that changes in the relationship between states and in their domestic politics can do both.

States are willing to accept the SQ and remain in a peaceful equilibrium— that may or may not be supported by a formal conciliatory agreement— if no major changes occur. This is true in cases in which the states have fought a war and the peace agreement has provided a new SQ, as well as in cases in which the states have competing claims but have not made explicit demands to change the SQ. As long as no shocks occur that may transform the parameters underlying the peaceful equilibrium, neither state will become dissatisfied and no additional uncertainty will be introduced. Under these conditions conflict is unlikely.

The question then is which kinds of changes lead one side to be dissatisfied with the SQ and which kinds of changes create or exacerbate uncertainty. With respect to the first part of the question we know that side A will be dissatisfied if $SQ < p - c_A$ and B will be dissatisfied if $SQ > p + c_B$. This means that any change in the probability of winning (p) makes dissatisfaction more likely. If side A has an increased probability of winning, A might become more dissatisfied; if side B becomes more likely to win, B will potentially become dissatisfied and

signals such as troop mobilization can transmit reliable information. On the other hand, Sartori (2002) argues that even diplomacy, or cheap talk, can confer information given the states' incentives to avoid developing a reputation for bluffing. However, as Fearon and Sartori argue, both costly signals and cheap talk might actually increase the chance of conflict. Thus, uncertainty is a powerful explanation for the occurrence of conflict: unmitigated uncertainty increases the chance of conflict but the means by which uncertainty can be reduced also carry risks.

make a demand for a bigger share of the issue under dispute. This implies that anything that changes the probability of winning can create SQ dissatisfaction. While any change in the probability of winning makes it more likely that one side becomes dissatisfied and makes a demand, only a change that decreases c_A and c_B (i.e. decreases the costs of fighting) will make a state dissatisfied.

An important clarification is in order: it is not changes in the probability of winning *per se* that increase the likelihood that a state will become dissatisfied but changes *relative* to the SQ value of the probability of winning. The SQ distribution of the issue reflects particular values of p (and c_A and c_B) that characterized the opponent's probability of winning and their resolve when the SQ was first established. As long as p and c_A and c_B do not change relative to their values when the SQ was created, the parties will remain satisfied. However, if changes occur that make one side more likely to win relative to its probability of winning when the SQ was first established or decreases its costs relative to its costs when the SQ was first established, that state may become dissatisfied with the SQ and make a demand for a more favorable division of the issue.⁵

Shocks to the bargaining parameters p , c_A and c_B relative to the SQ values of these parameters tend to create an incentive to renegotiate. Sometimes shocks are intense enough to induce such dissatisfaction with the SQ that a state is willing to fight to get a better deal; other times smaller changes occur that may make a state try to renegotiate but that do not change the circumstances enough to make that state willing to fight.⁶

⁵ This suggests that what matters is not the size of changes from one year to the next, which is what Werner (1999b, 2005) and Fortna (2003, 2004) look at, but the size of the change relative to the SQ value of the parameter.

⁶ Smaller shocks might fail to make a state dissatisfied- while it may be more likely to win or more resolved its utility for maintaining the SQ still exceeds its utility for fighting. Under these conditions the state can demand a better deal and renegotiation might take place (under incomplete information). However, conflict will not occur because A is not willing to back up its demand by fighting in the case that B refuses to accept the demand.

While changes that modify the probability of winning or decrease the costs of fighting relative to the SQ values of these parameters, can make it more likely that a state will become dissatisfied and make a new demand, this by itself does not necessarily lead to conflict. Only if the other side rejects the demand for renegotiation, conflict will occur. We have seen that this can only occur when states have incomplete information about their relative military strength and costs of fighting. Unfortunately, changes in p and c_A and c_B might not only lead to SQ dissatisfaction and an incentive to renegotiate, but also introduce or exacerbate uncertainty, making conflict more likely.

It is reasonable to assume that there is always some degree of uncertainty exist in the relations between states. States usually are not perfectly aware of who will win a military confrontation and at which costs. This uncertainty is exacerbated by the occurrence of changes in the relationship between states, their domestic politics and the issue at stake. Whenever such a change occurs both parties might know that a change has occurred and they might even know the nature and extent of this change but this does not mean that they can calculate the exact impact of this change on the probability of winning or each side's costs of conflict.

By creating both SQ dissatisfaction and uncertainty, changes in the relationship between states or their domestic politics increase the chance of conflict. This leads to the following theoretical propositions:

TP1: Any change in the probability of winning (p), relative to the probability of winning at the time the SQ was formed, increases the probability of both renegotiation and conflict.

TP2: Any change that decreases a state's costs of fighting (i.e. c_A or c_B), relative to its costs of fighting when the SQ was formed, increases the likelihood of both renegotiation and conflict.

Agreement Provisions and the Bargaining Model

While environmental changes increase the likelihood of conflict, decision-makers do not simply stand by and let these changes have their detrimental effect. Rational decision-makers, foreseeing that the future may bring many changes, try to prevent such changes from resulting in the outbreak of hostilities by designing agreements that increase the chance that shocks can be absorbed peacefully.

The existence of conciliatory agreements and their specific provisions increases the probability that, given the occurrence of changes, two opposing states will be able to manage their competing claims to the issue peacefully (either by maintaining the existing agreement or by peacefully renegotiating its terms) rather than resorting to the use of force. Conciliatory agreements help make the existing peaceful equilibrium more robust to environmental shocks. Bringing together Fortna's (2003, 2004) and Werner's (1999b, 2005) seemingly conflicting arguments, I propose that conciliatory agreements matter most when changes take place and the risk of conflict is therefore heightened.⁷

Two types of mechanisms are particularly useful at preventing changes from leading to conflict: cost-increasing provisions (e.g. troop withdrawal, demilitarized zones, issue linkage) and uncertainty-reducing provisions (e.g. exchange of military information, hot line, onsite or aerial verification). Cost-increasing provisions are designed to minimize the chance that a state will become dissatisfied with the SQ. If an agreement significantly increases the costs that a state has to bear if it decides to fight, then it might prefer not to fight even if it is now more likely to win a military confrontation or has an increased resolve: too high costs might make fighting and obtaining a revision of the SQ unattractive.

⁷ Note that this has implications for my empirical tests. While Fortna and Werner examine the effect of changes and agreement provisions by adding these as separate variables to their statistical model, I propose that the proper way of testing the effect of agreements is by using an interaction term.

