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Committing to Bargain:
How Mediation Contributes to the Onset
and Success of Peace Talks

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Bachelor of Arts, University of North Carolina, 2007

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An abstract of
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James T. Laney School of Graduate Studies of Emory University
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Abstract

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By Nathan Harris Danneman

Disputants can use the time during negotiations, especially ones that occur in the context of a ceasefire, to increase their fighting capacity. Disputants thus may move for negotiations with no intention of bargaining. Colloquially, they may bargain in bad faith. Capable, interested third parties can help ameliorate this problem by enforcing the tacit commitment to bargain. By threatening to punish disputants for bargaining in bad faith, third parties can help disputants reach the bargaining table, and strike bargains once there. This dissertation examines the commitment problem that adheres during and because of bargaining, and the extent to which third parties can help them overcome this strategic problem. After developing the theory formally, I test propositions about the relationship between mediator characteristics and bargaining onset and outcomes on global data from 1945-1999 on civil wars mediated by states. I find that the presence of mediators who are capable of and willing to enforce the tacit agreement of disputants to bargain make it more likely for disputants to enter rounds of bargaining, and to strike bargains.

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Chapter 1

Introduction

1.1 Failed Peace Processes

The Syrian Civil War had been ongoing for nearly twelve months by the spring of 2012 when Kofi Annan proposed that both sides call a truce during which peace negotiations could begin (Hamilton 2012). Annan is a highly respected, well qualified, and unbiased diplomat, and the plan garnered significant international support. Though both the Assad regime and opposition leaders verbally supported Annan's plan to begin a peace process, the truce was not upheld (Karon 2012). How can we explain this peace process's failure to begin, given all of the factors that weighed in its favor and the high costs of the conflict?

During the decades-long civil war in Sri Lanka, the LTTE, a rebel group, initiated four distinct rounds of bargaining that were putatively aimed at ending the conflict. Each period of bargaining was held during an official ceasefire agreed to in advance.

Every round of bargaining, however, turned out to be a ruse by the rebels to gain the time and freedom of movement necessary to dramatically increase their warfighting ability. The rebels crushed competitor groups, imported arms, developed naval and air capacities, planted mines, recruited troops, and taxed the population during these ceasefires. And each time, after maximally exploiting the pause in fighting, they returned to violence with dramatic surprise attacks (Richardson 2005). This example raises a further puzzle: how can we explain the Sri Lankan government's willingness to begin fresh rounds of negotiations with the LTTE, given that the government was aware of the insincerity of the rebels during the previous rounds?

Beyond explaining these particular cases, this dissertation seeks to answer the following set of theoretically-driven and policy-relevant questions: First, what makes conflict bargaining more or less likely to occur? While many theoretical models of conflict termination either assume that bargaining happens constantly or that it has already occurred, empirically we find that many violent conflicts experience long periods with no negotiations whatsoever. Peace, except in cases of outright victory, is achieved through bargained resolutions. Insofar as no bargains can be struck without a prior move to the table, understanding the factors that promote or hinder bargaining onset is crucial to understanding conflict termination.

The second question addressed by this dissertation is, what factors affect the likelihood that a bargain is struck, given that bargaining occurs? This question is intrinsically important because settlements are what end conflicts. The question is even more puzzling because one might assume that moving to the negotiating table is endoge-

nous to reaching a settlement. That is, a naive observer would expect that disputants would move to the table if and when they expected to be able to strike a conflict-terminating bargain. However, empirically we know that relatively few instances of negotiations lead to settlements. Even more puzzling is the fact that different factors have been shown to influence bargaining onset and bargaining outcomes (Greig 2005). What explains the disjuncture between the willingness to bargain and the ability to strike bargains? Are failed efforts at conflict bargaining merely the result of mistakes or misperceptions by disputants, or are there strategic dynamics in place that prompt them to bargain but not reach an agreement?

Most importantly, this dissertation asks, what can the international community do to help disputants reach the bargaining table and strike agreements once there? Violent conflict causes death and destruction for disputants, and the international community has made various commitments to try to help one another limit the extent of each. At a more self-interested level, conflict, regardless of its form, generates negative security and economic externalities that affect the wellbeing of the international community. As such, assisting combatants to begin peace talks, and helping them conclude those talks successfully, is in the best interest of third parties.

1.2 Prelude to Answers

I argue that the beginnings of an answer can be found by examining the Second Anglo-Dutch War, a naval engagement fought during the 1660s. The English, suffering from several defeats at sea, the Great Plague of London, and the Great Fire, were econom-

ically and militarily weakened by the war's second year. Charles II of England recognized this, and initiated "prolonged" peace negotiations (Jones 1996, 174). However, he instructed his liaison to drag out the talks to give him time to seek a loan from and/or an alliance with France's Louix XIV. Charles intended to use the months during the talks to rebuild and re-staff his navy. Dutch leader Johan de Witt, however, was not fooled. He ordered an amphibious assault on the Thames, which saw a key fort sacked and many of the remaining English first- and second-class warships destroyed while at anchor (Jones (1996); Hainsworth and Churches (1998); Rodger (2004)).

In general terms, Charles attempted to begin a round of negotiations, but his motives were insincere. He hoped to use the time during negotiations to increase England's fighting capacity, after which he intended to reignite the conflict on a better footing. Colloquially, the political science and practitioner literatures refer to this practice as "bargaining in bad faith." This dissertation has two broad goals: 1) to rigorously analyze the strategic dynamic disputants face given that they or their opponent may bargain in bad faith; and 2) to use that framework to explore how third party mediation can help ameliorate the strategic problems created by the possibility of disputants negotiating in bad faith.

1.3 Definitions

Precisely defining some key concepts will help avoid ambiguity and slippage later in the dissertation. Centrally, this dissertation explores conflict, defined as competing, zero-sum claims over goods or policy that have escalated to a point where violence has

either been used already, or its imminent use is deemed likely by participants. This definition is meant to include disputes over territory, representation, or resources, and to capture disputes that involve actual fighting between disputants, or the perceived likelihood thereof.

Conflicts end in one of three ways: one side prevails by force and imposes its will on its adversary; the two belligerents agree to a settlement that both prefer to conflict (or to continued conflict); or the conflict lessens in intensity to a point where, while disagreement remains over the division the good in dispute, belligerents no longer find it worthwhile to use or threaten violence to attain their goals. The second of these I will variously refer to as striking an agreement or finding a bargained resolution. Striking an agreement logically involves the sides communicating. I borrow from Bercovitch and Jackson (2001) in defining negotiation as "a process by which...actors communicate and exchange proposals in an attempt to agree about the dimensions of conflict termination and their future relationship." To quote further from Bercovitch and Jackson, mediation is "an extension of negotiations where the parties to a dispute seek the assistance of, or accept an offer of help from, a party not directly involved in the conflict, to resolve their differences without invoking the authority of the law." A further key portion of the definition of mediation is that it is voluntary. This helps separate mediation conceptually from intervention or coercion, wherein a third party becomes involved in a conflict without the consent of all of the parties to the dispute.

1.4 Core Theoretic Insights

The theory at the heart of this dissertation is fundamentally about conflict bargaining, and as such shares many similarities with extant work. However, it takes into account two facets of reality that most theories of conflict bargaining do not: bargaining takes time, and is often undertaken during either a formal ceasefire or lull in fighting. Accounting for these facts theoretically gives rise to the possibility that disputants may bargain in bad faith.

Bargaining takes time; treating it as such gives tremendous analytic leverage to the study of an already complicated topic. This dissertation relaxes an assumption common to studies of bargaining behavior – that bargaining is instant. When bargaining takes time, it becomes more dangerous for disputants. Specifically, bargaining across an increment of time admits the possibility that facts on the ground that shape the nature of bargaining can change. Problematically, disputants know this, and can take advantage of the time during bargaining to strengthen their positions militarily and/or politically. This time during bargaining becomes much more useful when it coincides with a ceasefire. Ceasefires allow disputants time, freedom of movement, and the opportunity to use productive resources for conflict-related tasks other than combat.

Disputants thus have incentives to bargain deviously, initiating a lengthy round of bargaining with no intention of settling. Rather, they are stalling in hopes of returning to conflict on a substantially improved footing in the future. This generates a possible commitment problem for bargainers: they cannot commit to striking a bargain, given that they may become substantially stronger while bargaining proceeds. Anticipating

the possibility of this commitment problem to bind, disputants fear moving to the table, even when there is little uncertainty in the current bargaining environment. Third parties can help ameliorate this situation by imposing costs on disputants who move to the table only to reject reasonable offers. These third parties, if capable and willing, can help parties trust one another enough to reach the bargaining table, and then to strike bargains once there. Third parties accomplish this by enforcing the tacit agreement to bargain. Unlike the extant sticks-and-carrots understanding of mediation, this theory holds that mediators use leverage to enforce a commitment, rather than create space in a bargaining range that is non-existent due to uncertainty. And, unlike the post-settlement enforcement role posited for third parties in the literature, this theory explains how mediators can help disputants overcome a commitment problem that holds during and because of bargaining, not after.

1.5 How Political Science Views Bargaining

Conflict termination, except in the rare cases of outright victory, involves two stages: bargaining and enforcement. Bargaining is the process by which disputants come to an agreement over a set of terms that are mutually agreeable. The difficulties involved in bargaining are identifying an agreement that is acceptable to both sides, while each tries to maximize its share of the good in dispute. Informational issues are considered key to actors' ability to strike bargains; thus, studies of bargaining often focus on factors such as fighting, exchanging bargains, and third parties, that can help bargainers become better informed.

Enforcement entails upholding an agreement, and making sure that the adversary is doing so as well. Commitment issues are the key complicating factor during enforcement – in an anarchic international system, actors are not compelled to uphold agreements that they no longer find desirable. Further, the process of implementing an agreement can generate vulnerabilities that make commitment problems more severe. For instance, disarming in the aftermath of a civil war makes rebels quite vulnerable, which gives the government incentives to renege on any previous agreement.

Though occasionally studied in concert (e.g. Wolford, Reiter and Carrubba (2011); Fearon (1998)), these concepts are more often examined in isolation. Studies of enforcement and/or implementation put commitment issues at the forefront (e.g. Powell (1999); Walter (2002)). In these accounts, bargaining is either assumed to have concluded or is given a shallow treatment in order to focus on the difficulties of enforcing agreements. The strategic issue in these studies is that shifts in power, usually of a known character, create time-inconsistency problems wherein what actors would like to do today will no longer be appealing in the future. The theory presented in this dissertation examines a commitment problem, but notes and then explores the fact that this commitment problem adheres during and because of time-consuming bargaining. Thus, it generates implications for bargaining onset which these other commitment-driven theories are fundamentally unable to do because they usually assume that bargaining has already begun.

The bargaining model of war, a dominant, overarching theory of conflict onset, duration, and termination, is centrally concerned with how information asymmetry gen-

erates conflict. Some variants propose that fighting helps disputants learn about each other's costs for conflict, resolve, and relative power (e.g. Wagner (2000); Smith and Stam (2004)). Others propose that the exchange of offers can convey information as well (e.g. Filson and Werner (2002)). Another branch of scholarship examines the conditions under which third parties can credibly convey useful information to disputants (e.g. Kydd (2003); Smith and Stam (2003)).

These studies, many of which rely on game theory to explore complicated bargaining dynamics, have greatly extended our knowledge of bargaining behavior. These models allow disputants to learn from each other or third parties, and this information helps them understand the balance of costs and relative power. With a better understanding of these parameters, parties can make offers that both find preferable to continued costly fighting. These studies have helped shape our understanding of conflict onset, conflict duration, the nature of the bargains that are struck, and the degree to which outsiders can provide information.

Like all theories, these models make simplifying assumptions in order to get traction on a particular strategic dynamic. Though these assumptions are necessary for certain applications, they also obscure interesting bargaining dynamics. A common assumption across nearly all studies of conflict bargaining in political science is that the exchange of offers during bargaining happens instantly. This assumption is not usually stated as such; rather, scholars simply assert that a bargain is crafted, conveyed, and that a response is formed, all with no change to any conflict-relevant parameters.

Both parts of this assumption, that bargaining is instant and that conflict-relevant

parameters do not change during bargaining, are false. In reality, developing and communicating offers can be extremely time-consuming. For example, the negotiations leading to the Lancaster House Agreement that ended the Rhodesian Civil War lasted nearly three months. The fact that bargaining often takes a substantial amount of time means that the assumption that conflict-relevant parameters remain fixed during bargaining is also false. For example, during the 1994-1995 round of bargaining between the LTTE and the Sri Lankan government, the rebels ferried heavy weaponry into their areas of operation from India, including advanced surface-to-air missiles. This is reported to have dramatically increased their fighting power when the LTTE broke off these insincere negotiations.

Generally, political science has treated bargaining as either pre-history for a theory, as in commitment-driven theories, or as difficult due to informational asymmetries but otherwise unproblematic. However, there is some work that relaxes the assumptions that bargaining is instant, and that it carries no further connotations or signals for disputants.

In economics, time has been explicitly incorporated into accounts of bargaining. For instance, when bargainers are uncertain about each others' value for a good, delay can serve as a credible signal of having a high (seller) or low (buyer) reservation value. Admati and Perry (1987) examine this dynamic under one-sided incomplete information; Cramton (1992) extends it to two-sided incomplete information.

More recently, Mastro (2012) has relaxed the assumption that bargaining is a neutral act. She examines the concept of "bargaining from strength" by allowing for the

possibility that communicating a desire to begin bargaining may signal weakness. Examining this idea qualitatively, she finds that disputants are only willing to come to the table once the incentives to escalate are reduced by wartime externalities.

1.6 Solving Puzzles

In general, thinking about bargaining as a process that takes time and that may have unintended consequences can help us understand bargaining onset and behavior. This dissertation does just that. The key insight is that disputants can use bargaining for purposes other than reaching an agreement. Disputants that believe they can improve their military, economic, or domestic political situation over the course of weeks or months have a strong incentive to offer to move to the bargaining table. The cessation or lessening of hostilities during bargaining then allows the disputant to make its best efforts at increasing its fighting capacity. Once it does so, the understanding of the conflict that drew the disputants to the table no longer holds, and the ascendant party may find it has no incentive to strike bargains that would previously have been attractive. Put differently, conceptualizing bargaining as happening *over time* creates the potential for credible commitment problems to occur in the bargaining phase of conflict resolution, rather than only at the enforcement stage.

Disputants may reasonably fear this insincere use of negotiations, or bargaining-as-stalling. If these fears are severe, they may prefer to continue a costly conflict, rather than agree to bargain and potentially be tricked into allowing the other side to accrue an advantage. Third parties can ameliorate this dilemma. By threatening to impose

costs for this type of devious behavior, interested, capable third parties can help disputants both reach the bargaining table, and strike bargains once there.

This chapter began by posing three questions related to conflict bargaining. The theory of intra-bargaining commitment problems set out in this dissertation helps address each of them. What makes conflict bargaining more or less likely to occur? As I demonstrate formally below, fears of an opponent using bargaining in order to accrue an increment of power can keep disputants from the bargaining table. Very high costs of conflict can push disputants to the table in spite of these fears.

What can the theory of intra-bargaining commitment problems tell us about when disputants are able to strike bargains, and why striking bargains is not endogenous to agreeing to bargain in the first place? According to this theory, bargains are struck when one side makes an offer sufficiently large that it outweighs any gains its opponent might have made militarily during bargaining. Problematically, neither side can know with precision how much stronger its opponent may become over the course of a round of negotiating. Thus, offers are destined to be probabilistically insufficient to generate agreement. With respect to the non-endogeneity of negotiation success to negotiation onset, factors such as the costliness of conflict can drive disputants to the table, but are orthogonal to an opponent's ability to gain military advantage during a break from fighting. Thus, these factors do not serve as strong predictors of bargaining success. A second, related reason is that in some instances disputants are willing to risk negotiating with a potentially insincere adversary as negotiation holds the only hope of reaching a bargained resolution and avoiding further costly conflict.

Finally, what can the international community do to help disputants overcome the obstacles to peace highlighted by the intra-bargaining commitment perspective? Generally, the theory of intra-bargaining commitment problems holds that strong, interested third parties can enforce disputants' tacit agreement to bargain. Enforcement in this context means threatening to punish parties for moving to the table, then rejecting offers that are reasonable given the mediator's understanding of the conflict-relevant parameters when bargaining started. As I show formally, this threat has two related effects. First, the threat causes disputants who would have liked to bargain in bad faith to accept more offers because the value of their outside option, restarting the conflict, has lessened. The increased likelihood of the opponent accepting offers makes the suspicious side more willing to bargain in the first place. Thus, third parties who are capable and willing to enforce the tacit agreement to bargain help disputants get to the table, and strike bargains once there.

1.7 Outline

The following chapter surveys the extant literature on conflict bargaining and conflict mediation, with a focus on the nature of the strategic problems that hinder bargaining onset or success, and the ways in which mediation can ameliorate these strategic problems. The third chapter builds up a set of first principles, then develops a game theoretic model of intra-bargaining commitment problems. Chapters four and five set out and conduct empirical tests of the propositions that flow from the theory. The fourth chapter assesses the extent to which mediators can help disputants trust one

another enough to come to the table. It finds that mediators who are strong enough and willing enough to enforce the tacit agreement to bargain are eleven percentage points more likely to see their offer of mediation accepted than mediators who cannot perform this service. The fifth chapter tests the proposition that mediators who are strong enough and willing enough to enforce the tacit agreement to bargain are better able to help disputants reach agreements once at the bargaining table. It finds that these mediators generate settlements at a rate around 90 percentage points higher than their weak, uninterested counterparts. The sixth chapter concludes with a discussion of the substantive and policy implications of the dissertation.

Chapter 2

Situating the Theory

This chapter surveys relevant portions of the extant literature on conflict bargaining, commitment problems, and conflict mediation. It serves both as a contrast to and background for the theory of intra-bargaining commitment dynamics put forward in the following chapter. The next section examines how political scientists have typically separated bargaining and commitment problems conceptually and temporally. The third section examines how third parties interact with the strategic problems that create or prolong conflict in hopes of generating peaceful resolutions. After that, I examine literature which discusses when and why mediation might occur in the first place. The final two sections discuss the devious use of bargaining and other ways in which bargaining might pose strategic problems.

2.1 Bargaining Problems Precede Commitment Problems

Two commonly studied causes of conflict are bargaining problems and commitment problems. Bargaining problems, or the inability to locate a settlement all parties prefer to conflict, are driven by uncertainty about each disputant's power or resolve. Commitment problems adhere when one party cannot credibly promise to abide by an agreement in the future due to a power shift in its favor. To date, political scientists have treated these strategic problems as separate, or at least sequential – first disputants must agree to a division of the good in dispute, then disputants must uphold that division. This section surveys research that explores how bargaining and commitment issues cause conflicts to begin or endure.

The bargaining model of war has become a dominant means of understanding conflict onset, conduct, and termination (Reiter 2003). This family of models explain conflict as being the result of uncertainty over either capability or costs (resolve). They then explore how fighting (Wagner 2000; Smith and Stam 2004) or both fighting and negotiating tactics (Powell 2004; Filson and Werner 2002; Slantchev 2003) help disputants resolve this uncertainty. Bargaining models of war are crafted to examine several facets of uncertainty-driven conflict. However, they are fundamentally not designed to model commitment issues, especially not ones arising *within* rounds of bargaining. This is because they assume that offers are generated, exchanged, and responded to without any change in conflict-relevant parameters. In contrast, the model I present below assumes that bargaining takes time, which means that the balance of power can shift during bargaining.

In several works, Powell (1999, 2006) studies how shifting relative power affects the prospects for peace between adversaries. Centrally, his work explores the prospects for peaceful settlements in the face of shifting relative power. The main finding is that power shifts, if large and fast enough, may prevent disputants from striking a conflict-avoiding (or conflict-terminating) bargain due to the inability of the ascendant side to commit to bargains struck in the pre-shift period. These formal theories address the commitment problem generated by shifts in power that are certain to happen, and of a known size. However, Powell does not address the strategic dynamic examined below, in which moves towards peace trigger a power shift of unknown size which will not happen if conflict continues unabated. As I show below, when power shifts are contingent on bargaining onset, a very different strategic dynamic unfolds.

Fearon (1998) importantly notes the linkage between bargaining behavior and commitment concerns. He points to the prominence of situations in international relations in which parties must first agree to divide a good and then implement that agreement. Fearon shows that anticipation of the challenges of downstream enforcement of a bargain affects the ability of actors to strike bargains in the first place. This important work is indicative of how political science generally treats issues of bargaining and commitment as being temporally distinct. Fearon's study is admirable for linking the two strategic problems. However, this dissertation shows that commitment problems do not only adhere after a bargain is struck; rather, they can be caused by the time-consuming process of bargaining.