T3: *Given the occurrence of changes in p or a decrease in c_A or c_B , conciliatory agreements with cost-increasing provisions reduce the likelihood of conflict between states experiencing competing claims.*

The second type of provision contained in conciliatory agreements addresses the second factor that tends to increase the likelihood of violent clashes. In order for conflict to occur, a state needs not only to be dissatisfied and make a demand but that demand also needs to be rejected by its opponent. According to the bargaining model, the main reason for why demands are rejected and bargaining breaks down is incomplete information. Since uncertainty is a key factor in the occurrence of conflict, rational decision-makers often attempt to design agreements that help reduce uncertainty by providing reliable information to both sides.

TP4: *Given the occurrence of changes in p or a decrease in c_A or c_B , conciliatory agreements with uncertainty-reducing provisions reduce the likelihood of conflict between states experiencing competing claims.*

While both of these types of provisions minimize the chance of conflict, they might have slightly different effects with respect to whether peace is maintained because the original agreement is upheld or a new agreement is negotiated in the face of changes.

Cost-increasing provisions affect the size of the bargaining range. If, for example, cost-decreasing shocks occur, such as one state's transformation into an authoritarian regime, then cost-increasing provisions contained in the conciliatory agreement might weigh against these shocks. Cost-decreasing shocks will reduce the size of the bargaining range but the cost-increasing provisions contained in the agreement will ensure that the bargaining range remains larger than it would be if no agreement had been concluded. A larger bargaining range, in turn, increases the chance that the original agreement remains in the bargaining range. Similarly, if a

shock occurs that increases a state's chance of winning a military confrontation, the bargaining range will be shifted toward that state's ideal point. Agreement provisions that increase costs, however, can increase the size of the bargaining range so that even if the bargaining range shifts, the original division stays in the bargaining range. By making it more likely that the SQ remains within the bargaining range, cost-increasing provisions help maintain the SQ. Peace will continue on old terms.

TP5: Given the occurrence of changes in p or a decrease in c_A or c_B , cost-increasing provisions increase the likelihood that the SQ will be maintained and peace persists on old terms.

While cost-increasing provisions raise the likelihood that the SQ is maintained despite changes, uncertainty-reducing provisions increase the likelihood of renegotiation. Shocks to the bargaining parameters can change the location and size of the bargaining range and therefore lead to SQ dissatisfaction. If the SQ is not a viable option anymore, then a new deal needs to be located that is acceptable to both. Uncertainty-reducing provisions help the two opposing states locate a bargain that is acceptable to both sides given that changes have occurred. Thus, when there are uncertainty-reducing provisions, renegotiation is more likely to occur. Peace will continue on new terms.

TP6: Given the occurrence of changes in p or a decrease in c_A or c_B , uncertainty-reducing provisions increase the likelihood of renegotiation, with peace continuing on new terms.

RESEARCH DESIGN

Case Selection

In order to examine my propositions concerning the effects of changes and conciliatory agreement provisions on the durability of peace and the occurrence of renegotiation, I use Huth

and Allee's (2002) data on world-wide territorial claims cases between 1919 and 1995.⁸ While the theoretical argument applies to any type of claim, the empirical part of this project focuses on territorial claims. The extant literature on territory and conflict reveals a widespread consensus that territorial issues are particularly conflict-prone (Gochman and Leng 1983, Holsti 1991, Vasquez 1993, Hensel 1996, and Senese 1996, Brecher and Wilkenfeld 1997, Huth 2000). The fact that territorial disputes are more likely to lead to violent conflict than other claims implies that this project examines particularly hard cases for international cooperation.

Before Huth and Allee's data can be used to evaluate the theoretical propositions, a number of important changes need to be carried out. In Huth and Allee's data, the same pair of states can be involved in multiple cases of territorial claims. There are three reasons for this. First, if both states are challengers this is captured by two separate cases in Huth and Allee's data. Second, if there is a claim and the two states agree on a settlement, Huth and Allee code the claim as terminating. If the claim resurfaces it is counted as a different claim case. Third, states might have multiple territorial claims concerning different pieces of territory.

I aggregate all claims between the same pair of states into one claim. First, since I am not interested in the question of who challenges, I eliminate the duplicate cases. Second, I consider both the initial challenge and the resurfacing of the claim part of the same case. I am interested in examining whether the agreements that states conclude are successful at averting conflict. A resurfacing of the claim helps determine whether the initial claim was successfully managed or not. Third, I combine all cases of territorial claims between the same pair of states into one case. Rather than conceptualizing a number of bargaining processes concerning different pieces of

⁸ Huth and Allee define territorial claims as "disagreements between governments over (a) the location of existing international boundaries in particular sectors or along the length of their common border, (b) the refusal of one government to recognize another's claim of sovereign rights over islands, claiming sovereignty for itself instead, or (c) the refusal of one government to recognize another state as a political-territorial unit, laying claim to the territory of that state" (p.300).

territory, the bargaining process is conceptualized as applying to the entirety of the territory that can be divided between the claimants. When states find themselves in a SQ this is a ‘general’ SQ. Keeping the claims separate implies that there can be a SQ for one claim and not one for another, which seems inappropriate given the theoretical argument.⁹

In some of Huth and Allee’s claims there are multiple states on one or both sides. Most of these cases involve colonial powers (e.g. Saudi Arabia-Britain/Kuwait). Such cases are split up into two separate claims: first the claim between the colonial power (i.e. Britain) and its adversary (i.e. Saudi Arabia) which is censored when the colony (i.e. Kuwait) becomes independent, and second the claim between the former colony and the original adversary that begins after the colony gains independence.¹⁰

The final change is the result of needing to define empirically what the SQ point is. This is crucial for two reasons. First, I need to determine the starting point for my observations. Second, I need to identify the point relative to which changes are measured. I determine as the SQ point the division of the issue that results from the first interaction of the competing states after the claim starts. Say the claim starts in 1951 and in 1953, after either talks or a militarized dispute, the two states arrive at an agreement on the division of the issue. This agreement is the new SQ (which can be the same as the SQ in the beginning of the claim if the states simply reaffirmed the division already existing in 1951).¹¹ Thus I code 1953 as the SQ point.

⁹ Furthermore, if changes occur and one side becomes dissatisfied there is no reason to expect that it will demand more of territory A. It might as well demand more of territory B or claim a new piece of territory, in which case my change hypotheses might not find any support. However, this is not the case because changes do not lead states to potentially become dissatisfied and demand more but because changes do not necessarily lead states to demand more of all the territories disputed by them.