In a second exception to the uncertainty/commitment dichotomy, Wolford, Reiter

and Carrubba (2011) consider what happens when both of these strategic problems hold sequentially. They are primarily concerned to see if the combination of these strategic problems generates different behaviors than either of them do alone. Wolford, Reiter and Carrubba (2011) present a theory that includes both learning about uncertain characteristics and, if a bargain is struck, a power shift that occurs afterwards. They find that, in equilibrium, there are behaviors not derivable from either pure uncertainty or pure commitment dynamics. Superficially, their study captures a similar strategic dynamic as the one I set out below – a first mover can fight now, or attempt to settle and risk facing a stronger adversary in the future. However, Wolford, Reiter and Carrubba (2011) are not interested in commitment problems caused by, and adhering during, bargaining. Thus, they do not address whether this concern keeps bargaining from happening in the first place. Furthermore, their model is not set up to study the ability of third parties to ameliorate the problems caused by shifting power.

2.2 Bargaining, Commitment, and Mediation Success

Early studies of mediation success generated opposed findings. A host of scholarly works have used large-N studies to demonstrate that mediation is effective, relative to other conflict resolution tactics, at generating peace. For instance, Beardsley et al. (2006), Dixon (1996), Frazier and Dixon (2006), Rauchhaus (2006), Regan and Aydin (2006), and Wilkenfeld (2003) all find a positive effect of mediation. However, Gartner and Bercovitch (2006), Lo, Hashimoto and Reiter (2008), Werner (1999), and Werner and Yuen (2005) all find that mediation either shortens the duration of peace after a

ceasefire, or has no effect. Recently, Beardsley (2011) set out an argument that sought to rectify these conflicting findings. He shows that mediation is effective at generating settlements, but that these settlements are shorter-lived than those reached through uninterrupted conflict bargaining. Rather than comparing mediation to other types of conflict resolution mechanisms, this dissertation seeks to understand the conditions under which mediation is most effective at generating settlements.

Much of the theoretical literature on mediation attempts to link mediation explicitly to one of the strategic problems set out in the previous section. One such area of research explores whether third parties can help disputants resolve uncertainty by relaying information between disputants, or by providing outside information. Smith and Stam (2003) argue that a mediator is no more credible to either disputant than his or her adversary. Kydd (2003), however, shows formally that mediators can credibly convey some signals if they are sufficiently biased towards one disputant or the other, so long as the third party does not strongly desire peace for its own sake. Rauchhaus (2006) continues this line of inquiry, further elucidating the conditions under which third parties can credibly convey information that dispels uncertainty. An important caveat to this theoretical stream of literature is provided by Fey and Ramsay (2010), who argue that mediators are unlikely to have access to conflict-pertinent information that the disputants do not already possess. However, empirically Savun (2008) finds evidence that biased mediators are more effective at reducing uncertainty and facilitating settlements. These theories nicely capture information dynamics between intermediaries and disputants. However, they are not designed to examine commit-

ment problems per se; in fact, they assume away commitment problems during the bargaining period in order to focus on information transmission dynamics.

Several theories of mediation posit that mediators can help disputants overcome commitment problems arising after a bargain has been struck. For instance, Walter (2002) addresses how third parties can help disputants overcome issues of commitment, focusing on the post-settlement, implementation phase of conflict resolution. She notes that severe commitment problems arise during efforts to enforce settlements, especially in the context of civil wars. Specifically, a prisoner's dilemma adheres because both sides have agreed to disarm, but both sides still prefer to win unilaterally rather than following through with the agreed-upon demobilization. Walter aptly points out the dangers of post-settlement enforcement, and argues convincingly that strong third parties can help ameliorate these dangers by agreeing to monitor and enforce the implementation phase of agreements.

Svensson (2007) lays out a similar argument, and finds empirically that mediators help governments commit to making concession to rebel groups by reducing the vulnerabilities they face in the draw down, post-settlement period. Both Walter and Svensson correctly note that the anticipation of enforcement issues ought to inform bargaining behavior. However, the existence of a dangerous implementation phase cannot account for disputants moving to the table and not settling. Rather, anticipating enforcement issues, these disputants should never have agreed to bargain in the first place. Put differently, dangers during implementation cannot account for situations when bargaining begins but then fails. The theory presented below explains this

and other empirical regularities that concerns about downstream enforcement cannot.

Kydd (2006) examines when mediators can credibly convey information about whether each disputant plans on upholding a peace agreement. This theory, to some extent, bridges the divide between uncertainty- and commitment-driven conflict, in that actors are uncertain whether a commitment problem holds. Kydd shows that a third party can convey information about the trustworthiness of each disputant to the other under some circumstances. However, this theory does not speak to the ability of third parties to help disputants get to the table. Additionally, Kydd's work only applies to situations where third parties have outside information to offer about the intentions of each disputant, and thus may be limited in its scope.

Kydd's work is related to a running debate on how the bias of a mediator affects his or her effectiveness. For instance, Young (1967) argues, as do many practitioners, that mediation is most likely to be effective when the mediator gains regardless of which disputant is favored by the outcome of a conflict. However, several other scholars hold that bias is not necessarily a hindrance; rather, biased mediators may actually be more effective due to their incentives to generate a (particular) resolution (Touval (1975); Princen (1992)). This view holds that biased third parties are more credible when promising inducements or threatening punishments. Empirically, Svensson (2007, 2009) has shown that biased mediators can help assuage security concerns in post-civil war periods, and that they have incentives to get the terms of settlements right, thus leading to more durable peace agreements. However, Beber (2012) shows

that some of the existing empirical support for the effectiveness of biased mediators is weak, and may be driven by selection effects.

The debate about mediator bias and mediation effectiveness focuses on bias towards a particular disputant. The literature is more unanimous about the effect of a mediator having strong motives to foster peace, or what Kydd (2006) calls a "bias towards peace." Scholars generally hold that such a bias hinders peace in two ways. First, a strong desire to see a settlement struck can give rise to a cheap talk problem, in which messages from the mediator about the prudence of settlements are ignored because the mediator is believed to be willing to give bad advice to obtain peace (eg. Smith and Stam (2003)). Second, a strong desire for peace now might encourage mediators to push an ill-fitting settlement that is likely to be unacceptable to disputants or to not endure beyond the time frame of the mediator's interest (Beardsley 2011). This dissertation proposes a theoretical counterpoint to the notion that a bias towards peace is a hindrance to mediation success. Specifically, interested mediators have incentives to punish disputants for bargaining in bad faith, thus helping them tie their hands with respect to searching for a bargained resolution.

Another question related to the ones I pose is, how can third party interveners use coercion to affect bargaining? Favretto (2009) takes up this question by examining how powerful third parties affect bargaining by inserting themselves into conflicts. In so doing, she is able to study how a third party's proposal power coupled with the threat of intervention affect what bargain is struck. She finds that biased third parties can more credibly claim that they will intervene on the side of their protege, thus ensuring

their protege a preferable settlement. Her theory extends our understanding of forceful third party intervention, but is not designed to explore the process by which disputants arrive at the bargaining table in the first place. Furthermore, Favretto does not consider mediation, wherein a third party must be invited, but rather intervention, wherein a third party inserts itself into a conflict. Thus, her study begs the question of why or when such a powerful actor would be acceptable to the side it did not favor. The model presented below examines not only how powerful third parties affect the prospects for settlement, but also the conditions under which such a mediator will be acceptable to both parties.

This dissertation sets out a novel role for mediators: enforcing the tacit agreement of disputants to bargain. I propose that mediators do this by threatening to punish disputants who renege on their agreement to search for a bargained resolution. This role for mediators is at once similar and different to roles posited by other scholars. The mediation styles stream of literature examines how what a mediator does affects conflict resolution outcomes. This literature largely sees mediator actions as lying on a continuum of intrusiveness, from facilitative mediation, which involves communication assistance, to manipulative mediation, which involves coercive action to help incentivize agreements (Beardsley et al. 2006). Manipulative mediation, or mediation with leverage, includes both providing incentives for reaching agreements ("carrots") and threatening punishments for failure to reach agreements or reneging on agreements once struck ("sticks").[1]

[1] These concepts have various names in the literature. For instance, Carnevale (1986) uses the terms "compensation" and "pressing."

Inducements serve to increase the attractiveness of reaching an agreement. As such, they are useful when disputants do not believe there are solutions that both prefer to conflict (Zartman and Touval 1996). Mediators use punishments in a similar manner, threatening them if parties fail to reach an agreement. Again, this tactic is meant to create a bargaining space where none currently exists. As Beardsley et al. (2006) put it, the mediator is "attempting to expand the zone of agreement by changing the *immediate* costs and benefits of violent conflict [emphasis added]." This dissertation envisions mediators using punishments (or inducements) for a fundamentally different purpose: to disincentivize a disputant from bargaining in bad faith. Though the tool is the same, the purpose for its use differs greatly. Rather than creating a bargaining range, mediators employ sticks and carrots to overcome a commitment problem that adheres during and because of bargaining. The threat of punishment is also related to mediation that assists disputants in overcoming commitment problems in the post-settlement period. Several scholars have demonstrated that mediators can use the threat of punishment to help disputants comply with agreements by reducing the incentives to renege (Lake and Rothchild (1996); Svensson (2007); Zartman (1985)).

2.3 Mediation Onset

The study of mediation onset is important for its own sake, and also because empirically assessing mediation effectiveness relies crucially on an understanding of the conditions that make mediation more likely. For instance, Gartner (2011) and Gartner and Bercovitch (2006) make clear the need to separate mediation's causal effect on conflict

into two components: its selection effect - the relationship between mediation and outcomes that is caused by the types of cases to which mediation goes; and its process effect - the part of the relationship that is attributable to the impact of third party involvement.

Existing studies of the causes of mediation onset can be roughly broken into causes related to conflict characteristics and causes related to the relationship between potential mediators and conflict actors. There are myriad conflict characteristics that have been shown to affect the probability of mediation onset. One of the most common findings is that conflicts with high costs, usually measured in terms of lives lost per conflict year, are more likely to receive mediation (Beardsley (2010); Bercovitch and Jackson (2001); Greig (2005); Terris and Maoz (2005)). Related, several early works found that mediation was more likely to occur when disputants doubted that they could make further military gains, and when the conflict had become costly. Proponents of this "mutually hurting stalemate" theory of mediation onset include Young (1967), Bercovitch and Langley (1993), and Zartman (1985).

Other, more specific factors have been shown to affect the likelihood of mediation. Beardsley (2010) argues and finds empirical support for the notion that mediation can serve as political cover for disputants who would like to make concessions but want to avoid domestic political backlash. Allee and Huth (2006) show that a similar dynamic holds for arbitration/adjudication.

Many factors associated with the relationship between potential mediators and disputants have been posited and/or shown to affect the probability of mediation on-

set. Crescenzi et al. (2011) and Beardsley and Lo (2013) both show that characteristics of the community of potential intervenors affect the likelihood of mediation. Specifically, higher proportions of democracies regionally or globally increases the probability of mediation taking place. There is also strong support for the idea that the distance between a potential mediator and a (pair of) disputant(s) affects the likelihood of mediation taking place. For instance, Crescenzi et al. (2011) find that increased distance between a potential mediator and the challenger in a conflict decreases the likelihood of mediation onset. Melin and Svensson (2009) find that nearby potential mediators are more likely to generate instances of mediation in both civil and interstate wars. A colonial relationship between a conflict dyad and a potential mediator has been shown to positively affect mediation onset in some studies (e.g. Melin and Svensson (2009)) but not others (e.g. Greig (2005)). By contrast, Bohmelt (2009) shows that direct ties, such as colonial linkages and geographic distance, are less important than indirect linkages.

This dissertation contributes to the literature on mediation onset in a sophisticated manner. Foremost, it points out that one potential hindrance to conflict bargaining of any type, be it negotiated or mediated, is each disputant's fear that the other may bargain in bad faith. The dissertation goes on to examine how strong, interested mediators willing to punish such bad behavior can incentivize potentially devious disputants to bargain. Knowing that these types of disputants are more likely to prefer to strike a bargain conditional on the presence of a strong, interested mediator, disputants concerned about facing a devious opponent are willing to come to the table

under a wider array of circumstances. In sum, I argue that because mediators help devious disputants tie their hands, offers of mediation from such mediators are more likely to be acceptable.

2.4 "Devious" Disputants

This dissertation proposes that bargaining during a ceasefire can lead to shifts in relative power. One disputant may thus have an incentive to bargain insincerely – that is, to bargain in order to gain power in preparation for a return to conflict, with no intention of settling. A small amount of literature has examined these "devious" disputants.

Iklé (1964), in an important early work, points out that negotiations can be used to divide a good, but they can also be used for their "side effects." One side effect that Iklé notes is the ability for negotiations to be used as a stalling tactic, allowing disputants to rest, rearm, and become better prepared for conflict. This dissertation explores the dynamic Iklé casually mentions, and draws out its implications for bargaining onset, bargaining outcomes, and mediation efficacy.

Richmond (1998) coined the term "devious disputants" to refer to those that undertake bargaining with their adversaries with no intention of striking a bargain. Like Iklé, Richmond delineates a bundle of assets that often accompany instances of mediation that disputants may attempt to attain in spite of having no desire to settle. Mediation, aside from offering a chance to settle a dispute, allows disputants to regroup, reorganize, search out allies, gain recognition and legitimacy for their side, save face, and defer costly concessions. Richmond's study is important in that it was one of the first

systematic studies to take seriously the potential for disputants to manipulate peace processes.

Beardsley (2009) uses the presence of devious disputants to help explain the prevalence of low-capacity mediators. He argues that a disputant who fears its opponent has insincere motives will likely prefer a weak third party. These weak third parties allow disputants to exit a peace process at low cost, should they suspect that their opponent is accruing gains from the peace process that outweigh their own.

Beardsley (2011) develops a novel theoretical argument that helps explain the divergent findings related to mediation efficacy. He points out that studies that find that mediation has a positive impact mostly use a short-term definition of mediation success, while those that find mediation to have no effect, or to actually be harmful to peace processes, use a long-term definition of mediation success. Theoretically, he elucidates how mediation, and especially mediation with leverage, can help get disputants to the bargaining table, but that the drive for costly intervention often fades, leaving disputants with incentives to re-start conflict bargaining. In this theoretical context, Beardsley notes that insincere motives, that is, disputants who use conflict mediation without intending to settle, could be a further cause of the short run efficacy and long run inefficacy of mediation. He notes that disputants may use time at the bargaining table to stall in order to dig in defensively, increase their fighting capability, or appease dovish audiences without having to make concessions. In this dissertation, I rigorously examine the strategic effects of disputants' ability to gain power or lower their costs for conflict by spending time at the bargaining table. I find that, under cer-

tain circumstances, mediators can actually ameliorate concerns about the devious use of bargaining.

2.5 Bargaining as Potentially Problematic

This dissertation relaxes the common assumption that bargaining takes place very quickly, and that it is unproblematic for disputants to engage in bargaining. Several other scholarly efforts relax these assumptions to gain traction on a variety of questions.

Scholars have shown that in situations of uncertainty, bargainers can use costly delay as a tactic to signal their resolve. For instance, Admati and Perry (1987) demonstrate formally that bargainers can stall when making or responding to offers as a way of signalling resolve. Cramton (1992) extends this line of work to situations with two-sided uncertainty.

Recently, Mastro (2012) has relaxed the assumption that moving for bargaining is an information-free act. She examines the concept of "bargaining from strength" by allowing for the possibility that communicating a desire to begin bargaining may signal weakness. Examining this idea qualitatively, she finds that disputants are only willing to come to the table once the incentives to escalate are reduced by wartime externalities. This idea makes sense in light of Admati and Perry (1987) – if holding out from making offers can signal high resolve, offering to begin negotiations could signal low resolve. Colloquially, the problem of needing to bargain to end a conflict but being afraid that bargaining will cause your enemy to push harder is known as the "negotia-

tor's dilemma."

This dissertation also relaxes the assumptions that bargaining is fast and costless in order to generate a theory of how mediators can ameliorate the problems posed by devious disputants during conflict bargaining. With the theoretical landscape in place, the next chapter develops the theory of intra-bargaining commitment problems.

Chapter 3

A Theory of Intra-Bargaining Commitment Dynamics

3.1 Aims of the Theory

Why did Kofi Annan's spring 2012 plan for a ceasefire and peace negotiations in Syria never get off the ground? Annan is a highly respected, unbiased diplomat, and the plan garnered significant international support. Though both the Assad regime and opposition leaders verbally supported instituting a truce and beginning negotiations, the truce was not upheld. Why did bargaining not occur, and more generally, what factors help or hinder the onset of bargaining?

Sri Lanka's brutal, decades-long civil war was punctuated by several rounds of negotiations during which both sides called for a ceasefire. Each time, the rebels broke off negotiations with a dramatic return to violence. How can we explain each of these

moves for a ceasefire? And if we explain the rounds of negotiations as being insincere, why then did the government repeatedly agree to them?

I argue that the beginnings of an answer can be found by examining the Second Anglo-Dutch War, a naval engagement fought during the 1660s. By the war's second year, the English were economically and militarily weakened after several defeats at sea, the Great Plague of London, and the Great Fire. Charles II of England recognized this, and initiated "prolonged" peace negotiations (Jones 1996, 174). However, he instructed his liaison to drag out the talks to give him time to seek a loan and/or an alliance with France's Louix XIV. Charles intended to use the months during the talks to rebuild and re-staff his navy. Dutch leader Johan de Witt, however, was not fooled. He ordered an amphibious assault up the Thames, which saw a key fort sacked and many of the remaining English first- and second-class warships destroyed while at anchor (Jones (1996); Hainsworth and Churches (1998); Rodger (2004)). In more general terms, one disputant moved for peace with insincere motives, in hopes that stalling would bring about a power shift that would enable it to resume the conflict on a better footing.

This dissertation explicates and examines the commitment problem that arises between disputants *during* bargaining when bargaining takes time. When bargaining takes time, the relative power of disputants may shift during bargaining. A disputant that anticipates a large, positive shift in power may thus use bargaining specifically to cause a delay, with no intention of striking a bargain. Colloquially, disputants and practitioners refer to this as "bargaining in bad faith." This particular commitment

problem can keep disputants from striking war-terminating bargains once at the negotiating table. Fear of this disingenuous use of bargaining can also keep disputants from reaching the table in the first place. Perversely, this fear can keep earnest disputants from striking a war-terminating bargain, even when uncertainty over capabilities or resolve is not a barrier to settlement.

This particular commitment problem differs from those studied elsewhere in three critical ways. First, the size of the power shift that generates the commitment problem is unknown to the side whose power is not changing. This means that it cannot be perfectly anticipated or accounted for during bargaining. Second, the power shift is contingent upon bargaining taking place, a situation that only arises if both disputants agree to it. Finally, the power shift examined here generates a commitment problem *during* bargaining, rather than after a bargain is struck, or before a conflict begins. This timing drives a dynamic that can keep bargains from being reached, or even keep disputants from bargaining at all, rendering the question of bargaining success moot.

Allowing for the possibility of intra-bargaining commitment problems between disputants provides the analytic traction to address four key questions. First, what drives disputants to move to the bargaining table? The intra-bargaining commitment problem perspective answers this question by explaining what keeps disputants from agreeing to bargain – fear of their opponent appearing to bargain, while in fact using the time taken by bargaining to strengthen its military position. When these fears are small, or can be lessened by third party enforcement, peace talks may occur.

The second question addressed by considering power shifts during bargaining is,

why are so many attempts at bargaining unsuccessful? A simple view would be that success at the bargaining table should be endogenous to the decision to go there; that is, disputants are likely to go to the table when they believe a bargain can be struck. However, Greig (2005) analyzes bargaining between enduring rivals and finds that the determinants of bargaining onset are not the same as the determinants of bargaining success.

This empirical finding begs a further question: are disputants simply unable to anticipate what will happen at the table, or do strategic dynamics cause them to bargain even when there is a large possibility of failure? Though the former is certainly possible, the theory of intra-bargaining commitment dynamics shows that strategic dynamics drive probabilistic bargaining success – in many circumstances, disputants are willing to bargain even though they know there is a possibility their adversary has no intention of settling.

The fourth question addressed by the intra-bargaining commitment perspective is pragmatic: what can be done to ameliorate the commitment issue between disputants that arises during and because of bargaining? Like any commitment problem, one potential solution is to solicit outside enforcement. In the case of conflict bargaining, enforcement takes the form of voluntary third party engagement by actors with the capacity and desire to enforce disputants' tacit commitment to seek a bargained resolution.