¹⁰ I also eliminate two cases that involve countries that were not independent according to the Correlates of War date (Correlates of War project, 2005). These cases are Hijaz-Najd and North Yemen-Asir.

¹¹ I examined for all of Huth and Allee’s cases the duration of time that passes between the beginning of the competing claim and the first talk or MID. If many years pass between the beginning of the competing claim and the occurrence of talks or a MID then it may be inappropriate to determine the result of the first talk or MID as the SQ. I

This operationalization of the SQ leads to the exclusion of a few claims in which either the states never engaged in talks or a militarized dispute or in which talks and disputes occurred every year after Huth and Allee's beginning of the claim.¹²

After these changes to Huth and Allee's data I obtain 125 territorial claims in the three regions for which all agreements have been collected: 42 claims in the Middle East, 41 in the Americas, and 42 in Europe. Using these claims, I then create a data set in which every observation is a territorial-claim-SQ-year. For each territorial claim, I determine the (first) SQ that the two competing states reach and include as an observation every year following this initial year until either conflict or renegotiation occurs or if neither takes place, the observation is coded as right-censored in 1995.

Consider for example the following case(s): a territorial claim starts in 1951, in 1953 the two states make concessions after talks, and in 1975 they fight. For this case, I include 1953 and every year following 1953 until 1975. There are 22 rows in the data for this territorial claim. In 1975, after the conflict, a new case starts and if there is no militarized conflict or renegotiation until the cut-off point in 1995 this case is coded as right-censored.¹³ This means that one territorial claim may yield one or more cases: whenever the states engage in a militarized conflict or renegotiate the divisions of the issue a new case starts. Based on this operationalization, I obtain 245 cases (85 in the Middle East, 85 in the Americas, and 75 in Europe).

found that in more than 85 percent of the cases a talk or MID occurs within five years of the start of the competing claim.

¹² This occurred in 22 cases.

¹³ The new case usually starts right after the MID. So if there is a MID until e.g. September 5, 1975, the new case starts on September 6, 1975. The exception are cases in which states lost their independence for a few years after the MID (e.g. World War II Europe). These cases start as soon as both states regain independence.

Independent Variables

Three sets of independent variables are included in my analysis: change variables, agreement provision variables, and interactions between the two. The theoretical section argues that any change in the probability of winning relative to the SQ value of p increases the likelihood of both renegotiation and conflict. Similarly a decrease in c_A and/or c_B , i.e. a decrease in the costs of fighting, increases the likelihood of both renegotiation and conflict. Empirically, what kinds of events constitute shocks to p and c_A and/or c_B ?

The following changes constitute shocks to p : changes in relative power and internal violence. Relative power is a function of both military and economic strength. Military strength directly affects a state's ability to prevail in a military confrontation, while economic strength has an indirect effect on a state's chance of winning a military confrontation. An economically powerful state has latent resources that can be mobilized during a military confrontation, making the state ultimately more likely to win. Thus, any change in economic or military strength relative to the SQ may constitute a shock to p .

Relative power is operationalized using the COW composite index of national capability score (CINC score) that includes information on the demographic, industrial and military power of each state (Singer 1987). In building my measure of changes in relative capabilities, I rely on the measure of percentage change in the opponents' relative capabilities suggested by Werner (1999).¹⁴

Note that Werner's measure needs to be further adjusted according to my theoretical argument. While Werner expects changes in relative capabilities from one year to the next to increase the likelihood of conflict, I expect that changes in relative capabilities compared to the

¹⁴ The formula that corresponds to this measure is $|(P_{i,t} / P_{j,t}) - (P_{i,t-1} / P_{j,t-1})| / (P_{i,t-1} / P_{j,t-1})$. See Werner 1999, p.923, fn.7.

SQ distribution of capabilities increase the likelihood of conflict. For this reason I measure changes in relative power as the percentage change in the belligerent's relative power *compared to the SQ* and adjust Werner's formula in the following way: $|(P_{i,t} / P_{j,t}) - (P_{i,sq} / P_{j,sq})| / (P_{i,sq} / P_{j,sq})$.

The second type of event that can affect a state's performance in a military confrontation are internal disasters such as civil wars. States that experience civil wars need to direct their resources towards a domestic adversary and may be less capable of prevailing against an external enemy. For example, the 1971-war between India and Pakistan can be seen as a direct result of the revolt and secessions of East Pakistan. Pakistan's domestic chaos created a strategic opportunity for India to make territorial gains (Werner and Yuen 2005).

Information regarding the occurrence of civil wars is available from the Correlates of War (COW) project (Sarkees 2000). Based on the COW intra-state conflict data version 3.0, I create a variable that compares the domestic situation in any given year to the domestic situation in place when the SQ was first established. If no civil war was ongoing when the SQ was formed then the occurrence of a civil war may weaken the state that is experiencing the domestic conflict and increase the other state's probability of winning. If the reverse is true and a civil war was ongoing when the SQ was formed, then the end of the civil war strengthens the state that was experiencing the civil war. Given that now its resources need not be diverted towards the domestic conflict that state will be more likely to win a military confrontation with its opponent than it was when the SQ was introduced, potentially making it dissatisfied with the SQ.

In order to capture these dynamics, I create a variable that is coded 1 in a given year if either of the states is experiencing a civil war but did not experience a civil war when the SQ was introduced or when a state is not anymore experiencing a civil war but did when the SQ was first

introduced. Conversely, this variable is coded 0 if neither state experiences a civil war and did not experience one when the SQ was formed or if one of the states is experiencing a civil war and also experienced a civil war when the SQ was established.¹⁵

Since both changes in relative capabilities from the SQ and the occurrence or termination of civil wars are hypothesized to affect the probability of winning a military conflict, i.e. p , I combine these two variables into a single measure of changes in the probability of winning. This new measure is a dummy variable that is coded 1 if either there have been changes in relative capabilities of 30 percent or more since the status quo was established or if the civil war variable is coded 1 in a given year.¹⁶

With respect to the costs of fighting, the international relations literature has identified regime type as an important factor. In democracies, leaders experience higher costs for fighting wars, which makes them less likely to prefer fighting to accepting the SQ. On the other hand, authoritarian leaders experience fewer costs and are thus more likely to fight to obtain a more favorable division of the issue (Morgan and Campbell 1991; Bueno de Mesquita et al 2003). Thus, if there is a regime change in a country after the SQ is established and the country turns autocratic, its costs of fighting are reduced making it more willing to go to war.

In order to determine whether such a regime change occurs I use the democracy scores provided by the POLITY IV data (Marshall and Jaggers 2002).¹⁷ Any year in which a state had a

¹⁵ If both states experienced a civil war when the SQ was established but the civil war stops in both countries then those years during which the civil war stops in both countries and internal peace is ongoing are coded 0 – neither side should now be more likely to win. Similarly, if neither side had an ongoing civil war when the SQ was established and a civil war erupted in both countries then the years in which both countries experience the civil war are coded as 0.

¹⁶ I examined other thresholds including changes of 10 percent, 50 percent, 60 percent and 100 percent. The changes in the probability winning variable is closest to statistical significance with the 30 percent threshold but becomes less significant at the 50 percent, 60 percent, and 100 percent threshold. Overall, the findings for this measure are not robust.

¹⁷ Unfortunately, a significant number of observations have missing values for their Polity4 democracy score. This is particularly problematic if the SQ year is missing: every following year is missing as well. Due to missing Polity4

democracy score of 6 and higher is coded as a year in which the state was a democracy; any year in which the state had a score of 5 and lower is coded as a year in which the state was an autocracy. I then create a dummy variable that is coded 1 if either state started out the claim being a democracy but then experienced a regime change and turned autocratic.

The second set of independent variables of interest are the agreement provision variables, i.e. cost-increasing and uncertainty-reducing provisions. In order to code these variables, I collect all conciliatory agreements between the claimants. Conciliatory agreements are defined as ‘written agreements signed by official representatives of both states that help manage or resolve existing competing claims between the signatories’.¹⁸

Using this definition, I compile a list of candidate agreements based on agreements mentioned in Huth and Allee’s (2002) and Klein, Goertz and Diehl’s (2006) case summaries, Biger’s (1995) description of boundaries, Day’s (1987) and Butterworth’s (1976) synopses of border and territorial disputes as well as the material provided by the *International Boundary Studies* project. I also search three main document sources for the time between 1919 and 1995 (*League of Nations Treaty Series*, *United Nations Treaty Series*, and *British Foreign and State Papers*) for all relevant agreements. I have been able to obtain a significant portion of the agreements on the candidate list using only these document collections. For those agreements that are missing I turn to secondary sources that discuss the relations between the claimants

data, 48 cases would drop out. In order to minimize this problem I fill in information on whether a state is a democracy or not in the SQ year of the claim using three techniques. First, using Polity4d, I identify cases in which the SQ was formed during a part of the year in which the democracy score is not missing and code these cases accordingly. Second, I use the Freedom House data to code cases that involve Belize or Surinam. Third, cases that were coded as missing due to foreign occupation (-66) or collapse of political authority (-77) are coded as autocracy years. Fourth, for the remaining cases, I identified whether a country is a democracy or not using historical sources. Since coding based on historical sources is subjective I also run the analysis with a data set in which I do not fill in the SQ years based on historical sources. The results are consistent.

¹⁸ In order for an agreement to qualify as a conciliatory agreement it needs to mention differences between the claimants in either a specific or abstract fashion. This means that not only agreements that mention explicitly the issue at stake but also agreements that refer more generally to differences that the states seek to resolve are included in the data set.

and/or the claim in detail. While I have been able to locate and obtain a copy of most agreements (at least for Latin America, Europe, and Middle East), a few agreements unfortunately remain elusive.¹⁹

For all conciliatory agreements, I code which cost-increasing and uncertainty-reducing provisions they contain. Cost-increasing provisions include troop withdrawal, demilitarized zones, third-party guarantees, peace-keeping, arbitration provisions, and provisions for border cooperation (e.g. hydroelectric plants). Troop withdrawal and demilitarized zones impose physical constraints on the two sides: the states have to move their troops back to the combat line. Third-party guarantees may also raise the physical costs of fighting: the aggressor will not only have to fight its opponent's army but potentially also the forces of a guarantee power. Peacekeeping and arbitration create cost through a different mechanism. Peacekeepers can only be deployed with the consent of both sides and such consent signals the determination to foster peace. If suddenly one side attacks its opponent, the international reaction might be more severe than if no peacekeepers were deployed. Similarly, if states agree to submit a dispute to arbitration or potentially even have accepted the award but then go back on this, they may suffer reputation costs. The final cost-increasing provision is based on the notion of issue linkage: if states cooperate on a variety of issues conflict is more costly because they are risking losing their gains from this cooperation.

Uncertainty-reducing provisions comprise exchange of information on maneuvers, troop movements and troop strength, regular consultations between military leaders or the establishment of a "hotline", surveillance by the claimants themselves, and monitoring by third parties. Exchange of information on maneuvers etc. and regular meetings rely on the states exchanging information about troop strength and resolve, while surveillance provisions allow

¹⁹ There are about 44 agreements may contain relevant provisions that I have been unable to find so far.

each side to check up on the other and monitoring by observers allows third parties to check up on one or both claimants. Appendix 1 provides examples for what kinds of provisions are coded as cost-increasing or uncertainty-reducing.

Based on these provision variables I code two summary measures, one for cost-increasing provisions and one for uncertainty-reducing provisions. The first measure is a dummy variable that is coded 1 if the states had at least one cost-increasing measure in place between them in a given year. The second dummy variable is coded 1 if the two states had at least one uncertainty-reducing provision in place in a given year.²⁰

Finally, since a central argument of this paper is that it is *given changes* that agreement provisions should matter most, I create interaction terms between change and agreement provision variables. First I create a variable that identifies whether there has been any change during a given year. This variable is coded 1 if either the change in relative capabilities variable is coded 1, the civil war variable is coded 1, or the regime change variable is coded 1. I then multiply this variable with the dummy that indicates whether any cost-increasing provisions were in place and I also multiply it with the dummy that indicates whether any uncertainty-reducing provisions were in place.

Dependent Variable

The dependent variable is the duration of time until either conflict occurrence or renegotiation. In order to code these variables I need information on both the occurrence of conflict and renegotiation between the two competing states.

I code a conflict as occurring between a pair of states if they experience a military interstate dispute (MID) that involves the use of force (i.e. level 4 and higher) and in which the

²⁰ Of the 245 cases, 98 have neither cost-increasing nor uncertainty-reducing provisions in place, 45 cases have only cost-increasing provisions, 48 have only uncertainty-reducing, and 54 have both. I also create a count variable of the agreement provisions. The results are consistent.

motivation of at least one of the two states is territory. This means that both war and the use of force short of war are coded as failures of peace/the SQ. Both involve costs in terms of material and lives and thus fulfill the basic assumption of the bargaining model, that conflict is costly.