A good theory of intra-bargaining power shifts must be set up in such a way that it can account for several behaviors. Foremost, a robust theory should rigorously ac-

count for the linked nature of bargaining onset and bargaining outcomes. That is, it should help us make sense of when bargaining takes place, when bargaining succeeds, and the degree to which bargaining outcomes are endogenous to bargaining onset. Implicit in the above is an endogenized onset stage, and an outcome that is the result of a bargaining process. A good theory should also be able to account for several known empirical regularities. First, sometimes bargaining does not happen because a disputant thinks the other is not acting in good faith. For instance, during the Second Anglo-Dutch War, England sued for peace with the intention of buying enough time to raise funds to resupply its navy after a costly fire devastated London. The Dutch, fearing exactly this, declined to move to the table, and instead continued their offensive, eventually burning much of the remainder of the English fleet while it sat at anchor. Second, even when they agree to go to the table, disputants may still harbor concerns that the adversary is not bargaining "in good faith." For example, this worry was pronounced during the Oslo peace talks between Israeli and Palestinian negotiators (Aggestam 2002). A good theory will, of course, also allow for both successes and failures at the bargaining table. However, it will ideally help explain why disputants may move to the table and then fail, without simply attributing failure to errors in decision making. My theory of intra-bargaining commitment dynamics accomplishes these things, and provides rigorous, sensible answers to the questions posed above. The next section sets out the first principles on which the theory of intra-bargaining commitment dynamics is built.

3.2 First Principles

All conflicts not terminated by outright victory are ended by bargained resolutions. As such, understanding the onset and outcomes of conflict-terminating bargaining is of great importance. This is especially true given that some of the factors associated with bargaining onset and success are subject to intervention by the international community. Thus, research that advances our understanding of bargaining is not merely important for its own sake, but also due to its potential to generate policy implications that can foreshorten conflicts that are destructive of both lives and resources.

3.2.1 Ceasefires: What, When, and Why

A ceasefire (or truce) is an agreement between disputants to halt offensive operations. The specific characteristics of individual ceasefires vary greatly – they can endure for a set duration, or simply until they are broken. They can be highly formalized in a written document, or merely stem from verbal agreements. Ceasefires sometimes entail pulling soldiers well back from the front lines of combat, although they may simply freeze soldiers in place in close proximity.

Studies of conflict tend to treat ceasefires as final outcomes of a bargaining process that fails to reach a full political bargain over the goods in contention. While it is true that ceasefires are sometimes a lasting outcome at the end of a conflict, as in Korea and Cyprus, ceasefires are also commonly implemented during pre-negotiations between disputants. Disputants then bargain during this halt in hostilities, and resume fighting if no agreement can be struck. Illustrative of the difference, in practice, be-

tween agreeing to negotiate and actual bargaining over issues is the ceasefire struck in 1994 between Armenia and Azerbaijain. A ceasefire was agreed in 1994, but Mooradian and Druckman (1999) write that "[it] has not led to a resolution of the issues that divide the parties. The battlefield calm following the ceasefire has not provided an opportunity to address those issues." This case nicely illustrates the conceptual divide between a ceasefire during which bargaining to divide a good takes place, and the actual bargaining over the division of the good. The Lusaka Ceasefire Agreement of 1999 provides another typical example of parties agreeing to halt fighting in order to negotiate over how to divide a good. The Lusaka Ceasefire Agreement was signed by heads of state and leaders of rebel groups involved in the conflict in the Democratic Republic of Congo (DRC), with the expectation that negotiations over the political dispensation in the DRC would follow during the Inter-Congolese Dialogue (Swart and Solomon 2004).

Peace processes very often proceed in this manner, with a ceasefire being called before bargaining begins. For instance, France's Lionel Jospin repeatedly demanded that a full ceasefire be implemented as a condition for the onset of negotiations with the National Liberation Front of Corsica (FLNC) (Filippidou 2007). In the conflict between Armenia and Azerbaijan over Nagorno-Karabakh, both sides only made "imitations" of negotiating during active hostilities between 1992 and 1994. Ziyadov (2010) writes that "Serious negotiations started only after the Moscow-brokered ceasefire agreement entered into force." During the Nepalese Civil War, ceasefires preceded both the 2005 and 2006 peace talks between the government and Maoist insurgents (BBC 2006). As a final set of examples of this pattern of truces being called as a precursor to negotiations over

substantive issues, consider the Sri Lankan case. There, rebels engaged in four distinct rounds of negotiations with the government during the twenty six year civil war, each held during a ceasefire (Richardson 2005).

Many standard accounts of conflict bargaining do not conceive of ceasefires as an incremental step in the negotiating process. Rather, they assume that bargaining to divide the good in dispute occurs during hostilities. Recognizing that this is not necessarily the case, that bargaining often occurs during an agreed-upon lull in fighting, provides traction for answering the questions raised at the beginning of this chapter.

Below, I set out a theory of commitment problems that arise during rounds of bargaining in the context of a truce or ceasefire. I argue that bargaining during a ceasefire generates a strategic dynamic that is problematic for disputants attempting to negotiate an end to a conflict. If bargaining in the context of a ceasefire creates a problematic strategic situation, why do disputants do it? This section argues that disputants have strong incentives to bargain in the context of a truce as opposed to during open hostilities.

Disputants prefer to bargain during ceasefires for a host of reasons. The first is that agreeing to a ceasefire is a way of demonstrating one's commitment to peaceful negotiations (Fortna 2004). As Filippidou (2007) pithily notes, "Ceasefires and moratoriums are down payments on confidence." This was the case with the first round of talks between Tamil separatists and the Sri Lankan government in 1985, according to Richardson (2005). He writes that the stand down of the Sri Lankan army "was intended to provide a favorable background for...negotiations between Sri Lankan government of-

ficials and militant representatives." Chounet-Cambas (2011) writes that governments usually argue for a ceasefire as a prerequisite to peace talks. They do this because they want a meaningful signal of the sincerity of rebel leaders. For instance, from the beginning of ETA's terrorist activities, the Spanish government has insisted that a ceasefire precede any peace talks. Though ETA for years held that it would not negotiate in the context of a truce, it did just that in 1988 (Clark 1995). Kydd (2005) points out that such incremental steps towards peace can be key to the success of future negotiations. Specifically, small, risky steps towards peace can help actors reassure one another of their intention to come to a full agreement.

A second reason sides may opt for a ceasefire is to examine empirically the existence of spoilers within the opposing camp. Spoilers are "leaders and parties who believe that peace emerging from negotiations threatens their power, worldview, and interests, and use violence to undermine attempts to achieve it" (Stedman 1996). A ceasefire gives each side a chance to see if spoilers are present in the enemy camp, and whether or not those spoilers are capable of threatening an emergent peace (Bueno de Mesquita 2005). For example, the Movement for the Emancipation of the Niger Delta (MEND) used a publicly declared, unilateral ceasefire in 2009 to demonstrate its level of command and control (Chounet-Cambas 2011). This move was intended to "display the effectiveness of the armed group's organization and enhance its credentials as a legitimate partner in a peace process."

Third, states may use ceasefires as a respite from the political pressure of continued conflict. States frequently mandate that a ceasefire be a prelude to peace negotiations,

stating that "they are under pressure from a public that would not accept negotiations with an armed group that continues to perpetrate attacks" (Chounet-Cambas 2011).

Truces may also be beneficial to peace processes for psychological reasons. Several scholars have noted that conflict hardens images of the enemy. In the context of continued bloodshed, these images can hamper attempts to bargain. Continued attacks make it hard for leaders to adopt conciliatory stances towards long-standing enemies. Ceasefires reduce tension, and contribute to what Chounet-Cambas (2011) notes is "a more conducive environment for political dialogue."

Not only are enduring enemy images at issue; more recent events may also shape leaders' willingness or ability to negotiate dispassionately. The drive to avenge recent, salient battlefield losses can preempt attempts at locating mutually preferred bargains. Olof Skoog, the Swedish ambassador to Colombia, notes the following in reflecting on his experience as a negotiator: "A ceasefire is a necessary first step. It is not sustainable to negotiate when there are kidnappings, hijackings, and terror attacks..."(Skoog 2003). A truce may help reduce hostile feelings, and build an atmosphere that is conducive to negotiations.

Humanitarian concerns can also motivate ceasefires. Truces allow civilians to evacuate conflict zones, thus reducing the human toll of conflict even if the truce fails. Truces also allow for humanitarian aid to flow into conflict zones. For instance, in February of 2012 the Red Crescent pushed for the Syrian government and rebels to adopt a ceasefire so it could provide food, fuel, and medical supplies to embattled cities (BBC 2012). Even truces of brief duration or geographic scope have the potential

to prevent many deaths. Touval (1995, p.334-335) is a stark advocate of the adoption of truces for humanitarian reasons. He writes:

> I believe that giving priority to attaining a ceasefire can be justified because the continuation of a war while a settlement is being negotiated *might* entail greater loss of life than achieving a ceasefire, even if a tenuous one. It is granted that it is impossible to arrive at a reliable prediction which course of action will ultimately cost more – an early ceasefire which may collapse and be followed by more fighting because the conflict remains unresolved, or a continuation of a war while the search goes on for a definitive settlement of the conflict. Still, I believe that mediators ought to give greater weight to the likely near-term consequences of their choices. This is so because predictions of the near-term are generally more reliable than those of the more distant future. The mediator can be certain that an ongoing war will produce casualties. The proposition that ceasefires break down, leading to the renewal of war, and producing higher casualties over the long-term, is far less certain.

While Touval is writing from the perspective of a potential intervener, his logic clearly applies to disputants as well. A ceasefire clearly limits fatalities in the short term, if not the long term; continued conflict will have no such short-term effect. Humanitarian concerns are often such a large part of the impetus for ceasefire agreements that they are reflected in their titles, such as the April 8 Humanitarian Ceasefire Agreement between the government of Sudan and two different rebel groups in 2004.

International pressure can motivate leaders to sign a ceasefire. States may push disputants towards a ceasefire for myriad reasons, in spite of the fact that prematurely halting a conflict may adversely affect the long-run chances for peace (Greig and Diehl (2005); Mahieu (2007)). International actors may have humanitarian concerns that mirror those of the disputants. This is often the stated rationale for a ceasefire – such was the case of the Annan peace plan for Syria in fall of 2012. Nearby states may also push for a truce out of fear that conflict will spill into their territory if it is left to rage on (Marshall and Gurr (2003); Ward and Gleditsch (2002)). Outside states may also fear a host of negative externalities, including economic declines, the spread of disease, and the mass movement of refugees.[1] These fears may incentivize nearby states to pressure disputants to move for a ceasefire.

Overall, then, there are multiple compelling reasons for disputants to utilize ceasefires. Any or all of these reasons may motivate a ceasefire in spite of the difficult strategic situation that they engender, which I explore in this dissertation. However, a ceasefire or truce is not strictly necessary for a shift in power to occur. Often, bargaining takes place in the context of a lull in fighting, wherein low-level skirmishes continue. These lulls in fighting are often used by disputants as openings to approach one another and feel out whether each is ready to begin a round of bargaining. The mechanisms through which disputants can attempt to gain increments of power during bargaining, detailed below, also apply to periods of low-level fighting. Throughout this dissertation, I use the terms ceasefire and truce to refer both to formal halts in fighting,

[1] See Salehyan and Gleditsch (2006) for a summary of these externalities, with an emphasis on refugee flows.

but also to refer to lulls in fighting intensity during which bargaining is likely to occur.

3.2.2 Bargaining Takes Time

The theory I examine formally below relies on several other first principles. The first is that bargaining takes time. While this may seem like an obvious point, it is worth considering as it is a nuance that is assumed away by much of the current bargaining literature, and because it underpins the assumption that power relations may change during bargaining. The current, dominant account of intra-war bargaining is a family of formal models collectively referred to as bargaining models of war (Reiter 2003). This class of models is designed to explore the premise that war can be caused by uncertainty about relative power, relative resolve (i.e. costs), or both. These models assume that no conflict-relevant parameters change during bargaining, which is tantamount to assuming that it occurs instantly.

The assumption made by bargaining models of war that offers are exchanged instantly is necessary given their purpose – to explore learning during conflict. However, this assumption is obviously false. The crafting of offers is a complicated task during which a variety of stakeholders must make high-stakes, multivariate decisions. In democracies, military and political elites must collaborate on putting together an offer, and possibly have the offer vetted by a legislative body. Even in personalized autocratic regimes, a core of elites must hammer out an offer that most find acceptable. After an offer has been crafted and communicated, it must be evaluated by the opposition. This can be time-consuming for similar reasons. Finally, a response must be

created and communicated. Further compounding the duration of negotiations is the fact that, often, they do not consist of a response to a single offer, but rather a complex back-and-forth involving many offers and counteroffers.

In practice, just how long does bargaining take? In one well-studied example, the negotiations leading to the Lancaster House Agreement that ended the Rhodesian Civil War lasted nearly three months. The ceasefire during which the first round of negotiations occurred in the Sri Lankan Civil War lasted from June to August of 1985, while the second round, also commenced during a ceasefire, lasted nearly a year and a half (Richardson 2005). More generally, according to the Issue Correlates of War (ICOW) dataset, 39% of peace talks between states in conflict from 1816 to 2001 lasted longer than a month.

3.2.3 Gains During Ceasefires

When bargaining takes time and occurs in the context of a ceasefire, the result is a prolonged hiatus during which disputants can mount efforts to obtain a favorable shift in power. This section describes the types of gains disputants can make during ceasefires, and why a pause in fighting is necessary for these gains to be realized.

Pauses during conflict can allow disputants to gain increments of power through three different mechanisms. First, negotiations during ceasefires give disputants time to undertake activities that, while feasible during hostilities, might not be achievable within the time constraints posed by conflict. For example, Woodward (1995) writes that ceasefires during the Balkan conflict gave leaders time to (sometimes forcibly) re-

cruit soldiers to replace those that had fled to areas populated by co-ethnics. While tasks such as recruitment are sometimes possible during hostilities, military leaders during the Balkan conflict, especially those in Croatia, happily took advantage of breaks in the conflict to reinforce their ranks.

Second, a formal ceasefire allows both sides greater freedom of movement, which enables them to carry out tasks that they *would not* otherwise be able to. Ceasefires often involve sides pulling back their forces some distance, or even returning them to base as in the 1989 ceasefire between the LTTE and the Sri Lankan government (Kularante 2006). With the battlefield thus cleared of enemy combatants that serve as both deadly agents and monitors, disputants can undertake activities that are otherwise untenable. These include surveilling enemy positions or neutral terrain, changing the nature of the battlefield, securing supplies, distributing supplies to field units, and repositioning forces.

For instance, during World War 1, informal ceasefires occurred around Christmas, 1914 along the Western Front. Brown (2007) reports that soldiers sometimes attempted to use these lulls in the fighting to surveil the enemy's trenches. This obviously would have been impossible but for the break in fighting. During the first round of bargaining between the LTTE and the Sri Lankan government in 1985, the government agreed to pull its troops back to their bases. The LTTE used this time to plant a network of anti-personnel and anti-vehicle mines along key road networks near Sri Lankan military bases (Richardson 2005). Throughout the early phases of the Sri Lankan civil war, the Sri Lankan navy had been able to limit the amount and types of supplies being shipped

to Tamil areas via naval interdiction missions (Kularante 2006). However, both sides agreed to a ceasefire in order to hold negotiations that lasted from 1994-1995. The LTTE took advantage of the naval aspect of the ceasefire to ferry supplies over from the Indian mainland, among which were surface-to-air missiles which helped them fundamentally alter the nature of their conflict with government forces.

Ceasefires during the war in Bosnia allowed both sides to resupply under much less risky conditions than if fighting had continued. In reference to the Balkan war, Woodward (1995) writes that "Negotiated ceasefires in [Croatia and Bosnia] served the primary purpose of preparing for the next offensive." These negotiated, often regional ceasefires were important because "The process of reorganizing and consolidating armed forces...and of obtaining new sources of arms and fuel takes time" (Woodward 1995, 366). Jensen (1995) notes that Serbs at one point pressed for and then used a ceasefire to consolidate their gains on the ground in Croatia. As a final example of ceasefires creating useful freedom of movement, both the People's Movement for the Liberation of Angola (MPLA) and the National Union for the Total Independence of Angola (UNITA) used negotiated ceasefire periods to rearm and redeploy troops in attempts to gain an advantage during the Angolan Civil War (Ciment 1997).

Third, pauses in fighting also allow disputants to attempt to gain an advantage by freeing up resources. Whether disputants are states or rebel groups, they may find themselves operating at the limits of their resources during high-intensity conflicts. Put differently, disputants may be on the Pareto frontier of their production function, generating the maximal amount of conflict-related outputs possible. Breaks in fight-

ing, especially those of a significant and pre-specified duration, allow disputants to shift the allocation of their productive resources away from fighting towards other activities that can create increments of fighting power. In the nomenclature of economics, pauses allow disputants to move to a different point on the Pareto frontier, trading off fighting capacity for other productive activities. Disputants must undertake a host of activities to generate military action. They must recruit and train troops, raise funds, purchase and move supplies, solicit assistance from potential allies, and make their case to applicable international bodies or the international community at large. These tasks require, at a minimum, significant attention from leadership; at most, they also require significant manpower. As such, all are more easy to accomplish during lulls in fighting, when attentional and manpower resources are not strained.

As one example of how breaks in fighting free up resources sides can use to increase their fighting capacity, consider the LTTE's "tax collections" during its rebellion. The LTTE ran a resource-intensive insurgency, utilizing advanced weaponry and munitions. Part of the funding for their operations was generated through collecting "revolutionary taxes" from civilians in areas they controlled. However, this was difficult during active hostilities because the soldiers and the tax collectors (extorters) were the same individuals. The LTTE lacked the resources to effectively tax the populace (i.e. run protection rackets) during episodes of heavy conflict (O'Ballance 1989). Similarly, the LTTE commonly forced civilians into taking combat roles. However, like tax collection, the LTTE lacked the capacity to fight battles and forcibly recruit soldiers simultaneously. Thus, ceasefires during periods of negotiations allowed the LTTE to use its

soldiers for recruitment because they were not occupied holding positions or attacking government forces.

Power is not the only conflict-relevant parameter that can shift during bargaining. Disputants can also use breaks in fighting to attempt to increase their side's resolve. Resolve, or cost-tolerance relative to particular conflict goals, is partly a function of a disputant's leadership (Wolford 2007). However, it is also partly a function of the preferences of domestic audiences who bear the costs of conflict. As such, leaders who want to improve their country's position during a return to conflict have strong incentives to attempt to bolster their constituency's support for conflict. Ceasefires give political elites an opportunity to do this that they might otherwise not have via some of the same general mechanisms described above: time and the ability to reallocate resources. Gaining time to shore up a constituency's support for war may be crucial for elites as that constituency reaches its threshold for cost-tolerance. In such instances, leaders can use the time during a ceasefire to try to convince their constituency that the value of the good in dispute is high, and that the costs being incurred are worth the goal. Low- or medium-capacity disputants simply may not have enough resources to simultaneously plan and execute military operations while planning and implementing public relations campaigns designed to increase resolve. However, breaks in conflict can allow leaders the opportunity to plan such campaigns and marshal the resources to implement them. Additionally, brief respites from violence can serve to re-focus audience attention on conflict goals and away from their costs. Throughout this dissertation I use the term power shift as a shorthand to denote changes in either

power or resolve that occur during bargaining.[2]

3.2.4 Factors Permissive of Insincere Bargaining

This theory postulates that insincere disputants have an incentive to use bargaining to stall for time, in order to gain an increment of power in anticipation of resuming hostilities. Two factors allow this dynamic to transpire: the difficulty of monitoring one's opponent during ceasefires, and the observational equivalence of hard bargaining and stalling. Without these, the disputant at risk of being taken advantage of would simply walk away from negotiations when it realized its adversary did not intend to settle.

The monitoring of ceasefire agreements is a difficulty that is well-studied. Walter (2002) notes that, after a rebel group and a government have agreed on how to divide a country and its leadership, they are stuck with the difficult task of implementing that agreement. Often, this means transitioning from a period of ceasefire to one of demilitarization and shared responsibility for security and governance. Walter argues that monitoring whether or not the opponent is abiding by a ceasefire is difficult because violations are easy to carry out in secret, and because sides are unlikely to permit each other access to their areas of operations. Furthermore, actions that bolster a state's resolve by communicating the value of the good in dispute are not usually thought of as violations at all. Walter argues that ceasefire monitoring is so difficult for disputants that they will often need the assistance of outside parties to help with monitoring and verification. Monitoring a ceasefire that precedes or co-occurs with active bargaining

[2] Formally, I examine changes in fighting power, but changes in costs or cost-tolerance would generate similar substantive conclusions.

is no less difficult. Actors are unlikely to be able to observe whether their opponent is taking steps to increase its power during the ceasefire, both because the task is inherently difficult, and because of the lack of proximity to the other side's forces.