In order to identify cases of the use of force between claimants I use the dyadic MID version 2.0 (DYDMID2.0) compiled by Maoz (2005). Using the dyadic version of the data, I try to ensure that, in the case of a multilateral dispute, the two states did actually use force against each other and that territory was the issue at stake between them. There are a total of 103 MIDs in the data. Some dyads experience no MID at all, while others experience multiple MIDs.

The second event of theoretical interest is the incidence of renegotiation between the opponents. Renegotiations can be understood as any peaceful and mutually recognized change in the territorial SQ between the claimants.²¹ In order to determine when such renegotiations occur I use Tir et al's (1998) data on changes of the territorial SQ. Whenever a territorial change between the claimants occurs and if this change is peaceful and if conquest is not the procedure of transfer according to Tir et al. I code this as a renegotiation. There are a total of 28 peaceful renegotiations in the three regions included in the analysis here.

Observations can end in three ways: conflict, renegotiation, or censoring. So far I have discussed the two outcomes of theoretical interest. The third possibility, censoring, occurs for the following reasons. An observation is censored at the end of the observation period (i.e. 1995) if the claimants experience neither conflict nor renegotiation. Cases are coded as censored if they become obsolete because the two claimants unify (e.g. East and West Germany) or if one of the claimants disintegrates (e.g. Czechoslovakia). Cases are also coded as censored if the piece of

²¹ Note that for renegotiation to occur the division of the issue under dispute must be modified. A change of conflict management is not considered renegotiation.

territory that is at the center of the claim becomes independent and does not continue to pursue the claim anymore (e.g. the claim between Brazil and Britain concerning Guyana).

Statistical Method

As discussed above, the dependent variable is the duration of the SQ until either conflict or renegotiation. Whenever a spell (here: SQ acceptance) may fail in more than one way and there is reason to believe that the covariates have a different effect on the likelihood of each outcome, competing risks analysis is an appropriate statistical technique (Box-Steffensmeier and Jones 2004). I assume that at any time the SQ is at risk of being overturned by conflict or by renegotiation and that, conditional on the independent variables, the hazards of the risks are independent. This allows me to estimate separate duration models for renegotiation and for conflict, treating the termination due to the respectively other risk as censored.

There are a variety of parametric and non-parametric duration models that differ depending on the assumption one makes about the hazard rate, i.e. instantaneous rate of failure at time t conditional on survival until time t . For this analysis, I use the Cox proportional hazards model.²² The advantage of the Cox model is that it avoids making restrictive assumptions about the hazard rate that may not be met and may result in misleading inferences concerning the effect of the covariates on duration time (Box-Steffensmeier and Jones 2004). Instead of positing a constant or monotonically increasing or decreasing hazard rate, the Cox leaves the form of the baseline hazard rate unspecified.²³

²² Continuous time models, including the Cox model, generally assume that there are no ties (i.e. coterminous events). However, the Cox model, unlike parametric models, can be adapted to handle tied data (Box-Steffensmeier and Jones 2004, p.53f.). I use the Efron method for most analysis. Since my data contains many ties, I also estimate the statistical models using the exact discrete method, which is preferable but also more computationally demanding. The results are consistent.

²³ While the Cox model does not make any restrictive assumptions about the shape of the hazard, it does assume that the effect of each covariate on the hazard is proportional over time. Box-Steffensmeier and Zorn (2001) and Box-Steffensmeier, Reiter and Zorn (2003) warn that a violation of the proportional hazard assumption may lead to biased estimates, incorrect standard errors, and misleading substantive interpretations. Because of the consequences

Interpretation of the basic Cox model is straightforward. Since coefficients are parameterized in terms of the hazard rate, a positive coefficient suggests that the hazard rate is increasing, i.e. that higher values of the covariate lead to an increased risk of experiencing the event of interest. Conversely, negative coefficients indicate that the hazard rate is decreasing, i.e. that higher values of the covariate reduce the risk of experiencing the event.

Given the nature of the independent variables, in particular the change variables, I need to complicate the Cox model by including time-varying covariates (TVCs). Given data availability the TVCs are measured annually. Time-varying covariates can be interpreted as the change in the log-hazard ratio for observations that experience a unit change in the value of the TVC versus observations that experience no such change in the value of the TVC at time t . The estimated covariate parameter reveals by how much the risk of an event increases or decreases given the change in the value of the covariate (Box-Steffensmeier and Jones 2004, p.104ff.).

A further complication arises due to the nature of the data: there is likely to be some unobserved heterogeneity in the data. Unobserved heterogeneity occurs if, despite holding all independent variables constant, some observations are more failure-prone than others. The presence of heterogeneity can lead to inconsistent parameter estimates, wrong standard errors, as well as misleading estimates of duration dependence (Box-Steffensmeier and Jones 2004).

Box-Steffensmeier and Jones point out that this is a typical complication in studies of militarized disputes where some dyads never experience conflict (Box-Steffensmeier and Jones 2004, p.148). Thus, I expect that heterogeneity may be present in the analysis undertaken here. In fact, there are two additional reasons to suspect heterogeneity in the data analyzed here. First, the

from violation of the assumption, they strongly recommend that it be tested and, if evidence of a non-proportional effect of a covariate found, that this be corrected for in one's model. I test for the possibility of nonproportionality using the Grambsch and Therneau global proportional hazards test statistics and Harrel's rho, as suggested by Box-Steffensmeier and Jones (2004, p.135). I find that once the heterogeneity of the observations is taken into account, non-proportionality is not anymore a problem.

data include cases of claimants that have experienced different hostility levels in the past. There are claimants that have fought full-blown interstate wars, cases that have had militarized disputes below the level of war, and cases in which the states have expressed their claims verbally but not used any violence against each other.

Although the theoretical argument assumes that the same mechanism of conflict and renegotiation applies to all of these cases, there may be some variation in conflict proneness among them. Holding the type and magnitude of changes constant, the SQ may be more likely to be overthrown between states that have fought wars before than between states that have had relatively peaceful relations. The reason is that states that have fought a war over their borders previously probably value the disputed territory more than other states. In terms of the bargaining model, this implies that the bargaining range may be smaller (given lower c_A and c_B), which in turn means that if even a smaller change occurs one of the states can become dissatisfied and willing to fight.