If disputants could adjudicate between hard bargaining and stalling, the intra-bargaining commitment problem would disappear. Unfortunately, they cannot; hard bargaining over a zero sum good and stalling are observationally equivalent. This observational equivalence comes from the fact that disputants bargaining under uncertainty can use delay as a way to demonstrate their resolve. As mentioned above, Admati and Perry (1987) show that bargainers can avoid making or accepting offers in order to signal the relative strength of their bargaining position, while Cramton (1992) demonstrates a similar dynamic in games that feature two-sided uncertainty. Given the zero-sum, high stakes nature of conflict bargaining, we should expect disputants to use this and other tactics to try to maximize their share of the disputed good. The fact that stalling is useful to sincere bargainers makes disputants unable to discriminate between opponents who are holding out for a better offer and those that are merely stalling in a bid to gain strength during the lull in fighting.

3.2.5 Devious Bargainers, Historically

The previous sections have shown that bargaining often takes place in the context of a ceasefire; that bargaining often lasts for significant periods of time; and that sides can attempt to gain increments of power during ceasefires. This combination of facts admits the possibility of disputants moving for negotiations insincerely. That is, dis-

putants may open time-consuming negotiations in the context of a ceasefire with the intention of gaining strength and returning to conflict. These devious disputants, and their intentionality, form the basis for the strategic problem modeled below – there is no peace short of victory without bargaining, but bargaining may be used by your enemy to his advantage. Though plausible, what examples are there in the historical record of devious bargaining actually occurring? The formal model below demonstrates that actors will carefully weigh the possibility of confronting a devious adversary, but that there are conditions under which they are likely to agree to bargain even though they may be duped. The following anecdotes serve as a testament to the plausibility of an actor initiating peace talks during a ceasefire with the intention of augmenting its power and returning to conflict.

A very early, likely example of devious bargaining during a truce occurred between Athens and Sparta during the Peloponnesian War. In response to the fall of Amphipolis, a major Athenian colony, both sides agreed to a one year ceasefire. The sides left open the possibility of turning this temporary armistice into a permanent peace. However, Athens perceived this time as a useful break during which it could fortify key towns in expectation of future attacks. At the sunset of the armistice period, Athens went on the offensive, launching a major attack that attempted to retake Amphipolis. In short, there is little indication that the Athenians had any intention of negotiating a lasting peace (Thucydides (1954); McMillan (1992)).

England's Charles II made an attempt at devious bargaining during the Second Anglo-Dutch War, a naval war fought during the 1660s. In spite of early military suc-

cesses, by the war's second year England found itself in trouble due to a desperate lack of funds (Jones 1996). Fox (1996)[344] details that "the treasury was bare" by that fall, with the government "living from hand to mouth by borrowing at staggering rates from [London] merchants and bankers." Then the Fire of London occurred, and many of those sources of funding literally "went up in smoke." By this point, England knew it would be unable to field a full fleet the following spring, and had thus opened peace negotiations with the Dutch (Hainsworth and Churches 1998). English negotiators bargained hard, which effectively delayed negotiations (Rommelse 2006). However, Charles did not intend to settle; rather, he needed the time that negotiations would take to arrange for assistance from Louis XIV, in what Fox (1996) describes as a "daring diplomatic subterfuge." Charles hoped to gain a massive influx of funds from the French monarch. Additionally, Charles hoped that Louis's imminent land invasion of Dutch areas would lessen the pressure the English were facing from the Dutch navy. Overall then, this provides a clear-cut example of insincere bargaining during a ceasefire. Unfortunately for Charles, the Dutch, correctly anticipating Charles's devious intentions, did not keep to the ceasefire, and instead sacked much of the English navy while it lay at anchor (Fox (1996); Hainsworth and Churches (1998); Jones (1996)).

Soviet negotiations with the new Hungarian government after the Hungarian Revolution in 1956 were insincere. The Soviets negotiated with Nagy, the new Hungarian leader, for four days over the removal of Soviet troops and Hungary's desire to become neutral. The Soviet ambassador to Hungary, Yuri Andropov, cleverly employed several different tactics to delay and then prolong the negotiations. First, he suggested that ne-

gotiations be split into two parallel tracks, one military and one political. Each would need personnel nominated, which the ambassador claimed would take at least a day for the Soviets. This move created the impression in the Hungarian government that the Soviets really did intend to negotiate a withdrawal. Earlier, the ambassador made a very long speech, in hopes of delaying the Nagy government from contacting the United Nations (Vali 1961). Iklé (1964) writes: "Through these talks, the Soviets gained the necessary time for preparing their attack to crush the revolution and for setting up the Kadar puppet government. The Soviet ambassador kept promising to Nagy that the Russian troops would soon be withdrawn, and he tried to dissuade the Hungarian government from making appeals to the United Nations." Vali describes the faux negotiations as a "politico-military conspiracy" (Vali 1961, 368). Zinner (1962) concurs, writing that Andropov "merely played for time." That the Soviets would have been victorious against the Hungarian forces even without four days to organize their attack is unimportant. What is important is that they were able to do so more effectively by using negotiations to stall for additional time to prepare. Zinner notes that the Soviets were keen to build up their forces at key points in and around Hungary in order to "crush the revolution in one blow" (Zinner 1962, 325).

Pakistan took advantage of its 1949 ceasefire with India to obtain tactically useful positions before restarting the conflict in Kashmir. Sarkar (1999) writes "Pakistan's army took advantage of the cease-fire. As soon as the snows began to melt, their troops crossed the cease-fire line and occupied tactically important heights."

The Sri Lankan civil war included several separate episodes of devious bargain-

ing. The third round of negotiations, which began in October of 1994, aptly illustrates the dynamic. Direct talks were initially attempted without a ceasefire, but both sides eventually agreed to a "cessation of hostilities" agreement to last for three months. An election had just brought the opposition political party to power, under Prime Minister Kumaratunga; thus, she felt she had a mandate to strike a war-terminating bargain with the LTTE. The ceasefire included a lifting of embargoes on certain goods being moved through rebel-held districts. The sides negotiated for a total of six months over issues such as language policy, power sharing, and economic reconstruction of Tamil-dominated areas. During this period, the LTTE brought in shipments of TNT, and acquired surface-to-air missiles which fundamentally changed the nature of the conflict once it resumed. The LTTE's fundraising infrastructure was also expanded during the ceasefire. Moreover, the LTTE "got the opportunity to recruit, regroup, and retrain its cadre until the next offensive" Kularante (2006). Finally, the LTTE was able to fortify its defenses with cement and barbed wire which had been prohibited prior to the ceasefire. In spite of an agreement to give 72 hours notice before resuming hostilities, the LTTE broke off negotiations with a devastating series of surprise attacks. In rapid succession, two Sri Lankan Navy ships were destroyed at harbor, a series of hit-and-run attacks was initiated across the country, and several planes were downed (Schaffer 1996). Kularante (2006) observes that "the [LTTE] used the peace process for what it was worth. They [obtained] supplies...and were able to replenish and improve the position of their military."

Taken as a whole, these anecdotes constitute preliminary evidence of the use of

devious negotiating tactics across historical epochs, geographical locations, cultural milieux, and across both inter- and intra-state conflicts. The next section begins developing the first principles related to third party mediation.

3.2.6 Mediator Actions, Interests, and Information

This dissertation proposes that a commitment problem adheres during bargaining that occurs during in the context of lulls in fighting or ceasefires. As demonstrated above, disputants can use this time to increase their fighting capability and/or resolve; below, I demonstrate formally that this power shift can make a return to conflict a dominant strategy where before a bargain would have been preferable. I also argue that a third party can ameliorate this dynamic by incentivizing disputants to accept reasonable offers, or threatening to punish them for rejecting such. This line of argumentation requires that mediators: 1) are aware of what a "reasonable" offer looks like; and 2) are willing to bear costs to incentivize good behavior by disputants. This section examines these assumptions in turn.

I conceptualize a "reasonable" offer as one that is broadly reflective of the distribution of power and resolve between the disputants. For a mediator to be able to identify offers as reasonable or not, it must have information about the current balance of power and resolve. I argue that it is plausible that a mediator would have this information for two reasons. Foremost, my theory imagines disputants involved in a conflict that is not new – that is, the conflict has progressed to the point that there is little uncertainty between the disputants over the relative balance of power and

resolve. As Smith and Stam (2003) show, conflicts likely proceed to this point more quickly than many political scientists realize. In their model, disputants' beliefs about conflict-relevant parameters converge sufficiently for agreement after five to six periods of conflict. Though battlefield information is not entirely transparent to actors outside of a dispute, neither is it entirely hidden. Often, observers are invited in to see conflicts firsthand, as during the Russo-Japanese war. More recently, news correspondents often track wars closely, as they are in Syria currently. Thus, some components of the underlying parameters of a conflict are publicly observable.

However, other components, particularly those relating to resolve, may not be directly observable. To what extent can a third party glean this information from disputants? Fey and Ramsay (2010) argue that mediators are often unable to credibly convey information to disputants, but that when this is the case, disputants can pass information to the mediators. My theory necessitates no information transfer by the mediator, only that the mediator is able to understand the "facts on the ground." Furthermore, Savun (2008) not only argues that mediators can have information about disputants' private characteristics, she measures this information and finds that it helps mediators employ informational strategies effectively. Finally, as part of a mediator's duty, he or she must perform due diligence with respect to the conflict. Through this process, they are likely to be able to come to a good understanding of a conflict. Overall, because some information relevant to a conflict is public, and mediators are likely privy to a good deal of private information, I assume that mediators are able to generate a fairly accurate assessment of the conflict-relevant parameters.[3]

[3]Note that this is a weaker assumption than, say, Kydd (2003), who presumes that mediators have

The final first principle on which my theory rests is that mediators care about peace, and are, in some instances, willing to bear costs to help bring it about. Mediators demonstrate their interest in a dispute's outcome by their very presence. All that is necessary for the theory presented below is that some mediators are interested in peace, regardless of the specific form an agreement takes. Kydd (2006) calls this a mediator that is "biased towards peace" to differentiate it from a mediator's potential bias towards one of the disputants. While Kydd shows that being overly biased towards peace can hinder a mediator's ability to transmit information credibly, this intensity of interest can motivate costly action to bring about peace.

Mediators often provide good offices, promote dialogue, provide information, and propose settlements. These less-intrusive measures certainly play a role in bringing about peace, especially in conflicts driven by information asymmetries. However, "harder" tactics, often referred to as manipulative mediation, are common, and have been shown to be highly effective in generating agreements (Beardsley et al. 2006).[4] Manipulative mediation entails the use of incentives and disincentives ("sticks and carrots") to influence disputant behavior. These incentives can range from implicit hints at better relations in the future to promises of substantial military or developmental aid. For example, the US promised, and has provided, a stream of aid to Egypt worth millions of dollars a year to incentivize the peace deal it brokered between Egypt and Israel (Princen 1992). Disincentives similarly vary from the threat of disapproval to active military intervention. In one memorable, extreme example of manipulative media-

access to disputants' private information through their own intelligence-gathering.

[4]See Charkoudian et al. (2009) for an empirically-driven typology of mediation styles. The term 'manipulative' derives from Touval and Zartman (1985) and Bercovitch (1997).

tion, Colonel Qaddhafi threatened to hold North and South Yemeni negotiators captive during a 1972 border crisis if they did not reach an agreement. He also promised both sides nearly $50 million in annual aid if they struck an agreement. Though this is clearly an example of a mediator imposing costs for intransigence, the costs need not be so explicit – the implicit threat of costs for non-agreement can motivate settlements, and can underpin the dynamic explored below.

3.2.7 Informal Overview

In sum, my argument starts with a pair of disputants who are in conflict. Having been in conflict for some amount of time, each has a good understanding of the balance of power (and resolve). One disputant may try to initiate conflict-terminating bargaining with the other. However, this bargaining will take time, and the initiator may be able to gain more relative fighting capability than its opponent if bargaining does take place. The disputant who receives the offer to begin negotiations does not know how much its opponent may gain from this break in fighting. A mediator may be invited to enforce the tacit agreement to bargain, and if so, will impose costs on disputants who reject offers that reflect the pre-bargaining balance of power. The next section formalizes this dynamic in a game theoretic model, and describes the equilibrium behavior that the model generates.

3.3 A Game-Theoretic Model of Intra-bargaining Commitment Dynamics

3.3.1 Introducing the Model

This dissertation seeks to understand how the possibility of power shifts during bargaining affects whether bargaining occurs, how it occurs, and whether or not it is successful. In order to satisfactorily capture these phenomena, a model must feature several components. First, it must allow disputants the option to opt into a round of bargaining, rather than assuming that bargaining takes place. Second, it must allow disputants to choose whether they will negotiate bilaterally, or invite in a mediator. Third, the model's outcome should be the result of a bargaining process. Fourth, the model must allow a disputant to exit bargaining having accrued an increment of power.

These necessities motivate a game populated by a pair of disputants, A and B. These actors can be thought of as states, sub-state actors, or as high-level decision makers within either of these. These actors are in conflict over a highly divisible, zero sum good. Concretely, one can imagine this to be a unit of territory, the number of seats in a legislature, or the division of tax revenue. I find conceptualizing the good under dispute as an increment of territory to be particularly useful. The zero sum nature of the good gives rise to the possibility of conflict. The assumption of the good's divisibility precludes behavior that is driven by a "lumpy" bargaining space. Let the value of control over the entire good be normalized to one, with a linear utility for portions thereof. Colloquially, this means that having more of the good is better, and each additional

increment of the good is equally valuable to both sides. This assumption again helps preclude behavior driven by portions of the good being unequally valuable (Goddard 2006). Substantively, this means that disputants are fighting over the division of a good that is equally valuable at each point, with no features or units that are more valuable than any other.[5]

Like Powell (2006), I assume that there is no uncertainty about the current balance of strength and resolve in order to focus on problems of commitment. Uncertainty about those quantities may make bargaining unlikely or difficult, but is orthogonal to the dynamic explored here. Let A's probability of victory in any given battle, and thus in a total war, be denoted p, implying B's probability of victory is 1-p. The common cost for conflict to each side is also know, and is denoted c.[6]

This model's purpose is to capture uncertainty by one disputant about the other's future strength, should bargaining occur. The opponent may gain little or no strength, but it may also gain substantial fighting ability during a break in fighting in which bargaining occurs. Let player A be the potentially ascendent side. A's known, pre-bargaining (and thus pre-shift) power is p, as noted above. A maximally strong player A would win a war with certainty; this player A would have p=1. Thus, A's maximum potential power shift is of size 1-p. Let Nature choose s, the proportion of this maximum possible shift that A will realize if bargaining occurs. s is naturally bounded between 0 and 1. Let s be distributed according to f(s)=2-2s. This distribution has several ap-

[5]Examples of such differently-valued increments may include East Jerusalem or Iran gaining nuclear weapons. Increments outside of these scarce goods may be equally valued, but these particular portions are super-valued.

[6]I have solved a variant of this model with disputant-specific costs for conflict; the results are substantively the same. I present this model with identical costs for ease of exposition.

pealing properties. Foremost, this proper probability distribution is decreasing, which is substantively plausible – disputants expect a small shift in power to be more likely than an extreme shift. Second, this distribution makes the probability of fighting an infinitely powerful opponent go to zero in the limit, another feature that is attractive based on its substantive realism. Finally, this particular distribution is tractable due to both its linearity in s, and its geometric interpretation: f(s)=2-2s describes a right triangle with bases along the x and y axes. Nature informs A of s, while B only knows the distribution from which s is drawn. This setup captures the fact that B does not know how strong A will become during a pause for bargaining, while A does know exactly what it stands to gain from a pause for bargaining.

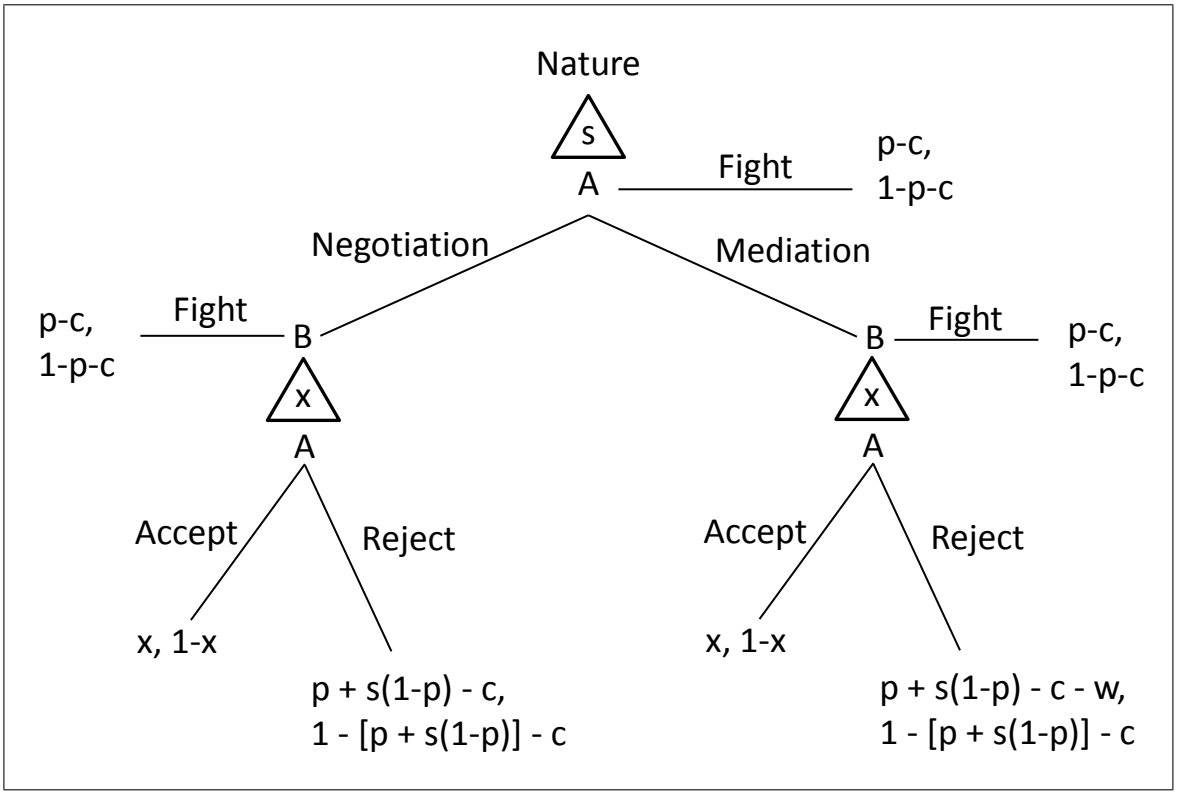
As discussed above, in order to explore bargaining onset, the disputants must be allowed to choose whether bargaining happens or not. Thus, let player A choose whether to continue fighting or move for negotiated or mediated peace talks during bargaining, with full knowledge of how much power he will gain if bargaining occurs. See Figure 3.1 for the game tree. I model the potentially ascendant side as the first mover to capture the second mover's worry about whether the first player is "bargaining in good faith."[7] Bargaining cannot occur without the consent of all parties. Thus, if A moves for bilateral negotiations, B may refuse them and instead choose to continue the conflict.

This model is fundamentally about bargaining; as such, if B agrees to move for bargaining, she then makes A an offer, x, that is a proportion of the good in dispute. Below, I write about this choice as if it were two sequential choices (whether to fight or

[7] Allowing the uncertain player to move first by making an offer does not change the substance of the findings presented here.

bargain, and if bargaining, what offer to make), but from a game theoretic standpoint these seemingly separable choices constitute one node or history. If an offer is made, A realizes its gain in power, s, moving its probability of victory from p to p+s(1-p). This captures A's ability to capitalize on the stoppage in fighting during which most real-world bargaining occurs. Knowing this new probability of victory, A may opt to accept B's offer, x, and end the conflict. Else, A may reject the offer and fight a decisive battle governed by the new, more favorable distribution of power.

Figure 3.1: Game Tree



I model conflict as a single, decisive battle. Formally, this means that conflict is represented as a costly lottery, wherein each side has a probability of victory and a fixed cost for fighting. The victor takes the entirety of the good in dispute, the loser gets

nothing. Specifically, if A moves to continue the conflict at his first choice node, or if B declines to move to the table and instead continues the conflict, A's utility is p-c, and B's is 1-p-c. If B makes an offer that A rejects, A experiences its positive power shift. Its payoff for post-bargaining conflict after bilateral negotiations is p+s(1-p)-c. Symmetrically, B's payoff is 1-(p+s(1-p))-c. This formulation abstracts away from the conceptualization of conflict as a costly process, which is usually invoked to study learning about uncertain parameters of a conflict such as capabilities or resolve. The costly lottery variant makes the model tractable while still allowing for a wide array of disputant behaviors. The other way for the game to end is with a bargained outcome. If A accepts an offer, x, then that bargain holds, giving A a payoff of x and B a payoff of 1-x.