A second, but related, concern is the fact that some of the cases experience multiple militarized disputes. Of the 125 claim dyads included in this analysis, 20 experience more than one MID, while only four dyads renegotiate more than once and none renegotiate more than twice. Like cases that involve states that have previously fought wars, cases with multiple MIDs may be characterized by greater hostility levels and are therefore potentially more failure-prone, especially with respect to experiencing conflict. Repeated events may thus reflect heterogeneity in the data: some dyads are more failure prone than others and the repeated failures in these dyads are not independent of one another. Standard duration analysis will falsely treat the events as independent and therefore lead to an overestimation of the amount of information these repeated events provide: the standard errors will be smaller than they should be. Taking the

heterogeneity of different observations into account, helps address the problem of falsely deflated standard errors.

In order to address the problem of heterogeneity I estimate a “frailty model”. The basic idea underlying the frailty model is to introduce into the hazard rate an additional random parameter that accounts for random frailties. These frailties may be individual-specific or group specific. The frailties here are group specific: all cases associated with a dyad that has previously fought a war or experienced multiple MIDs. Thus I estimate a Cox model with a frailty parameter shared at the dyadic level. The model assumes that frailties are distributed according to the Gamma distribution (Box-Steffensmeier and Jones 2004, p.142-148).²⁴ Estimation of this model helps identify whether heterogeneity is indeed present and helps account for the effect of this heterogeneity on the parameter estimates and standard errors.

DATA ANALYSIS

The analysis proceeds in two steps. While my theoretical argument clearly suggests that agreement provision variables should matter most when changes have occurred, and thus calls for the use of interaction terms, I first run an analysis in which agreement provision variables and changes are included separately. The reason for this is two-fold. First, one way to evaluate the claim that agreement provisions should matter most when changes occur and thus conflict is most likely, is to compare the fit of a model that includes the agreement provision variables next to change variables to a model that includes interaction terms of agreement and change variables. Second, while I attempt to capture a number of possible changes to the parameters underlying the

²⁴ It is possible to assume that frailties are distributed according to any continuous distribution with positive numbers, a unit mean and a finite variance. Other possibilities than the Gamma distribution that have been used are the inverse Gaussian and log-normal. However, the Gamma has been the most readily adopted (Box-Steffensmeier and Jones 2004, p.144).

peaceful equilibrium, there are some changes that naturally occur but are not explicitly measured here. For example, diseases and natural disaster may occur that affect a state's ability to win a military confrontation. Since shocks to the parameters underlying the bargaining model may take place that are not included in my empirical model, it makes sense to examine the impact of conciliatory agreement provisions on the duration of the SQ independent of measured changes.

Given the expectation of heterogeneity among cases, the effect of changes in the probability of winning, decreases in the costs of fighting, cost-increasing and uncertainty-reducing provisions on the hazard of a militarized dispute and renegotiation are examined in a Cox proportional hazards shared frailty model.

Table 1 here

Three sets of results are of interest: the findings concerning heterogeneity, the findings on the change variables, and the findings on the agreements provision variables. With respect to the first set of findings, the results show that the variance of the random effect for the occurrence of conflict is not zero and statistically significant. Thus, the shared frailty model confirms the expectation that some cases are more likely to experience conflict than others, even accounting for the independent variables. The Cox frailty model allows investigation of whether it is the case that previous warfare accounts for the heterogeneity in conflict proneness. I re-estimate the statistical model presented in Table 1 and obtain an estimate of each dyad's frailty. I then check whether dyads that have previously fought wars over territory are more frail than others. Almost two thirds of the cases that had previously fought are prone to fail through another conflict but only about a third of those that did not fight a war previously are marked as more conflict prone.

Table 2 here

Unlike for the hazard of conflict, there appears to be no heterogeneity with respect to the risk of experiencing renegotiation. The random effect is not statistically different from zero. This is not surprising since the key factor explaining heterogeneity in conflict-proneness appears to be previous warfare. Cases that have previously fought wars and therefore endure high levels of hostility should be more likely to fight again but not necessarily more likely to renegotiate. The findings concerning heterogeneity suggest that a shared frailty model is appropriate for the analysis of conflict occurrence between competing states but not necessary for the analysis of renegotiation.

With respect to change variables, the findings are mixed. On first glance, the results for the incidence of militarized disputes indicate that changes in the probability of winning and decreases in the costs of fighting have their expected effect: they increase the hazard of conflict by 56% and 270% respectively. It is important to point out, however, that while the results for decreases in the costs of fighting are robust and strong, this is not true for changes in the probability of winning. The results for this variable are driven by its civil war component. Civil wars appear to consistently raise the risk of conflict, while changes in relative capabilities have no effect in analyses in which these two variables are included separately.²⁵ Furthermore, it turns out that neither changes in the probability of winning nor decreases in the costs of fighting appear to have any effect on the occurrence of renegotiation between the two states.

²⁵ The latter result is surprising given Werner (1998) and Werner and Yuen's (2005) finding that changes in relative capabilities are one of the strongest predictors of conflict recurrence. It is important to note that Werner's measure differs from the one employed in this study. Werner looks at changes in relative capabilities from year to year, while I look at changes in relative capabilities from the SQ. One possible reason for why my variable does not receive any empirical support is that there is a positive correlation between duration time and changes: the more time passes by, the more the states' relative capabilities will have changed from the SQ. Since a significant proportion of cases never experiences conflict, it appears as if large changes are associated with peace rather than conflict. However, it may still be the case that, in any given year, a larger change is more likely to lead to conflict than a smaller change. The latter is the effect the theory predicts but this effect may be confounded by the positive relationship between time and changes. Werner's measure, on the other hand, is history-independent and therefore does not suffer from this problem.

More interesting are the findings concerning the effect of agreement provision. As expected, cost-increasing provisions significantly reduce the hazard of conflict (by 61%) and uncertainty-reducing provisions increase the hazard of renegotiation (by 181%). These findings are fully commensurate with the theoretical argument. Interestingly, however, uncertainty-reducing provisions do not seem to reduce the hazard of fighting. While the variable has a negative sign, it is far from conventional levels of statistical significance. This finding is theoretically puzzling: the argument suggests that anything that makes renegotiation more likely should make conflict less likely but this is not supported by the empirical evidence concerning the effect of uncertainty-reducing provisions.