Mediation differs from negotiation by the inclusion of a non-strategic mediator. I assume that this mediator desires peace, and is willing to impose costs on disputants who seem intransigent, such as when the US threatened to withhold loan guarantees in 1991 if Israel did not freeze the building of new settlements (Aggestam 2002). Intransigence has a specific definition in the context of this model: making offers that are lower than what the pre-bargaining balance of power warranted, or rejecting offers above what the pre-bargaining balance of power warranted. Thus, in principle, either disputant could exhibit this type of behavior, although only the informed, potentially ascendant side ever has incentives to do so.

This mediator can be seen as an enforcement agent; in this sense, it plays a similar role to the mediator in Walter's (2002) theory. However, this mediator differs in both the timing and type of its actions. Unlike Walter's mediator, the mediator here en-

forces both parties' tacit agreement to bargain sincerely, rather than enforcing a war-terminating agreement. Thus, this mediator's enforcement power is important during bargaining, rather than afterwards. Second, this mediator only need take action conditionally. While Walter's third party needs to set up temporary institutions to monitor and enforce a ceasefire, the third party in this theory only takes costly action against a disputant if that disputant does not accept bargains that were reasonable under the pre-bargaining balance of power.

The costs the mediator will impose for intransigent behavior, w, capture a mediator's ability to impose costs and its willingness to do so. The ability of a mediator to impose costs will depend on its economic, military, and social position vis-a-vis the disputants. The mediator's willingness to impose costs depends on how interested it is in seeing the conflict be settled. This concept exactly maps to Kydd's (2006) "bias towards peace." The mediation branch differs from the negotiation branch of the game in that player A's payoff from rejecting an offer under mediation is p+s(1-p)-c-w; i.e. it faces an additional penalty, w, for rejecting offers that reflect the pre-shift distribution of power.[8]

As this model entails uncertainty, I use the Perfect Bayesian Equilibrium (PBE) solution concept. A PBE requires that strategies for all players be sequentially rational, and that beliefs held by players are updated by Bayes' Rule whenever possible (Harsanyi 1967). In this game, a strategy for A is is the duple constituted by a choice of whether to Fight, Negotiation, or Mediate (F,N,M) at the first node, and a choice of whether to

[8]The mediator would also penalize B for making offers below what the pre-shift parameters warranted. However, this behavior is never in equilibrium.

accept or reject an offer at the final node, given any possible offer (acc|x>$\underline{x}$). For B, a strategy is a choice of whether to Fight or make an offer, x, on the interval from zero to 1, (F,x). The sections that follow describe the game's three classes of equilibria, each characterized by A's decision at his first decision point: negotiation, mediation, or continued conflict.

3.3.2 Negotiation in Equilibrium

Confronted with the pernicious strategic dynamic set out above, how should the players proceed? Equilibrium analysis shows that there are three broad classes of behavior possible in this game, and they can be meaningfully labeled based on A's decision at his first choice node. In the first equilibrium, all types of A (that is, for every value of s) move for negotiation. In this equilibrium B finds it attractive to make an offer, rather than declining to move to the negotiating table. Interestingly, B's offer is one that it knows will not necessarily be accepted. In response to this offer, types of A that gain large increments of power during bargaining reject the offer – after bargaining they prefer to fight a war-terminating battle under the new, more favorable post-shift conditions. These types move for bargaining anticipating being made an offer that they will reject. Types of A that gain relatively little strength during bargaining accept B's offer, ending the conflict with a negotiated settlement. Interested readers may consult the appendix for proofs. Formally, the negotiation equilibrium is:

$$A: \left\{ \begin{array}{ll} N, A & \text{if } s < s_N^* \\ N, R & \text{if } s > s_N^* \end{array} \right\}$$

$$B: \left\{ \; x = x_N^* \; \right\}$$

The game is solved in the opposite order from which it is played. Here, I walk through the equilibrium actions in reverse order, giving intuition over the choices the players face at each point.

Proposition 1. *Player A accepts offers only if they are sufficiently large* $[x > p + s(1-p) - c]$.

At his final decision node, A must choose whether to accept an offer, x, or reject it and fight a war-terminating battle governed by the post-shift balance of power. At this point, A's decision is simple, since there is no uncertainty about the offer nor about his value for fighting (recall that s is known to A immediately after being drawn by Nature). All A must do is opt for the higher-valued option: the war-terminating bargain or a lottery over the outcome of a single battle. If the offer is large enough, A will accept it; else, conflict resumes.

The expression in Proposition 1 can be re-written in terms of s, highlighting the relationship between the random variable, s, and the other terms. In this formulation, A accepts offers when $s < \frac{x-p+c}{1-p}$. This expression makes it clear that A's choice is contingent on s: for any given combination of an offer, a pre-shift probability of victory, and a cost of conflict, A accepts offers when its intra-bargaining power shift is small and

rejects them when it is large.

Proposition 2. *Player B's optimal offer balances the desire to keep as much of the good as possible with the desire to avoid fighting a stronger opponent in the future.*

Player B's decision about what to offer is complicated by uncertainty and difficult trade-offs. Importantly, she does not know how large the positive power shift is that A will accrue, only the distribution that governs it. As made clear by the reformulation of Proposition 1 above, this means she does not know what offer will satisfy A. She would like to keep as much of the good under dispute as possible. However, this desire is directly in tension with her desire to avoid a rejection by player A. If the offer is too small, it will be rejected, leading to renewed conflict with a strengthened adversary.

A second difficulty interacts with the tension above, further complicating B's choice. As she contemplates larger and larger offers, the probability of A rejecting them falls. This is beneficial to B because she would like to avoid fighting a strengthened opponent. Problematically, B's expectation of A's strength conditional on an offer being rejected *increases* with larger offers. Stated differently, even moderately strong types of A reject small offers. However, if A rejects a large offer, B knows that A has grown quite strong.

B balances these competing objectives, wanting more of the good and desiring not to fight a greatly strengthened opponent, by making an optimal offer, x^*, which is a function of her pre-shift probability of victory and the cost of conflict. I give the function for x^* in the appendix.

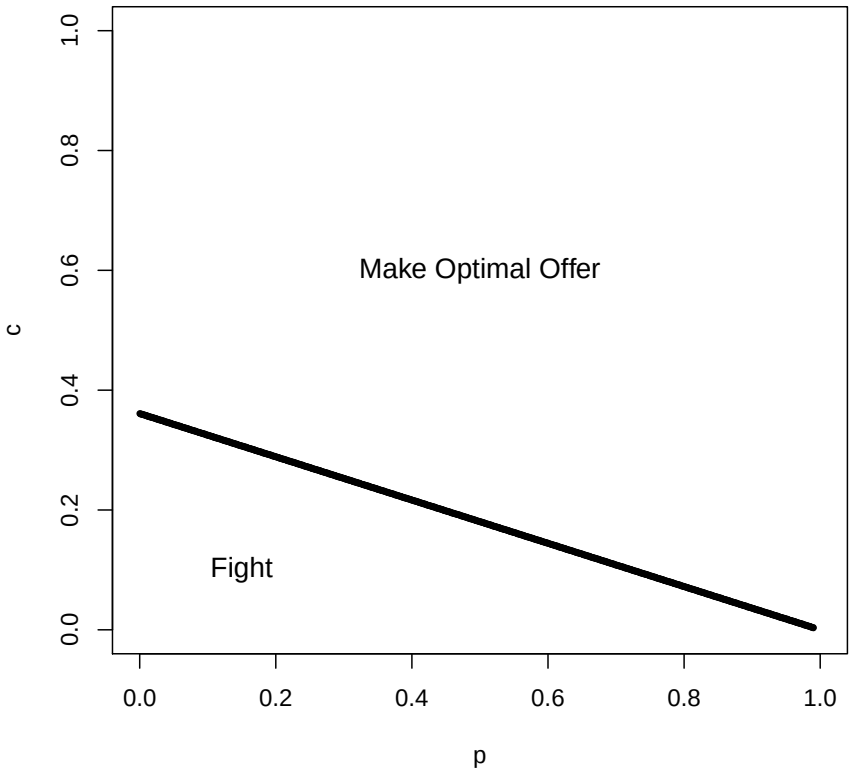
Proposition 3. *B prefers to make her optimal offer rather than continuing to fight without bargaining when the costs of conflict are high and her pre-shift probability of victory is relatively low.*

Making an offer is not B's only option. In fact, substantively, one of the most important choices encapsulated by this theory is whether B should acquiesce to A's request to begin bargaining, or whether she should decline and continue the conflict. This choice boils down to whether B prefers the complicated lottery of making A an offer, with all its attendant risks, or whether she prefers to continue the conflict under the current parameters. The former option is attractive because it holds the only chance for reaching a negotiated settlement, and thus avoiding continuing to pay the costs of war. However, it forces B to risk facing a post-shift opponent that is potentially much stronger. Choosing to fight today rather than bargain allows B to ensure itself its present value for fighting.

Figure 3.2 depicts B's choice between making her optimal offer and fighting. A's current probability of victory, p, is depicted on the x-axis, while the cost for conflict, c, is on the y-axis. The lower portion of the graphic denotes parameter values for which B prefers to fight today, rather than making an offer. In the upper region, she prefers to make her optimal offer. This graph makes intuitive sense: at high costs of conflict, B prefers to make an offer that may avert conflict, though this risks renewed conflict on worse terms. When B's pre-shift strength is relatively high, she prefers to fight today. If B's pre-shift strength is low (i.e. when p is high), she may as well make an offer, because A can only become slightly stronger post-shift. Overall, then, the negotiation

equilibrium is only supported by parameter values in the upper portion of the figure.

Figure 3.2: B's Choice Between Fighting and Making an Optimal Offer, Given A Pools on Negotiation



B's choice between fighting and making an optimal offer, given that all types of A pool on moving for negotiation. p is A's pre-shift probability of victory, and c is the common cost for conflict to both A and B. In the upper space, B prefers to make the optimal offer, $\max(x_N^*, 0)$. In the lower space she prefers to fight.

Proposition 4. *No type of A has an incentive to deviate to either fighting or mediation.*

In this equilibrium, all types of player A (that is, for every value of s) move for negotiations. Why is it that no types of A simply continue the conflict?[9] It turns out that

[9]Formally, I assume A moves to Fight on indifference, if B would react to a move for negotiation by Fighting.

all types of A are strictly better off moving for negotiations than choosing to fight at the first node. This is because, downstream, one of three things will happen, all of which are equal to or better than fighting initially. First, B may decline the offer. This results in A getting the same payoff it would have from fighting initially. Second, B may make an unacceptable offer. If this is the case then fighting happens anyway, only A gets to fight on better terms than it would have if it had moved to continue the conflict initially. Finally, B may make an acceptable offer. I show in the appendix that B's optimal offer is always preferable to A than fighting initially.

It is also the case that no types of A prefer to deviate to mediation. As I show in the following section, B makes offers that are lower under mediation than it does under negotiation. Thus, relatively weak types of A prefer negotiation, because they can accept B's relatively larger offer. Relatively strong types of A prefer to reject an offer during negotiations because they are thus not subject to the mediator's penalty for doing so. Overall, then, no types of A have any incentive to break from pooling on negotiation.

The parameters p, c, and s form a three-dimensional space in which three different behaviors occur. Figure 3.3 depicts three separate slices of this space, where p=.1, .5, and .9.[10] In each panel, the cost of conflict, c, is on the x-axis, and the proportion of the maximal power shift A receives, s, is on the y-axis. Each panel is titled according to the depicted level of p, A's pre-shift probability of victory. Each slice is divided into three regions by two lines, a vertical one and one that has both a curved and a linear portion. To the left of the vertical line in each slice, B prefers to fight (F), rather than make her optimal offer. This line, and its placement in each of the three panels, corresponds

[10] Figure A.5 in the Appendix shows the entire three-dimensional space.

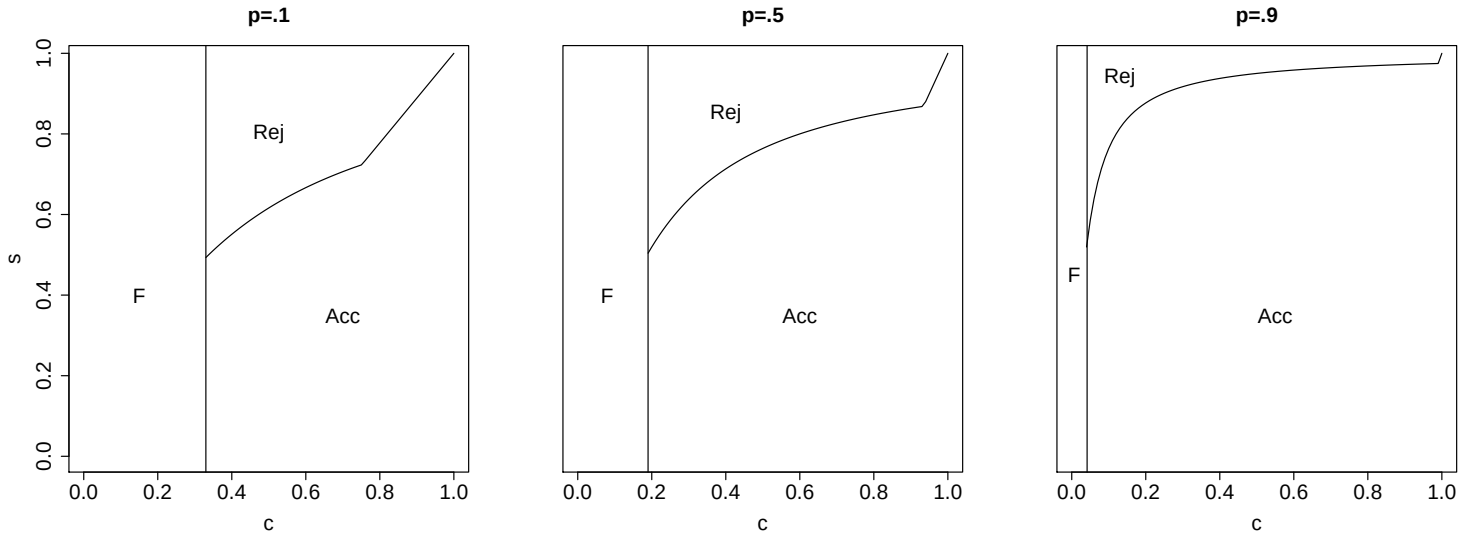
to the line bisecting Figure 3.2. To the right of the vertical line, B prefers to make her utility-maximizing offer. Below the curved line, where s is relatively small, A accepts (Acc) this offer. Above the curved line, where s is relatively large, A rejects (Rej) B's optimal offer. The line that separates acceptances from rejections has a curved part, and a linear portion. The linear portion occurs when B's optimal offer has fallen to zero – behavior in that parameter space is different because B's offer cannot fall any lower.

The regions depicted in Figure 3.3 make intuitive sense. As the cost of conflict (c) grows, B is more willing to come to the table and make an offer. This is because high costs drive her to desire an end to the conflict. As A's pre-shift strength falls, B has less incentive to make an offer, because her chances of victory today are fairly high. When B does make an offer (on the right side of the vertical line in each panel of Figure 3.3) A rejects it when his power shift (s) is large. As the cost of conflict increases, A rejects a smaller proportion of the time, as he prefers even smallish offers to continuing a high-cost conflict. For any given cost of conflict, at lower pre-shift strengths A rejects a larger proportion of offers. This is because when A's pre-shift strength is small, any given realization of s translates into a larger power differential since it is multiplied by a larger maximum possible shift, 1-p. Stated differently, the weaker A is today, the more strength it could potentially gain during bargaining.

3.3.3 Equilibrium 2: Mediation

The second equilibrium of the model explores how the inclusion of a mediator who is willing to enforce the tacit agreement to bargain changes the behaviors of the dis-

Figure 3.3: Equilibrium Space, A Pools on Negotiation



Three representative slices of the three dimensional parameter space depicting equilibrium behaviors by A and B, given that all types of A have pooled on moving for negotiations. Each panel is titled according to the value of p, A's pre-shift probability of victory, depicted. c, the cost of conflict, is on the x-axis. s, the proportion of the maximal power shift A will accrue, is on the y-axis. In each panel, "F" marks the space in which A chooses not to move to the table in anticipation of B not making an offer, "Acc" denotes the space in which A moves to the table, B makes her optimal offer, and A accepts it, and "Rej" denotes the space wherein A moves to the table, B makes her optimal offer, and A rejects it.

putants. To foreshadow, the presence of a capable and willing mediator allows player B to accept moves towards bargaining under a wider range of circumstances. Additionally, mediation pushes more types of player A to accept offers made during bargaining. In short, mediation generates more bargaining and more bargains struck. Other than the presence of the mediator, the mediation equilibrium is very much like the negotiation equilibrium. All types of A move for mediation, rather than negotiation or fighting. Across a larger array of circumstances, B is willing to bargain; absent these, it declines the offer to move to the table, and continues fighting. B, when it makes offers, calcu-

lates them to balance the desire to keep as much of the good as possible against the desire to have the offer accepted. Types of A that experience a large power shift reject B's offer, initiating a conflict-terminating battle fought with the odds shifted in their favor. However, these players incur additional costs to rejecting reasonable offers, imposed by the mediator. Finally, types of A that experience a relatively small power shift accept B's offer, thus ending the conflict in a negotiated settlement. Again, proofs can be found in the appendix. Formally, the mediation equilibrium is:

$$A: \left\{ \begin{array}{ll} M, A & \text{if } s < s^*_M \\ M, R & \text{if } s > s^*_M \end{array} \right\}$$

$$B: \left\{ \; x = x^*_M \; \right\}$$

Here, I walk through the mediation equilibrium in the reverse order of play, which parallels the strategy for solving the model. The strategic tensions are the same as in the negotiation equilibrium; as such, I highlight differences in behavior generated by the inclusion of a mediator.

Proposition 5. *Player A accepts offers only if they are sufficiently large* $[x > p + s(1-p) - c - w]$.

At his final decision node, assuming he initially moved for mediation and B made an offer, A faces no uncertainty. Much like Proposition 1 in the negotiation equilibrium, A's options are to accept an offer made by B (x), or reject it and fight a war-terminating battle governed by the post-shift balance of power. However, in the mediated case

player A faces an additional cost for moving to the table, then rejecting an offer that is as good or better than the pre-shift power distribution called for. This cost, noted above in Proposition 5 as w, represents the mediator carrying out its threat of punishment for this type of devious or intransigent behavior. At this point A's decision is simple, insofar as he faces no uncertainty. Knowing the size of the shift in his favor and the additional cost to be levied by the mediator should he reject a reasonable offer, he may accept the offer on the table, or return to conflict and face the mediator's penalty.

Re-writing the expression for A's acceptance of an agreement gives $s < \frac{x-p+c+w}{1-p}$. Expressing the acceptance criterion in this way makes it clear that A's decision rests crucially on the realized size of its power shift. For any given offer, cost of conflict, pre-shift probability of victory, and mediator strength, types of A that receive large power shifts reject the offer, while those experiencing small power shifts accept it. The additional costs imposed by the mediator raise the threshold for this choice. In other words, the inclusion of a mediator makes A more likely to accept any given offer, all other things equal.

Proposition 6. *Player B's optimal offer balances the desire to keep as much of the good as possible with the desire to avoid fighting a stronger opponent in the future.*

Like in the negotiation equilibrium, B faces a difficult choice over the offer A will weigh. Smaller offers leave more of the good for her, though they have an increased chance of rejection. However, the expected future strength of an adversary given a rejection of a small offer is moderate. Larger offers leave less of the good for player B, but reduce the risk of a rejection. However, if a large offer is rejected, B expects the

rejector's future strength to be great.

Along with these tradeoffs, B knows that A's outside option (rejecting the offer) has diminished in value because of the mediator's threat to punish such intransigence. Thus, optimal offers that balance all of these factors are smaller under mediation than under negotiation. This is a common result in bargaining situations: offers are reflective of an opponent's outside option, or reservation value.

Proposition 7. *Lower current probabilities of victory and higher costs induce B to make her optimal offer, rather than continuing the conflict without bargaining. Additionally, stronger mediators incentivize B to make an offer, rather than continuing the conflict without bargaining.*

Having decided what offer to make, B must contemplate whether making that offer is preferable to the lottery over fighting the conflict to the finish governed by the pre-shift balance of power. Making an offer is risky even under mediation. Though the optimal offer is lower than under negotiation, and is more likely to be accepted, there is still a chance of A rejecting the offer and renewing the conflict on a stronger footing. Continuing the conflict without bargaining means that B will pay the costs of conflict with certainty, but obviates the risk of fighting a strengthened enemy in the future.

The strength and willingness of the mediator to impose costs if A rejects an offer are crucial components in B's decision whether to make her optimal offer or fight. Figure 3.4 displays the parameters that inform B's choice of making an offer versus fighting. In each of the three panels of Figure 3.4, A's current probability of victory (p), is on the x-axis. The common cost for conflict (c), is on the y-axis. The panels are each

titled with a level of mediator strength and interest (w), which represents the costs the mediator will impose on A if it rejects an offer at or above what the pre-shift balance of power warranted. In each panel, the portion above the line depicts the parameter space in which B is willing to make its optimal offer; the portion below the line depicts the parameter space in which B prefers fighting rather than bargaining.

The top panel of Figure 3.4 depicts B's choice between offering and fighting when w=0. As such, it is identical to Figure 3.2 (only with different proportions) which depicts the same choice given that A pooled on negotiation. Recall that, in the context of this theory, a mediator with no enforcement power is equivalent to negotiating without a third party. The middle and lower panels of Figure 3.4 depict this same choice made in the presence of increasingly strong mediators (w=0.3 and w=0.6, respectively). As the mediator becomes stronger, B is willing to make its optimal offer when facing smaller costs of conflict, and when it has a larger chance of victory initially (i.e. as p falls). This is due to the fact that as the mediator becomes increasingly strong, B's optimal offer falls, giving it greater utility. Additionally, stronger mediators generate increasing probabilities of acceptance by A for any given offer, thus making B more willing to bargain in the first place.

Proposition 8. *No type of A has an incentive to deviate to either fighting or negotiation.*

In this equilibrium, all types of player A move for mediation. For the equilibrium to hold, no types of A may have incentives to unilaterally change strategies to negotiation or fighting without moving for bargaining. Examining the former necessitates a discussion of what B should believe, given an off-path move for negotiations. An off-path

move for negotiations could be undertaken by one of three types of A. The first would have accepted the mediated offer, and would also accept the slightly more attractive negotiated offer. The second would have accepted the mediated offer, but would reject the negotiated offer. The third would have rejected either offer, and simply wants to avoid paying the mediator-imposed costs of doing so. From B's perspective, the first type is slightly pernicious, the second type is highly pernicious, and the third type results in no change in her utility.

I assume that B, being concerned with her own utility and fundamentally worried about devious behavior, puts the preponderance of her beliefs on the types of A that deviate being the types that would have accepted a mediated offer, but would prefer to reject an unmediated offer. This pattern of beliefs is chosen to parallel disputant and practitioner accounts of disputant belief profiles during conflict bargaining. Specifically, though disputants could be specified to hold any pattern of reasonable off-path beliefs, in the real world disputants nearly always assume the worst when faced with an opponent who deviates from previously agreed-upon bargaining protocols (Murray and Cowden 1999).[11] Given this pattern of beliefs, B would prefer to fight types of A who deviate from the mediation equilibrium; thus, no type of A would do so. As I show in the appendix, no types of A would prefer fighting to a mediated settlement, or to a rejection if that is in equilibrium. Thus, the equilibrium holds.

Proposition 9. *The presence of a stronger mediator causes A to be more likely to accept B's optimal offer.*

[11] This particular belief pattern is not necessary for the equilibrium to hold. In the Appendix, I give the bounds on the beliefs that support this equilibrium.

How does the inclusion of a mediator change behavior in equilibrium? Figure 3.5 depicts equilibrium behavior when all types of A pool on moving for mediation. Like the negotiated case, the parameter space is three dimensional. The costs of conflict, c, are plotted on the x-axis of each panel. s, A's power shift, is in the vertical dimension. Each panel depicts a different value of A's pre-shift probability of victory. The solid lines in each panel depict equilibrium behavior when all types of A pool on mediation, dividing the space into regions categorized by continued conflict, accepted offers, and rejected offers. All three panels depict a mediator where w=0.3. For comparison, equilibrium behavior when A pools on negotiation is depicted by the dashed lines. Both sets of lines create three spaces corresponding to the same behaviors, only their relative sizes are different.

In each panel, B prefers to fight in the space to the left of the vertical line, rather than making her optimal offer. The movement of this vertical line closer to the y-axis at successively high levels of p corresponds to the relationship depicted in Figure 3.4. Right of the vertical line, B makes her optimal offer. This offer is accepted by A in the lower portion of the space to the right of the line, and rejected in the upper portion.

The line that separates the region of accepted offers from that of rejected offers has three components: a curved part, an upward-sloping linear part, and a flat part. The first depicts behavior as B's offer falls. The linear portion depicts behavior where B's offer has fallen to its natural lower bound, zero. Finally, the horizontal part is a ceiling at s=1; here, offers (of zero) are accepted by all types of A.

Plotting equilibrium behavior for both classes of equilibria, where all types of A

pool on negotiation and where they pool on mediation, allows for straightforward comparison. Figure 3.5 shows two things. First, the vertical line that divides the area where bargaining occurs and where it does not in each panel is further left under mediation (solid line) than under negotiation (dashed line). This makes the space wherein no bargaining occurs shrink, implying that mediation generates bargaining under a wider range of parameters than would otherwise be sustainable. Secondly, the line separating acceptances from rejections is higher at every point under mediation (solid line) than under negotiation (dashed line). This implies that, conditional on the cost of conflict, a larger proportion of types of A will accept bargains under mediation than they will under negotiation. This comparison of equilibrium behaviors can be extended to comparing behaviors within cases of mediation. Recall that, in this model, negotiation is synonymous with mediation by a powerless third party. Thus, we can also read the comparative statics described in Figure 3.5 as being comparisons of weaker, disinterested third parties to stronger, more interested ones.

3.3.4 Equilibrium 3: Continued Conflict

The third and final equilibrium is characterized entirely by continued conflict. In this equilibrium, B finds bargaining too risky, and prefers to simply continue the conflict. Knowing this, A does not bother attempting to move to the bargaining table.[12] Rather, A continues the conflict. Formally,

[12]Formally, I assume that A continues the conflict on indifference, rather than moving for a round of bargaining he knows B will refuse. This non-bargaining equilibrium could be strengthened by adding an assumption that rejected offers to bargain are costly, either due to strategic reasons (Mastro 2012) or domestic reasons (Fearon 1994).

$$A: \left\{ \begin{array}{ll} F, A & \text{if } s < s^* \\ F, R & \text{if } s > s^* \end{array} \right\}$$

$$B: \left\{ F \right\}$$

Proposition 10. *When it is likely to win, and when the costs of fighting are low, B prefers to fight rather than making an optimal offer.*

Unlike many other theories of conflict bargaining, this one does not begin by assuming that bargaining happens. Rather, disputants must choose whether to initiate bargaining. As noted in both the equilibria above, B faces a complex calculation when choosing its utility-maximizing offer, given its beliefs about A's future power and accept/reject decision criteria. With this optimal offer established, it must then choose whether making the optimal offer is better than continuing the conflict without bargaining. Making the offer generates the possibility of a settlement that avoids the costs of war. However, it also comes with the risk of a rejection, forcing B to both pay the costs of conflict and fight a strengthened opponent in the future. Fighting today guarantees that B must pay the costs of conflict, but obviates the worry about facing a strengthened opponent in the future.

Generally, the stronger B is today, the more likely she is to fight now. This is because she can assure herself a fairly good outcome. Furthermore, when A is relatively weak, he stands to gain the most from a break in the fighting. All else equal, as the costs of conflict fall, B is more likely to prefer to fight today rather than bargain. This is because low costs make fighting more attractive, while high costs of conflict push B to bargain

in hopes of avoiding them. This dynamic is illustrated in Figure 3.2. Recall that A's pre-shift power (p) is graphed on the x-axis, and the costs of conflict (c) on the y-axis. The areas above the line where B prefers to make her optimal offer, the areas below it depict where she prefers fighting today to bargaining.

3.3.5 Alternate Modeling Choices

For purposes of tractability, I employ a simple bargaining protocol; player B gets to make an ultimatum-style offer, to which A can respond only by accepting or rejecting. It is worth considering informally how a more fully developed bargaining protocol might change the nature of the equilibria found here. Specifically, one may worry that B will use her proposer status to extract a large share of the bargaining surplus from A, and that this causes unusual behavior. In an infinite horizon, incomplete information bargaining setup, B would not be able to extract an undue share of the bargaining surplus. Rather, bargains struck would be close to splitting any available bargaining surplus. In the one-shot variant analyzed here, B is able to extract some surplus. If it could extract less due to a more thorough bargaining protocol, there would be fewer situations in which it would prefer to bargain. However, this would likely cause a monotonic shift in the boundaries of the equilibrium space, rather than fundamentally altering equilibrium dynamics.

It is also worth considering how the model might be affected if A could become weaker during bargaining, rather than either having constant or increased power. If this were the case, then A would have to be concerned about the fact that moving for

talks (of either kind) could signal weakness. However, types of A that may become weaker would likely find added benefits of mediation. Not only would having a mediator make B less concerned about being taken advantage of, the mediator would also allow failing types of A to have insurance against low offers. In a previous version of the model set out in this chapter, I found that allowing A to become weaker during bargaining did not generate substantively different conclusions from those set out here.

3.4 Implications

This theory set out to answer four key questions related to conflict bargaining: How do disputants reach the bargaining table? Why is moving to the table not sufficient to generate agreements? When should we expect agreements to be struck? And finally, what can be done to help disputants get to the table, and strike more bargains once there? The theory put forward in this dissertation answers these questions by recognizing that a commitment problem adheres *during* bargaining. Bargaining takes time, thus allowing for the possibility that disputants can gain unequally from a pause in fighting. A disputant that anticipates a large shift in power during a ceasefire cannot commit to continuing to bargain.

The theory of intra-bargaining commitment dynamics helps us understand when bargaining happens by pointing out a factor that can prevent it from occurring: fear of the existence of a commitment problem. A disputant that thinks its opponent will gain too much more than it from a break in fighting will not initiate bargaining in the first place. This is because it worries that its opponent is not bargaining with any intention

to strike a deal. Rather, the opponent wants to accrue a positive power shift during bargaining, and return to conflict on a stronger footing.

Thus, the theory helps us understand that bargaining onset is not only a function of expectations about downstream enforcement (Walter 2002), nor mutual high costs for conflict (Zartman 2001), nor understanding of a conflict's parameters (e.g. Filson and Werner (2002)). Rather, disputants are scared of being double-crossed by those putatively seeking peace, and with good reason. This dynamic has likely kept bargaining from happening between rebels and the government in Syria. Assad's forces worry that rebels would fortify positions in Aleppo and elsewhere during lengthy bargaining watched over by international actors. Rebels are concerned that government forces would gain intelligence on their positions, and gain access to refurbished equipment such as attack helicopters during the course of peace negotiations.

The theory also helps us understand bargaining success. According to the theory of intra-bargaining commitment dynamics, bargaining is successful when neither side is able to capitalize on a break in fighting to an extent that makes it not want to continue the bargaining process. When one side gains a large increment of power during bargaining, the other may be unwilling or unable to offer it enough to satisfy it.

The model also makes clear exactly why bargaining success is not endogenous to bargaining onset. Disputants, according to this theory, can be willing to bargain though they know that their offer will not be acceptable to a large class of opponents. They bargain in hopes of reaching a settlement because this possibility, though not certain, is strongly preferred to continued conflict. Additionally, this dynamic helps

elucidate the phenomenon of disputants worrying that their opponent is "bargaining in bad faith." Disputants that expect to gain a large increment of power during a ceasefire have strong incentives to move for bargaining. They do so in anticipation of receiving a moderate offer, and then rejecting it. Put differently, they have no intention whatsoever of settling. These are Richmond's (1998) "devious disputants."

The theory set out above establishes a novel role for third party actors who want to help arrest conflicts: enforcing the tacit agreement to bargain. Being seen as willing and able to impose costs on disputants who agree to bargain but then fail to make or accept reasonable proposals helps disputants in two ways. First, enforcing the commitment to bargain allows bargaining to take place in a greater array of situations than if no such enforcement were available. The presence of a third party enforcer gives B the assurance she needs to be willing to bargain. The logic of this dynamic, formalized in Proposition 7, generates the following implication, which follows directly from the formal model:

Direct Implication 1. *All else equal, disputants are more likely to come to the table when a stronger, more interested mediator offers to mediate, or is invited to do so.*

Third parties that are capable of and willing to impose costs for intransigence also help disputants strike more bargains. The reason this is true has two components. Foremost, as noted above, third parties help make B willing to come to the table – a necessary condition for reaching a settlement. In the absence of a third party, there are a wide range of circumstances under which B would prefer to fight rather than making an offer. Secondly, the threat of costs imposed by a third party pushes player A

to accept a wider envelope of offers. This function of mediation comports with the classic "sticks and carrots" view of what a mediator does (Touval and Zartman (1985); Schrodt and Gerner (2004)). However, in this context the stick does not help disputants overcome an empty bargaining range created by uncertainty; rather, the stick helps an ascendant disputant commit to an otherwise unacceptably small division of a good. Stated differently, third parties help disputants tie their hands (Fearon 1997). This logic, which is formalized in Proposition 9, generates the following:

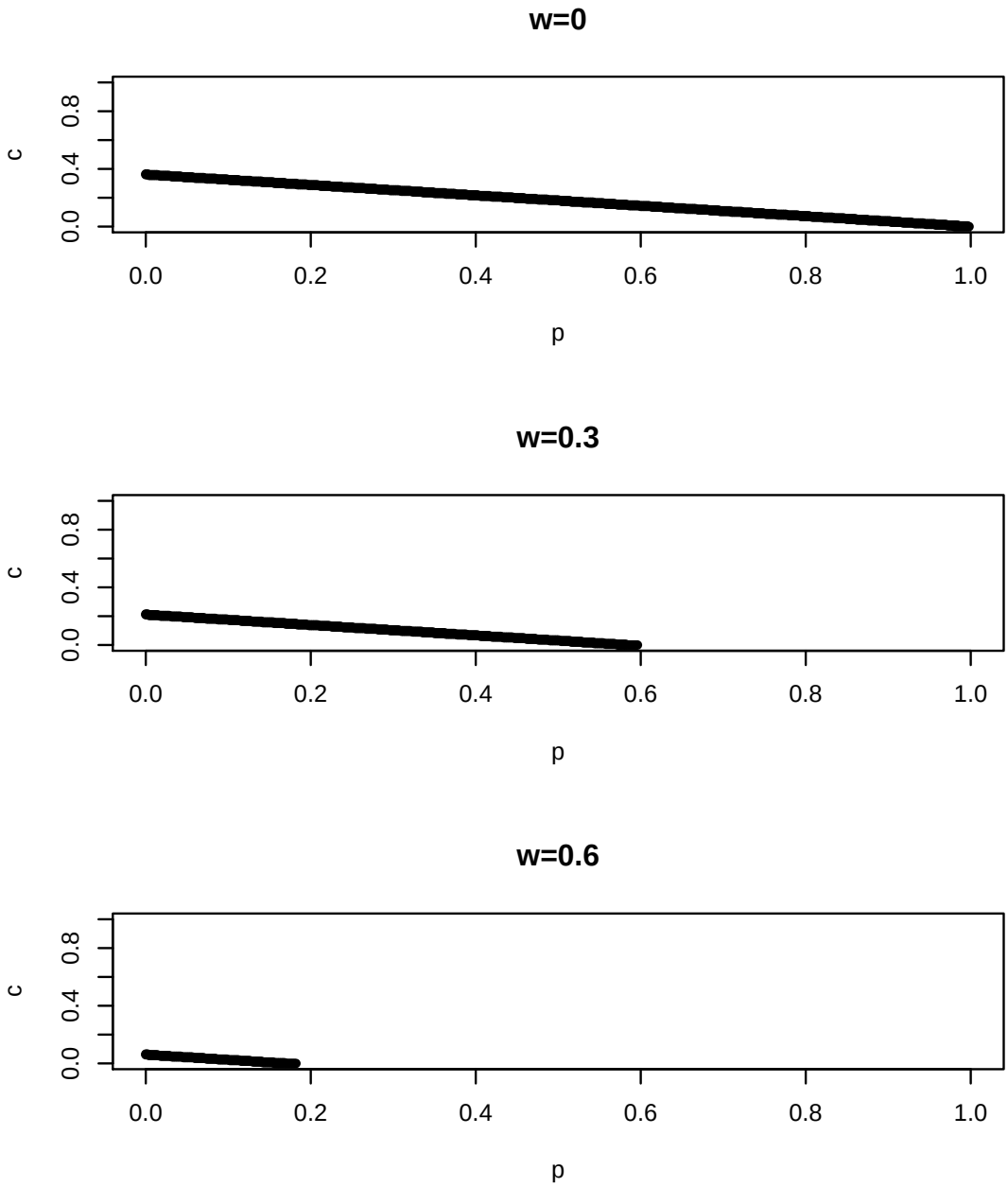
Direct Implication 2. *All else equal, disputants are more likely to strike a bargain when a stronger, more willing third party mediates.*

The theory of intra-bargaining commitment dynamics also implies that some of what we know about conflict mediation onset is right, but for the wrong reasons. In studies of mediation outcomes, it is common (and important) to account for the non-random assignment of mediation to conflicts. Studies that use this empirical strategy have often noted that mediation "goes to the hard cases." That is, disputants and mediators opt into mediation when conflict-level characteristics do not favor resolution (see especially Gartner and Bercovitch (2006)). However, this finding may be driven by its contrapositive. The theory put forward here shows that mediation can be useful to disputants who fear intra-bargaining commitment problems across a wide range of situations. However, bilateral talks are only feasible under more favorable conditions, when concerns about commitment are less pressing. Thus, it may not be the case that mediation goes to difficult cases, but rather that bilateral negotiation does not happen in difficult cases.

The theory set out above also helps make sense of a poorly explained empirical regularity: great powers rarely seek the assistance of mediators. For instance, in the domain of enduring rivalries, Greig (2005) finds that major powers are significantly less likely to utilize mediation. He explains the infrequent use of mediation by great powers as being the result of great powers disdaining intervention in their affairs. The theory of intra-bargaining commitment dynamics provides a parsimonious, rationalist account for why strong states are rarely offered mediation, and why they prefer not to use it when it is offered. Third parties can only serve as efficacious enforcers of the tacit agreement to bargain if they are willing and able to impose meaningful costs on the disputants for breaking their commitment. It is unlikely that small states would have this capability with respect to major powers. Other major powers might have sufficient enforcement power, but using it against a fellow major power would require a large amount of coercion. This may be untenable because of the possibility of provocation, or because doing so would be unpalatable to the domestic audience of the potential intervenor or the major power in the dispute.

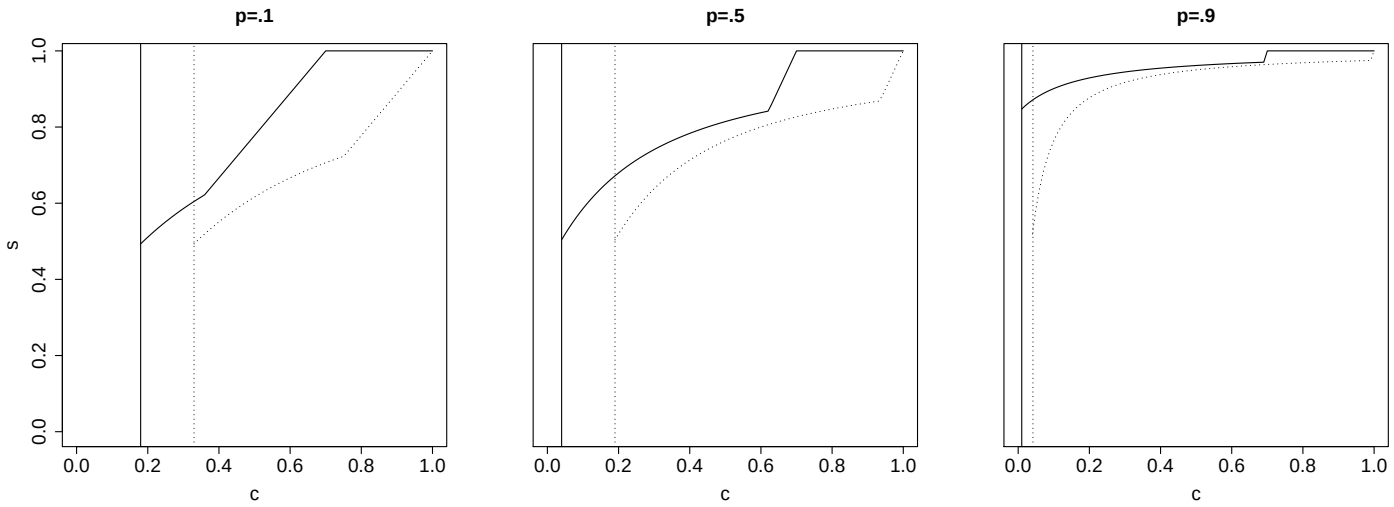
With the theory of intra-bargaining commitment in place, I move on to testing the propositions that fall from the theory empirically.