One possible explanation for this finding lies in the realist endogeneity critique: those states that are least conflict-prone are the ones that are most likely to renegotiate and most likely to agree on uncertainty-reducing provisions. In other words, the fact that these states do not have very conflictual relations explains both the outcome, i.e. renegotiation, and the fact that uncertainty-reducing provisions are in place.

However, a closer look at the raw data reveals that it is not the case that only states that are less conflict-prone renegotiate. If conflict-proneness is operationalized in terms of previous wars, it turns out that one quarter of the cases (7 out of 28) that renegotiate peacefully are conflict prone but only one-fifth (20 out of 103) of the cases that fight another MID are conflict-prone. It is true that a larger proportion of the cases that renegotiate have uncertainty-reducing provisions in place than cases that experience conflict (46 percent and compared to 23 percent). However, among the cases that renegotiate, it is the more conflict-prone cases that tend to have uncertainty-reducing provisions rather than the less conflict-prone cases: 71 percent (5 out of 7)

of the conflict prone cases that renegotiate have concluded agreements with uncertainty-reducing provisions, as compared to 38 percent (8 out of 21) of the less conflict-prone cases.

Furthermore, what is striking is that conflict-prone claimants that renegotiate tend to have different uncertainty-reducing provisions in place than less conflict-prone cases. All conflict-prone states that renegotiate consistently have provisions that call for military inspections either by the other side or by a third party and none of these cases become involved in another MID after they renegotiate. On the other hand, these provisions are quite rare among cases that end up fighting, both conflict-prone and less conflict-prone cases. Instead, cases that end up experiencing a MID tend to have uncertainty-reducing provisions that call for the exchange of information between the two sides. This suggests that provisions that call for inspections by the other side or third-party monitoring may be more successful at transmitting information and thus preventing conflict than voluntary exchanges of information.²⁶

The second step of the empirical analysis is to test the argument that is *given* changes that agreement provisions should matter most. The appropriate way of testing this argument is by including interaction terms between agreement provisions and change variables in the statistical model.²⁷

Table 3 here

Table 3 reveals three interesting findings. First, the interaction terms between changes and agreement provision variables are consistently not significant. Second, the change variable by itself is positive and statistically significant, indicating that when the provision variables are

²⁶ This finding supports Fearon's (1995) argument that, because states face an incentive to misrepresent their military capabilities and resolve to get a better deal, information conveyed by diplomacy is not necessarily credible. On the other hand, if states can themselves inspect their opponent's military bases or they can get information from a third party, this information overcomes the incentive to misrepresent problem and thus actually does help reduce uncertainty.

²⁷ Given the previous finding that the conflict model suffers from heterogeneity but the renegotiation model does not, I use a shared frailty model for the conflict analysis and a standard Cox model for the renegotiation analysis.

set to 0, changes in the probability of winning or decreases in the costs of fighting do raise the hazard of conflict. Third, it appears that if the change variable is set to 0, cost-increasing provisions do reduce the hazard of violent conflict between the claimants.

Of these various results, the only result that conforms to the theoretical argument is the finding concerning the effect of changes. The theoretical argument would predict that when no cost-increasing or uncertainty-reducing provisions are in place, changes should indeed lead to conflict. Conversely, the theoretical argument proposes that when states do have conciliatory agreements with cost-increasing and/or uncertainty-reducing provisions, changes should be less likely to lead to conflict. In fact, it is when changes occur that we should see the effect of these provisions. Paradoxically, what the results reveal is that, when changes take place, agreement provisions do not seem to have any effect on either the hazard of conflict or renegotiation: the interaction terms are not significant. Instead, cost-increasing provisions appear to affect the hazard of conflict (by 59%) when *no* changes occur.²⁸

One intuitive explanation for these findings lies in the rather weak operationalization of the concepts of changes in the probability of winning and decreases in the costs of fighting. Changes in the probability of winning are measured by changes in relative capabilities from the SQ and by the occurrence or termination of civil war. The first measure, i.e. changes in relative capabilities from the SQ, is flawed²⁹ and the second measure gets only at very large shocks in the probability of winning. Civil wars are important events that significantly affect a state's ability to direct resources against an outside enemy. Like civil wars, regime transitions also signify high intensity events with a potentially very large effect on the costs of fighting. Large shocks will

²⁸ The coefficient of uncertainty-reducing provisions is not statistically significant for the occurrence of renegotiation. Part of the reason may be the strain the interaction term model puts on the data: there are only very few instances of renegotiation (27!).

²⁹ See fn. 25.

lead to a significant shift in the location of the bargaining range (for changes in the probability of winning induced by the occurrence or termination of civil war) or contraction of the bargaining range (for decreases in the costs of fighting induced by regime transition). Under these conditions, even if cost-increasing provisions enlarge the range of acceptable outcomes relative to what the bargaining range would be without cost-increasing provisions, the changes are still likely to make one of the claimants dissatisfied and they also exacerbate uncertainty between the two sides. In other words, the changes are simply too large for cost-increasing provisions to have their effect.

While cost-increasing and uncertainty-reducing provisions appear not to help when large changes occur, they may be successful for smaller or mid-level changes that have the potential to threaten peace. There are plenty of changes that occur between or within the states, such as swings in public opinion, leadership changes, changes in alliance patterns, and discovery of natural resources in the disputed area, that are not explicitly measured here but that may lead to conflict or renegotiation. This might help explain the finding that cost-increasing provisions reduce the hazard of conflict when the change variable is coded 0. The presence of cost-increasing provisions does not help prevent conflict when large changes occur, but they do prevent that smaller changes, that are not explicitly included in the statistical model, lead to conflict.

CONCLUSION

States that experience disagreements, such as competing territorial claims, often sign conciliatory agreements in order to help them manage their differences peacefully. Leaders anticipate that even if they have been able to agree on a particular SQ environmental shocks may occur that could lead to the breakdown of the peaceful equilibrium. Based on the logic of the

bargaining model of conflict, events that change the probability of winning (i.e. p) or that decrease the costs of fighting (i.e. decrease c) relative to the value of these parameters when the SQ was first formed are particularly dangerous.

The bargaining model not only allows identification of which sorts of changes may lead to the breakdown of peace between states with competing claims but it also points to the kinds of provisions of conciliatory agreements that can help prevent such a breakdown. It suggests that two types of provisions should be particularly successful at ensuring a lasting peace between states: cost-increasing provisions and uncertainty-reducing provisions. While both of these provisions should reduce the likelihood of conflict between states with competing claims, the mechanisms by which they work are slightly different. Cost-increasing provisions should increase the chance that, in the face of changes, the states will maintain the SQ and uncertainty-reducing provisions should increase the chance that, in the face of changes, the states will peacefully renegotiate.