Figure 3.4: B's Choice Between Fighting and Making an Optimal Offer, Given A Pools on Mediation



B's choice between fighting and making an optimal offer, given that all types of A pool on moving for negotiation. p is A's pre-shift probability of victory, and c is the common cost for conflict to both A and B. Above the line, B prefers to make the optimal offer, $\max(x_M^*, 0)$. Below the line, she prefers to fight. The top panel shows B's choice when the mediator is impotent (w=0) – this is identical to Figure 3.2. As w grows (the middle and bottom panels), B prefers to go to the table and make offers over a larger portion of the space.

Figure 3.5: Comparing Equilibrium Behavior Under Negotiation and Mediation



Comparing equilibrium behavior when all types of A pool on negotiation, versus when they all pool on mediation. In each panel, the cost of conflict (c) is on the x-axis, while A's power shift (s) is on the y-axis. The panels depict three different levels of p, A's pre-shift probability of victory. The solid lines represent mediation, with w=.3; the dashed lines represent negotiation (i.e. w=0). In each panel, to the left of the vertical line B fights, and to the right she makes her optimal offer. In the right side of each panel, A accepts this offer in the bottom portion, and rejects it in the top portion. Note that, in every panel, mediation makes bargaining occur in equilibrium under a wider range of parameters, and acceptances in equilibrium for a wider range of parameters.

Chapter 4

Empirics 1: Bargaining Onset

In this chapter, I test the first implication of the theory of intra-bargaining commitment dynamics: All else equal, disputants are more likely to come to the table when a stronger and more interested mediator offers to mediate, or is invited to do so. I test this hypothesis in the domain of civil conflicts from 1945 to 1999. The next section sets out a generalized test of the causal effects hypothesized based in the potential outcomes framework. I next describe the data, as well as a set of choices with regard to measurement. I then describe the main model I implement, and the statistical and substantive results that flow from it. The chapter then moves on to a suite of robustness checks. Finally, I conclude with a discussion of the theoretical and empirical importance of the chapter's findings.

4.1 Potential Outcomes and Inference: The Onset of Mediated Bargaining

An ideal test of the proposition that the availability of a strong, interested mediator leads to an increased likelihood of bargaining would be an experiment. In this experiment, a large set of conflict dyads would be randomly assigned mediators of varying degrees of strength and interest. Then, the experimenter would observe which of the dyads chose to move to the bargaining table, and which did not. The correlation between this choice and the degree of combined interest and capability of the third party would then be an accurate estimate of the average treatment effect of mediator strength and interest on bargaining onset (Gelman and Hill 2007).[1]

The observational data we have departs from this experimental ideal in several critical ways. Foremost, all disputants are not offered mediation. If the factors that affect mediation offers are correlated with the mediation acceptance process, then the estimation of the average treatment effect will be biased (Heckman 1979). What factors are these that may affect offers and acceptances, and why can they not simply be controlled for like other regression covariates? We might suspect that mediators prefer to have their offers accepted, and thus intentionally offer mediation when it is likely to be accepted by disputants. Importantly, several scholars argue that mediation is likely to occur at "ripe" moments, when disputants are worn down and/or are mired in a costly stalemate (Zartman (2001); Zartman (2000)). Additionally, mediators may be

[1] Of course, this only holds if the stable unit treatment value assumption (SUTVA) holds. In political science, this assumption is often left unstated and unchallenged.

more likely to seek entry, and disputants may be more likely to accept mediation, when conflicts are more amenable to being transformed into games of cooperation (Terris and Maoz 2005). Greig and Diehl (2006) find that enduring rivals are more likely to accept mediation after their conflictual relationship has "softened up." Furthermore, Greig (2005) presents strong evidence that the offer and acceptance processes are correlated.

The scholarship cited above implies that the processes that cause mediation offers may be positively correlated with the process that generates mediation acceptances. However, there may be other factors that increase the likelihood of offers being made, but affect the acceptance process negatively. For instance, mediators who strongly favor one side over the other may be highly likely to offer mediation. However, this lopsided interest may make these mediators less acceptable to one of the disputants.

Though these factors likely affect both the offer and acceptance processes, and are surely taken into account by strategic mediators and disputants, to scholars they are unobservable, in the sense that there are no high-quality quantitative indicators of them. One way to account for this is by modeling the offer and acceptance of mediation jointly. The canonical Heckman probit model is formed by assuming that the error terms in the pair of equations predicting these two processes are distributed bivariate normal. This model allows for the estimation of the degree of correlation between the mediation offer (selection) and mediation acceptance (outcome) equations.

Not only are offers of mediation not randomly assigned with respect to mediator qualities, they are also not randomly assigned with respect to the history of the con-

flict. Conflicts, and especially civil wars, are known to receive offers of mediation in streaks – put differently, offers of mediation exhibit substantial temporal dependence within disputes (Greig and Regan 2008). To account for the temporal effects of mediation offers on subsequent offers, I include the time since the last offer of mediation by any party, its square, and its cube (Carter and Signorino 2010). I model these temporal effects as being driven by each mediator; however, it is possible that the dispute's age, rather than the time since the last mediation, is the more important temporal effect. Thus, I additionally include measures of a conflict's length, and the square thereof. An alternative estimation strategy would be to utilize an event-history model to capture temporal dynamics. However, all of the mediator-specific data and much of the conflict-specific data only vary annually; thus, I utilize a discrete-time framework. Generically, I estimate:

$$y_{sel}^{probit} = \beta_{sel} x + \gamma_{sel} x_c + \gamma_t t^{1,2,3} + u_{sel}$$

$$y_{out}^{probit} = \beta_{out} x + \gamma_{out} x_c + u_{out}$$

$$corr(u_{sel}, u_{out}) = \rho$$

where y_{sel} is whether a potential intervenor-conflict-year experiences an offer of mediation, y_{out} is whether or not mediation is accepted and β is a coefficient on a variable of interest, x. γ represents coefficients on control variables, x_c, and γ_t is a coefficient on a temporal dependence variable. u represents an error term, and ρ is the correlation in the errors, which is assumed to be bivariate normal.

4.2 Concepts and Measurement

The proposition tested in this chapter is that mediators who disputants expect to impose greater costs for intransigence are more likely to have their offers to mediate accepted than are mediators who disputants expect to impose lesser costs for intransigence. I capture the concept of perceived or expected costs imposed for intransigence by measuring a potential mediator's ability to impose costs, and its willingness to do so. The combination of these factors, I argue, captures expected costs for intransigence. This necessitates generating reasonable measures of both strength (ability to impose costs) and interest (willingness to impose costs). Why might a third party state be particularly interested in generating a peaceful solution to a civil war? To address this, I draw on two literatures. Civil wars are problematic for nearby states for a whole host of security reasons. Foremost, civil wars cause civil wars in nearby states(e.g. Buhaug and Gleditsch (2008)). Civil wars are massively destructive to a state, and threaten the tenure of those in power. As such, concerns about their spread should motivate nearby states to take an active interest. Secondly, civil wars depress the economies of nearby states, causing a loss of domestic support and financing (Murdoch and Sandler 2004). Danneman and Ritter (2013) show that civil war in neighboring states prompts leaders to take preemptive, repressive action in hopes of quelling future dissent. However, this repression may risk increasing domestic tensions. Civil wars also generate massive public health externalities that hurt nearby states (Ghobarah, Huth and Russett 2003). Finally, civil wars create refugee flows that inflame security and distributional concerns in nearby states (Salehyan and Gleditsch 2006). Overall, security concerns

likely prompt states to be particularly concerned with ending civil wars.

A second factor that might motivate a state to take costly action to end a civil war is money. Civil wars are not only caused by dismal economic performance, they cause it as well (Ghobarah, Huth and Russett 2003). A precipitous drop in imports and exports from a major trading partner due to civil war is likely to have adverse effects on nearby countries. Though economic actors in some sectors may be able to shift their trading profiles, others will not. Furthermore, even those who can trade elsewhere will find the change costly. In sum, then, economic interests are likely to cause states to be concerned with ending civil wars.

In addition to these "hard" or realist factors, liberal factors may generate interest in resolving a civil war as well. Adler and Barnett (1998) argue that security communities can form regionally, and that states therein take each others' security very seriously. These actors are often initially driven by small gains from cooperation, but eventually these relationships develop to the point where nations feel a sense of kinship and responsibility to each other. Similarly, Crescenzi et al. (2011) find empirically that democracies feel normative pressure to assist one another through the provision of conflict mediation services, and also find that mediation is more likely to come from nearby states.

Importantly, the security, economic, and communal factors that generate interest in civil war termination are all intimately tied to geography. Civil wars cluster tightly in space (Buhaug and Gleditsch 2008). The economic externalities associated with conflict and refugees flow outwards from a conflict's center. Refugees rarely have the ca-

pacity to get further away from a conflict than across a single border (Salehyan and Gleditsch 2006); communicable disease usually does not outpace them. Trade between nations is very strongly predicted by geographic proximity, so much so that baseline models of trade draw their name from physical models of gravity, in which distance is a key component. Finally, the sense of community among nations is often related to relationships based in common language, ethnicity, and economic interest, all of which are highly correlated with proximity.

Not every proximate nation will be equally interested in resolving a given conflict. However, I expect geographic distance to capture most of these drives, and serve as a reasonable proxy for how important any given state feels it is to quell civil conflict in another state. Generally, this measurement strategy is similar to the one employed by Danneman and Ritter (2013) in that both use a general variable to capture the influence of several potential direct causes.

Measuring a state's capacity to inflict costs for intransigence is similarly complicated. States exert pressure on one another in a host of ways, though not every way is equally available to all states. Foremost, states may use military pressure or coercion to get disputants to make and accept reasonable bargains. Favretto (2009) shows convincingly that military coercion can be used, when credible, to generate agreement. Coercion can be in the form of direct military action,[2] threats to withdraw military support, or threats against the diplomats themselves.[3]

States can also pressure other actors economically. Promises to increase aid upon

[2] E.g. the US in the Balkans.

[3] E.g. Quaddhafi with N. and S. Yemeni diplomats in 1972.

agreement, or withhold it in response to intransigence, are common. For example, in 1979 the United States promised, and has delivered, a flow of continued economic and development aid to Egypt contingent upon its signing the 1979 treaty with Israel. This aid is non-trivial: it amounts to around $1.3 billion annually (US Department of State 2012). Trade restrictions can also serve as a source of leverage, as can sanctions (Tsebelis 1990).

The mechanism through which a mediator employs leverage is unimportant to the theory of intra-bargaining commitment. The theory merely stipulates that the ability to use leverage, in combination with incentives to do so, is crucial. Thus, like the use of distance to account for the multiple potential causes of interest, I use a state's major power status as a proxy for its generalized ability to impose costs.

As alluded to above, closeness is likely a noisy measure of interest, and major power status is likely a noisy measure of leverage. Insofar as the noise in these measures is merely noise, and is uncorrelated with other concepts, this noise serves to make the tests of the hypothesis presented here more conservative by causing attenuation bias.

4.3 Data and Model

I analyze the universe of potential intervenor-civil conflict-years from 1945 to 1999, adapted from Greig and Regan (2008). I examine instances of potential mediation by states, as this allows me to implement the measurement strategy described above. As such, all non-state mediators, such as the UN and the Vatican, are dropped from the analysis. There are 399 civil conflicts in this data set, and 186 potential mediating states

per year. This generates a data set of 183,120 potential intervenor-conflict-years. There are 201 mediation offers in this data set, of which 172 are accepted.

As mentioned in the preceding section, I employ a Heckman selection model to account for the non-random selection of disputes into the pool of disputes that are offered mediation. The first equation in this model estimates the probability of an offer of mediation. I adapt Greig and Regan's (2008) theoretically-driven first-stage equation in which they similarly aim to estimate offers of mediation. They utilize variables that tap conflict characteristics, as well as the inter-relationship between potential mediators and civil war states. I adapt their model, utilizing historic linkages, the sum of previous accepted offers of mediation by any party, the natural log of battle deaths to date, the duration of a conflict in years (and its square), the distance between the potential third party and conflict state (recoded as closeness, which is the maximum distance in the data minus the distance for the dyad), major power status, and the interaction of closeness and major power status. As noted above, I also account for the time since any third party mediated, its square, and its cube in the mediation offer (selection) equation.

The information on mediation offers and onsets comes from Greig and Regan (2008), as do data on conflict duration. The number of previous mediations is the sum of all previous accepted mediations in a particular civil war. Historic linkages are coded as 1 if there is a former colonial relationship, based on the ICOW Colonial History data set (Hensel 2006). The distance between potential intervenors and the civil war state is coded from the C-Shapes R package, and utilizes the inter-border distances between

states (Weidmann and Gleditsch 2010). I take the log of this variable, and reverse code it into a variable called "closeness," which takes its minimum for states on opposite sides of the globe, and its maximum for contiguous states. Summary statistics are presented in Table 4.1.

Table 4.1: Summary Statistics

Variable	Min	1Q	2Q (Mean)	3Q	Max
Log Battle Deaths	0	5.3	6.9	8.2	12.8
Duration	1	3	7	14	52
Closeness	0	0.5	1.1	1.5	9.4
Major Power	0		0.04		1
Closeness*MP	0	0	0	0	9.4
Historic Ties	0		0.005		1
Previous Acceptances	0	0	0	0	4
Time Since Last Mediation	1	2	5	10	42
Mediation Offered	201 cases				
Mediation Accepted	172 cases				
N = 183,120					

Summary statistics for variables used in the Heckman probit model. Values are shown for the minimum, first, second, and third quartiles, and maximum of continuous variables. Values are shown for the minimum, mean, and maximum for dichotomous variables.

In the outcome equation, I predict the probability of an offer of mediation being accepted. The theory predicts that mediators who are both interested and capable should be more acceptable than less interested, less capable ones. As such, I include closeness, major power status, and their interaction. The formal model makes clear that the relationship between the probability of acceptance and mediator characteristics, w, may vary by level of costs of conflict. As such, I control for the log of cumulative battle deaths. Following Achen (1986), I limit the amount of miscellaneous control variables in the outcome equation, as doing so may worsen the estimate of the treatment effect. Finally, I control for the duration of the civil war, and its square, as

different types of mediators may have incentives to interject themselves into disputes at different times, and timing has been shown to influence mediation acceptances.

In order to properly identify a selection model, one must employ exclusion restrictions. This entails including variables in the selection stage that do not appear in the outcome stage of the model. I use the temporal variables, the sum of previous acceptances of mediation, and information on historical connections between potential intervenors and conflicted states to identify the model. The time since the last instance of mediation, its square, and its cube account for the temporal correlation in mediation offers. Greig and Regan (2008) show that offers are often correlated across time, with both rejected and accepted offers begetting more offers in the future. However, the amount of time since the last offer is unlikely to be correlated with the type of state that makes the next offer to mediate. Similarly, the number of previous acceptances can make states contemplating offering to mediate, who prefer not to have their services turned down, more likely to make offers. However, a history of offers of mediation, though potentially linked to mediation acceptances, is unlikely to be correlated with mediator characteristics, particularly the key independent variables of interest here. Finally, historical linkages between states have been shown to increase the probability of a potential intervener making an offer to mediate. However, previous relationships seem unlikely to be correlated with the strength and interest of a potential intervenor.[4]

Brandt and Schneider (N.d.) and Sartori (2003) both note that selection models

[4]It is possible that strong, interested mediators are likely colonial powers, and as such have historical linkages. If former colonial powers are more likely to generate acceptances, this could cause confounding. This concern is shown to not be warranted in the robustness section.

provide inaccurate estimates and incorrect standard errors if the variables in the selection stage that are not in the outcome stage are only weakly predictive of selection, which is common in political science applications. Thus, following Brandt and Schneider, I bootstrap the estimates and standard errors of this model using the following procedure. For each bootstrap replicate, I first draw the proportion of selected cases from a binomial distribution whose mean is the actual selected proportion in the data. I then use that random proportion to inform the number of selected cases to draw with replacement. I then draw enough unselected cases, again with replacement, to form a data set with the same number of observations as the original data set.

Results from the estimation are presented in Table 4.2.[5] The selection equation performs largely as previous studies expect (Greig and Regan 2008). Historic ties and previous acceptances of mediation increase the probability of mediation being offered. While the main effects of both closeness and major power status on the probability of mediation offers are positive, their interaction in the selection stage is negative. The coefficient on the interaction term is very nearly the same size as that of the continuous variable, closeness; meaning that being a major power essentially negates the increased probability of an acceptance due to geographic closeness. Note as well the large degree of temporal dependence in mediation offers, indicated by the large coefficients on time, its square, and its cube. Finally, we see that conflict duration has a modestly curvilinear effect on mediation offers, with offers being less likely early and late in a dispute.

[5] I estimated this model on each bootstrapped data set via maximum likelihood, as it is more efficient than two-step estimation approaches.

Table 4.2: Bootstrapped Selection Model Results

Variable	Coefficient	95% CI
Acceptance		
Closeness	0.007	(-0.01, 0.02)
Major Power	-0.1	(-0.3, 0.1)
Closeness*MP	0.04	(-0.003, 0.138)
Log Battle Deaths	-0.001	(-0.03, 0.03)
Duration	0.02	(-0.003, 0.033)
Duration^2	-0.0006	(-0.001, 0.00003)
Constant	1.03	(0.68, 1.40)
Offer		
Closeness	0.13	(0.12, 0.15)
Major Power	1.12	(0.96, 1.28)
Closeness*MP	-0.11	(-0.15, -0.07)
Log Battle Deaths	0.05	(0.02, 0.07)
Duration	0.03	(0.007, 0.045)
Duration^2	-0.0005	(-0.001, -0.00004)
Time	-0.20	(-0.27, -0.14)
Time^2	0.01	(0.004, 0.018)
Time^3	-0.0002	(-0.0003, -0.00002)
Historic Link	0.44	(0.20, 0.65)
Sum(Acceptances)	0.65	(0.54, 0.76)
Constant	-3.50	(-3.72, -3.30)
rho	-0.25	(-0.44, -0.06)

Bootstrapped estimates and 95% confidence intervals. N = 183,120. Note the sizable negative sign on rho, indicating a selection model is indeed necessary.

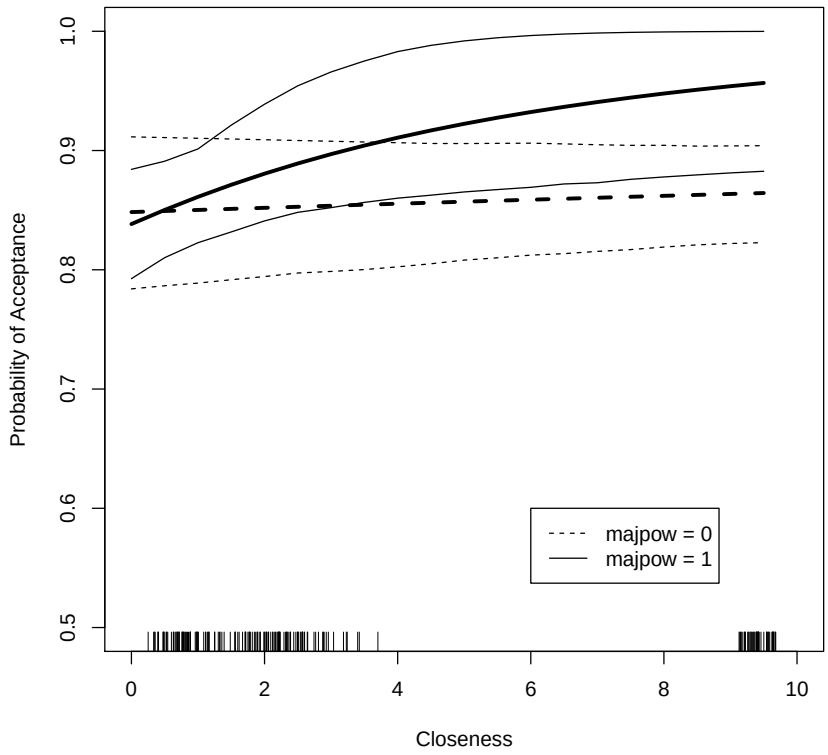
None of the coefficients in this table directly test the hypothesis under consideration in this chapter, namely: that strong and interested mediators are more likely to generate mediation onsets than weak and uninterested ones. This is not merely because the coefficients from non-linear models are difficult to interpret. Rather, the hypothesis under consideration here is that mediators with a combination of characteristics outperform those that lack both of these characteristics. Plotting the predicted probability of a mediation acceptance across a range of closeness, and for each value

of major power status, is somewhat more revealing, though still does not present a definitive test (Brambor, Clark and Golder 2006). Figure 4.1 does just this. Closeness is plotted along the x-axis, while the predicted probability of an acceptance is plotted on the y-axis. The bold solid line denotes the predicted probability of acceptance for major power mediators, with accompanying solid lines denoting the 95% confidence interval. The dashed lines likewise denote predicted probabilities for non-major power mediators.[6] The rug on the bottom depicts jittered values of closeness. The appropriate comparison in this graphic is the prediction for close major-power mediators (the solid line, at the far right of the graph) versus the prediction for non-major power mediators at low values of closeness (the dashed line at the far left side of the graph).