In order to evaluate the theoretical propositions about the effect of changes and agreement provisions I start with a list of world-wide territorial claims cases between 1919-1995, provided by Huth and Allee (2002). I collect and code all conciliatory agreements between the claim dyads. So far, I have been able to complete coding for three regions of the world (Middle East, the Americas, and Europe) and the preliminary findings I report in this paper are based on cases drawn from these three regions.

At this point, the empirical support for the theoretical argument is mixed. With respect to the effect of different types of changes, I find that decreases in the costs of fighting, which are operationalized as transitions from democracy to autocracy, have the expected effect with respect to the occurrence of MIDs: they do indeed increase the hazard of fighting between the claimants.

The results for changes in the probability of winning, on the other hand, are weaker. As expected, I find that cases in which either of the states suddenly experiences a civil war or experienced a civil war when the SQ was formed but the civil war ends face an increased hazard of fighting. On the other hand, the second component of changes in the probability of winning, i.e. changes in the relative capabilities of the states, tends not to be significant in the analysis and produces inconsistent results. Furthermore, it also appears that the various kinds of changes are not very good at explaining renegotiation between states.

The results for agreement provisions are also mixed. I find support for the notion that cost-increasing provisions reduce the hazard of conflict and that uncertainty-reducing provisions increase the hazard that the states will renegotiate peacefully. The latter finding is particularly strong if one takes into account the low number of renegotiations currently in the data (27!). However, contrary to the theoretical argument, uncertainty-reducing provisions do not reduce the hazard of conflict and neither cost-increasing provisions nor uncertainty-provisions seem to matter more when changes have occurred. Instead, the results indicate that it is when no changes take place that cost-increasing provisions decrease the hazard of conflict and uncertainty-reducing provisions increase the hazard of renegotiation.

While there are a number of explanations for the various unexpected findings, the fact that the empirical support is mixed and some very important theoretical propositions have not been born out by the evidence, also points to the possibility that the theoretical argument is false. Changes and agreement provisions may simply not work in the ways proposed in this paper.

However, before the theoretical argument should be considered falsified, more empirical testing needs to be undertaken. One large problem underlying the entire data analysis is the relatively small number of cases, as well as militarized disputes and renegotiations. The data are

particularly sparse with respect to renegotiations: there are only 27 incidents of peaceful renegotiation. The collection of conciliatory agreements for the two remaining regions, Asia and Africa, will increase the number of territorial claim cases, militarized disputes, and renegotiations and thus allow for more reliable results. Given data limitations, one can say that the jury is still out on whether changes and agreement provisions work the way it is proposed here. Further testing is required before the findings can be considered conclusive.

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APPENDIX 1

Examples of Cost-increasing and Uncertainty-reducing provisions

A. Examples of Cost-increasing provisions:

- *Troop withdrawal*: “withdrawing the forces of the two countries from the positions they currently occupy” (Chad-Libya 1989)
- *Demilitarized zone*: “they mutually undertake not to construct any fortified building within a distance of 5 kilom. On either side of the frontier ” (Saudi Arabia-North Yemen 1934)
- *Guarantors*: “the High Contracting Parties collectively and severally guarantee (...) the maintenance of the territorial status quo resulting from the frontiers between Germany and Belgium and Germany and France” (Germany, Belgium, France, Great Britain, and Italy 1925)
- *Peacekeepers*: “in this area will be stationed the United Nations Disengagement Observer Force” (Israel-Syria 1974)
- *Arbitration/adjudication*: “submit the dispute to an impartial tribunal” (UK-Saudi Arabia 1954)
- *Issue linkage*: “construct an oil pipeline” (Argentina-Bolivia 1941)

B. Examples of Uncertainty-reducing provisions:

- *Exchange of info on maneuvers etc.*: “reciprocal written information will be provided about movements of naval forces involving four or more ships (...)” (UK-Argentina 1990)
- *Regular consultation or hotlines*: “mechanism of consultations which will include a liaison system” (Jordan-Israel 1994)
- *Surveillance or verification by the other party*: “establish and operate early warning systems” (Israel-Egypt 1979)
- *Monitoring by third parties*: “The United States of America, Argentina, Brazil and Chile will cooperate, by means of military observers, in arranging matters of withdrawal and the retirement of troops” (Ecuador and Peru 1942)

APPENDIX 2

Table 1: Independent Competing Risks Model: Cox Proportional Hazards Shared Frailty Model for the Effect of Changes and Agreement Provisions on the Occurrence of Conflict and Renegotiation

	MILITARIZED DISPUTE	RENEGOTIATION
Changes in probability of winning	.448* (.25) 56% increase	.005 (.44)
Decreases in costs of fighting	1.309*** (.395) 270% increase	-.223 (1.05)
Cost-increasing provisions	-.948*** (.289) 61% decrease	.089 (.403)
Uncertainty-reducing provisions	-.131 (.317)	1.035** 181% increase (.404)
Variance of the random effect	1.903*** (.677)	0 0
N (# failures)	5249 (92)	5249 (26)
Log-likelihood	-426.776	-119.308

*p<.1 **p<.05 ***<.01. Efron method for ties. Gamma shared frailty.

Table 2: Previous warfare and failure-proneness

		PREVIOUS WAR	
		No	Yes
FRAILITY	Less frail	77	11
	More frail	23	16

Table 3: Independent Competing Risks Model: Shared Frailty Model for Militarized Conflict and Cox Proportional Hazard Model for Renegotiation using Interaction terms between Change and Agreement provisions

	MILITARIZED DISPUTE	RENEGOTIATION
Change x cost-increasing provisions	.13 (.501)	-.964 (.816)
Change x uncertainty-reducing provisions	.085 (.54)	.279 (.778)
Change	.487* 63% increase (.285)	.091 (.565)
Cost-increasing provisions	-.903** 59% decrease (.399)	.523 (.575)
Uncertainty-reducing provisions	-.228 (.422)	.861 (.542)
Variance of random effect	1.608*** (.565)	
N (# failures)	5518 (98)	5518 (27)
Log-likelihood	-464.367	-124.844

*p<.1 **p<.05 ***<.01. Efron method for ties. Gamma shared frailty for militarized dispute model. Robust standard error clustered on dyad for renegotiation model.