Interpreted correctly, this figure gives strong evidence in favor of the hypothesis that strong, interested mediators are more likely to generate bargaining than are weak, disinterested ones. Substantively, the model predicts that close, powerful mediators generate acceptances 96% of the time, while far off, less-powerful ones generate acceptances about 85% of the time. This difference is substantial, given the high baseline rate of acceptances. Figure 4.2 plots the simulated differences in predicted probabilities of acceptance for strong, close mediators compared to far-flung, non-major power mediators. The mean difference in predicted probability is 11%, and is highly statistically significant ($p<0.01$). The difference in predicted probabilities of acceptance between strong, close mediators and far-off, weaker ones is not only substantial and statistically significant at the end points of the closeness variable. Rather, the difference remains

[6]These predicted probabilities were generated holding the log of battle deaths and duration at their means.

Figure 4.1: Estimated Probability of Mediation Acceptance: Bootstrapped Estimates

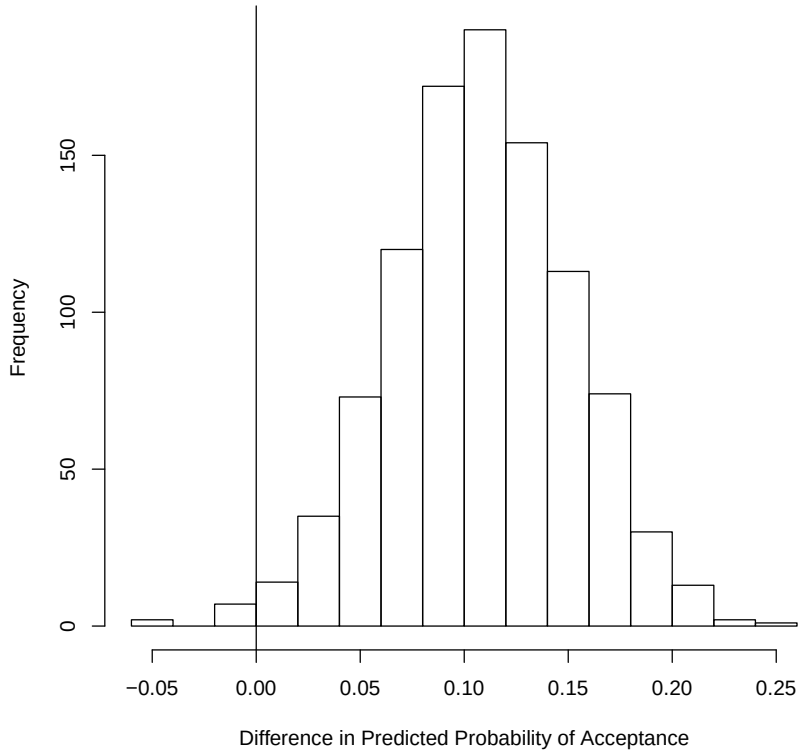


Bootstrapped predicted probability of mediation acceptance across the range of closeness, for both major powers and non-major powers. Bold lines denote estimates; lighter lines indicate 95% confidence intervals. The rug along the x-axis depicts jittered observed instances of closeness.

statistically significant nearly until the midpoint of closeness. Put differently, the statistical and substantive size of this relationship is not an artifact of choosing extreme values of the key independent variables.

There are several reasons to be skeptical of the inferences drawn from this model. Heckman probit models are highly assumption-driven. Specifically, they assume: 1) that the errors in the selection and outcome models are distributed bivariate-normal; and 2) that the Inverse Mills Ratio, the estimate of this correlation based on the pre-

Figure 4.2: Difference in Predicted Probability of Acceptance: Close Major Powers Minus Far-flung Non-major Powers



Simulated differences in the predicted probability of mediation onset. The difference is the predicted probability of mediation onset when offered by a nearby major power versus a far off non-major power. The vertical line at zero is a point of reference. This distribution is statistically distinct from zero, with p<0.05. The average difference in predicted probability of mediation onset is 11%.

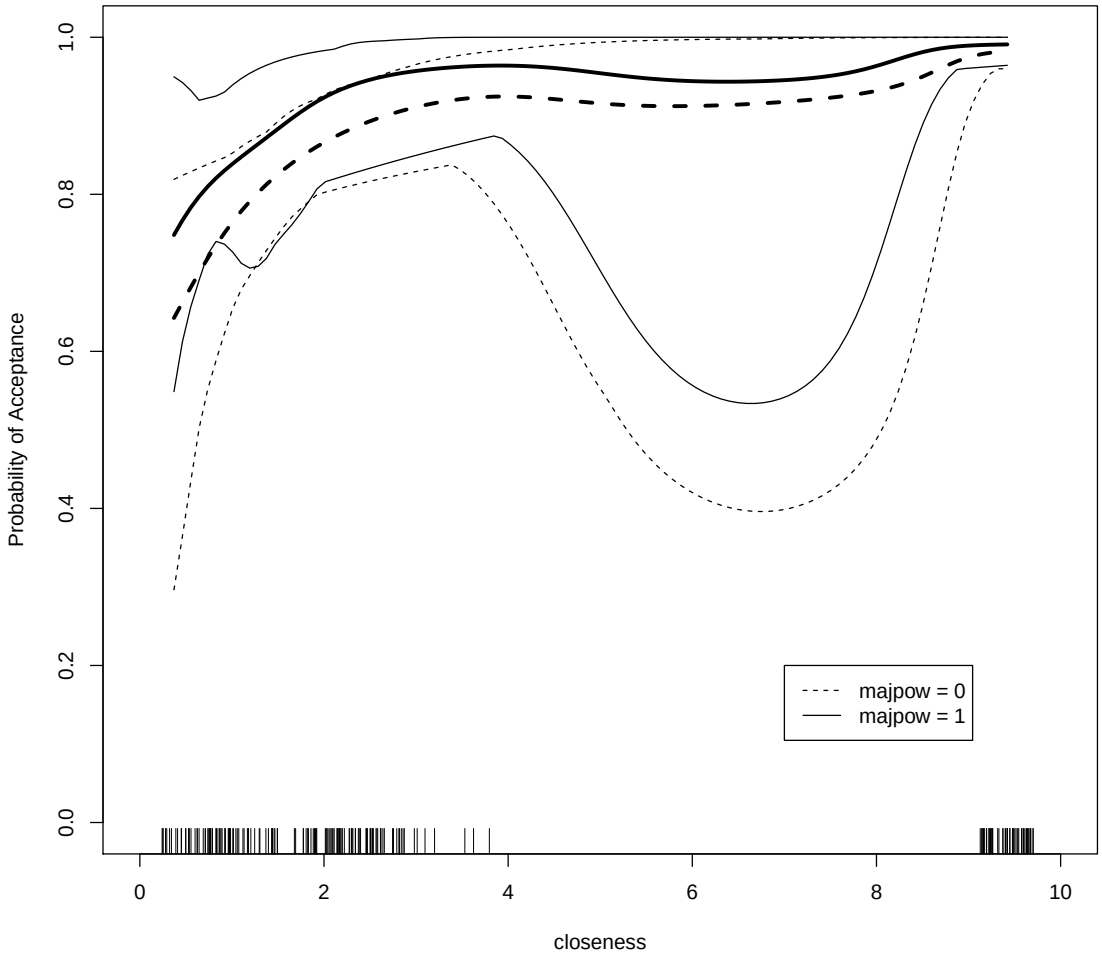
vious assumption, enters the outcome equation in a linear-additive fashion. These assumptions are very strong, largely or wholly untestable, and crucial to accurate estimation (Sartori (2003); Brandt and Schneider (N.d.)). Beyond these general critiques, the specific model implemented above has its own pitfalls. Foremost, the instruments (e.g. exclusion restrictions) are fairly weak, which can lead to estimation errors (Brandt and Schneider N.d.). Second, the estimate of rho, the correlation in the errors, is quite

high. This is exactly the situation in which accounting for selection effects is necessary, but also the situation in which the performance of Heckman-style models is known to be the worst (Briggs 2004).

Kenkel and Signorino (N.d.) observe that we can recast selection bias as an omitted variable problem, such that the omitted variable is the unobserved factor(s) affecting both selection into a sample and the outcome of interest. Set up in that way, one can use a high-order basis expansion of the outcome equation to estimate the functional form of the relationship between the regressors of interest and the outcome. Kenkel and Signorino (N.d.) advise that this setup ought to be used as a robustness check for Heckman-style models, given their known drawbacks. They implement this protocol, and include routines for pruning minuscule regression coefficients and generating standard errors via bootstrapping. This method does not generate a meaningful table of coefficients for the basis expansion; rather, one uses the coefficients to produce plots of the substantive effects of interest. I used the polywog package provided by Kenkel and Signorino to produce Figure 4.3, which plots the results of a third-order basis expansion of the outcome stage of the above-presented Heckman probit model.

This graphic warrants detailed explanation. Foremost, the highly flexible nature of the model leads to a very curvy set of predicted probabilities. One should not attempt to interpret the downward "bump" in the region of no support on the closeness variable, because predictions in that range are gross extrapolations. Most importantly, the graphical depiction of the predicted probabilities from the basis expansion model are broadly similar to those of the Heckman probit, adding to our confidence that these

Figure 4.3: Estimated Probability of Mediation Acceptance: Basis Expansion



Predicted probability of mediation acceptance across the range of closeness, for both major powers and non-major powers. Bold lines denote estimates; lighter lines indicate 95% confidence intervals. The rug along the x-axis depicts jittered observed instances of closeness. The model makes strange extrapolated predictions in the range of closeness devoid of observations. Overall, the results of the basis expansion model are very similar to those of the Heckman model, providing evidence that the Heckman probit is not mis-specified.

results are not artifacts of a poorly specified selection model. Furthermore, the hypothesis being tested in this chapter, that strong, close mediators generate acceptances with a higher probability than far-flung, weak mediators, is strongly supported by this

model as well. Figure 4.3 shows that nearby major powers generate mediation onsets nearly 100% of the time, whereas far-flung, weaker mediators generate mediation onsets only around 65% of the time. This difference is highly statistically significant, with $p<0.01$.

4.4 Additional Robustness Checks

Selection models are notoriously fragile (Sartori 2003). To address this potential concern, I estimated several variants of the baseline selection model, each of which employs a different selection stage. I bootstrap each of these models to best account for uncertainty in the estimates. In the first, I substituted Greig and Regan's (2008) original selection stage variables for those I chose to employ. The variables included, but not previously explained, are: trade interest, the proportion of the potential mediator's exports that flow to the conflicted state; defense pact, whether the potential mediator has a defense pact with the conflicted state; whether or not a different mediator mediated in the previous year; whether or not the potential mediator mediated in the previous year; and whether the potential mediator undertook a military or economic intervention in the conflict previously. The first column in Table 4.3 reports these results, while Figure 4.4 displays the predicted probability of mediation acceptance generated by this specification for major powers and non-major powers across the observed range of closeness. From Figure 4.4, it is obvious that the substance of the relationship between power, interest, and mediation onset is unchanged by using Greig and Regan's selection stage. This model predicts that strong, close mediators generate mediation onsets

at a rate 11 percentage points higher than their weak, far off counterparts (p<0.01).

The second column of Table 4.3 employs a simplified selection stage, again to assess the robustness of the model's results to changes in the selection stage. The results reported are largely similar in size and sign to those reported in the main model, and to those generated by using Greig and Regan's selection stage (column 1). Figure 4.5 displays the substantive effects of the model with the simplified selection stage. Again, this graphic demonstrates that the model's findings are robust to changes in the exact specification of the selection stage. This model, similarly to the previous one, finds that strong, close mediators generate mediation onsets at a rate 11 percentage points higher than their far-flung, non-major power counterparts (p<0.01).

As noted above, very few intervenor-conflict-years see offers of mediation; that is, offers of mediation are quite rare. This may cause concern insofar as standard models for dichotomous outcomes can produce biased results when the outcome occurs very infrequently (King and Zeng 2001). In order to overcome this potential source of bias, I generate 1,000 bootstrapped data sets which contain all of the selected observations, and a random sample of 5 non-selected outcomes from each conflict-year, in a procedure known as endogenous stratified sampling (King and Zeng (2001); see Savun (2008) for an application to the study of mediation onset). This limits the rare events problem, while ensuring that the non-selected cases all have an opportunity to contribute to the estimation results. I estimated the baseline model on each of these data sets, and found that the results were nearly identical to the original estimates, both in terms of point estimates and associated uncertainties; see Table 4.4. This provides

Table 4.3: Selection Model Robustness Checks

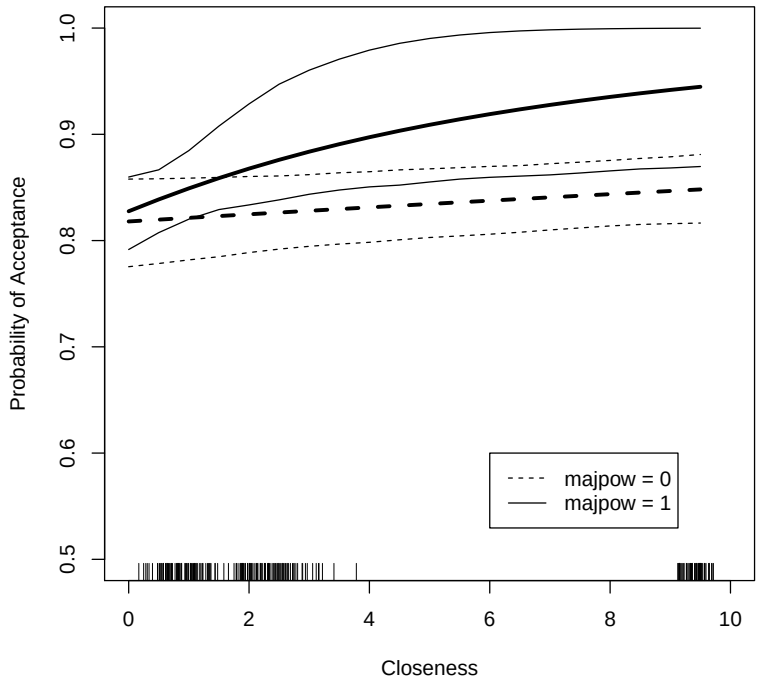
Variable	Greig & Regan	Simplified
Acceptance		
Closeness	0.01 (-0.001, 0.03)	0.01 (-0.007, 0.02)
Major Power	-0.01 (-0.20, 0.17)	-0.07 (-0.27, 0.10)
Closeness*MP	0.03 (-0.01, 0.14)	0.04 (-0.005, 0.14)
Log Battle Deaths	0.004 (-0.03, 0.04)	-0.004 (-0.03, 0.03)
Duration	0.02 (-0.01, 0.03))	0.02 (-0.01, 0.03)
Duration^2	-0.001 (-0.01, 0.0001)	-0.0006 (-0.001, 0.0001)
Constant	0.87 (0.61, 1.16)	0.97 (0.67, 1.29)
Offer		
Closeness		0.13 (0.11, 0.14)
Major Power		1.10 (0.94, 1.25)
Closeness*MP		-0.11 (-0.16, -0.08)
Log Battle Deaths		0.06 (0.03, 0.08)
Historic Link	0.97 (0.72, 1.17)	0.41 (0.15, 0.62)
Sum(Acceptances)	0.47 (0.30, 0.63)	0.41 (0.25, 0.55)
Trade Interest	-3.67 (-7.6, -1.3)	
Defense Pact	0.33 (0.16,0.49)	
Log(Distance)	-0.10 (-0.12, -0.08)	
Other Med$_{t-1}$	0.39 (0.29, 0.50)	0.41 (0.29, 0.53)
Prior Military Int	0.19 (-0.13, 0.45)	
Prior Econ Int	-0.03 (-0.66, 0.49)	
This Med$_{t-1}$	1.28 (0.92, 1.64)	1.22 (0.85, 1.56)
Constant	-2.53 (-2.7, -2.4))	-4.04 (-4.25, -3.85)
rho	-0.16 (-0.27, -0.05)	-0.20 (-0.32, -0.08)

This table presents results of different variants of the selection stage. The model reported in the first column utilizes Greig and Regan's original selection stage, while the model reported in the second column utilizes a simplified selection stage. The statistical and substantive effects reported in the main model are unchanged by these alterations.

strong evidence that rare events issues have not biased the inferences presented here. Figure 4.6 plots the substantive effects of this model, which are, like the coefficients in Table 4.4, nearly indistinguishable from those generated by the original model.

The theory of intra-bargaining commitment dynamics posits that strong, interested mediators can help disputants overcome, or at least lessen, commitment issues

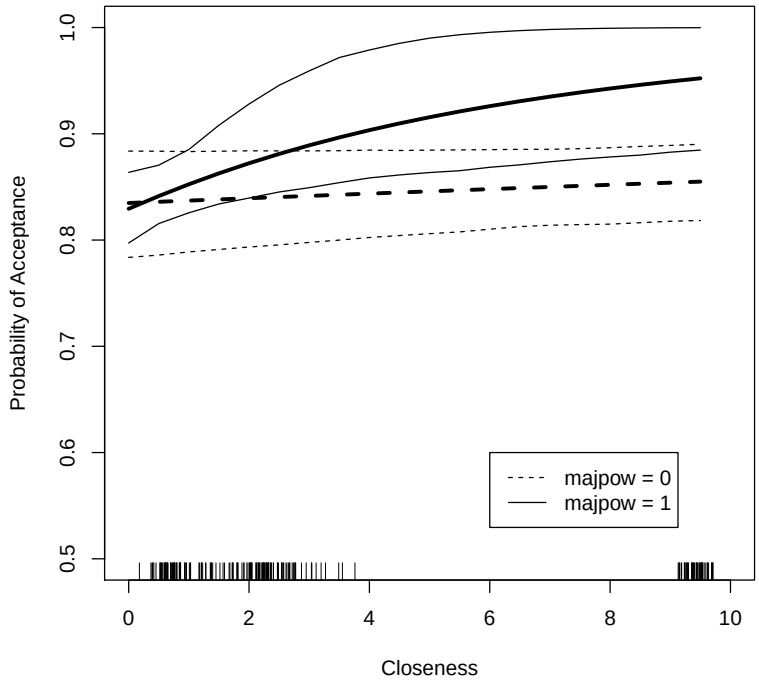
Figure 4.4: Estimated Probability of Mediation Acceptance: Greig and Regan Selection Stage



Predicted probability of mediation acceptance across the range of closeness, for both major powers and non-major powers. Bold lines denote estimates; lighter lines indicate 95% confidence intervals. The rug along the x-axis depicts jittered observed instances of closeness. The graphic demonstrates that using Greig and Regan's original selection stage does not change the substance of the results reported in the main model.

that arise during bargaining. However, this is certainly not all that mediators can accomplish. A dominant role mediators are posited to play is providing information for disputants. As such, perhaps the results above are due to strong, interested mediators being better at providing information, rather than being driven by the hands-tying and enforcement role posited by the intra-bargaining commitment theory. One way to ameliorate this concern empirically is to re-estimate the model on civil wars that have endured for longer periods of time since, as Fearon (2004) notes, "it strains credulity to

Figure 4.5: Estimated Probability of Mediation Acceptance: Simplified Selection Stage



Predicted probability of mediation acceptance across the range of closeness, for both major powers and non-major powers. Bold lines denote estimates; lighter lines indicate 95% confidence intervals. The rug along the x-axis depicts jittered observed instances of closeness. The graphic demonstrates that using a dramatically simplified selection stage does not change the substance of the results reported in the main model.

imagine that the parties to a war that has been going on for many years, and that looks very much the same from year to year, can hold any significant private information about their capabilities or resolve." Overall then, uncertainty is unlikely to be present in conflicts that have endured beyond some minimum time threshold.

I implement this check by re-estimating the main model only for the sub-set of civil war-years where the civil war had endured for at least three years. The relationship between power, interest, and bargaining onset is substantively unchanged when only

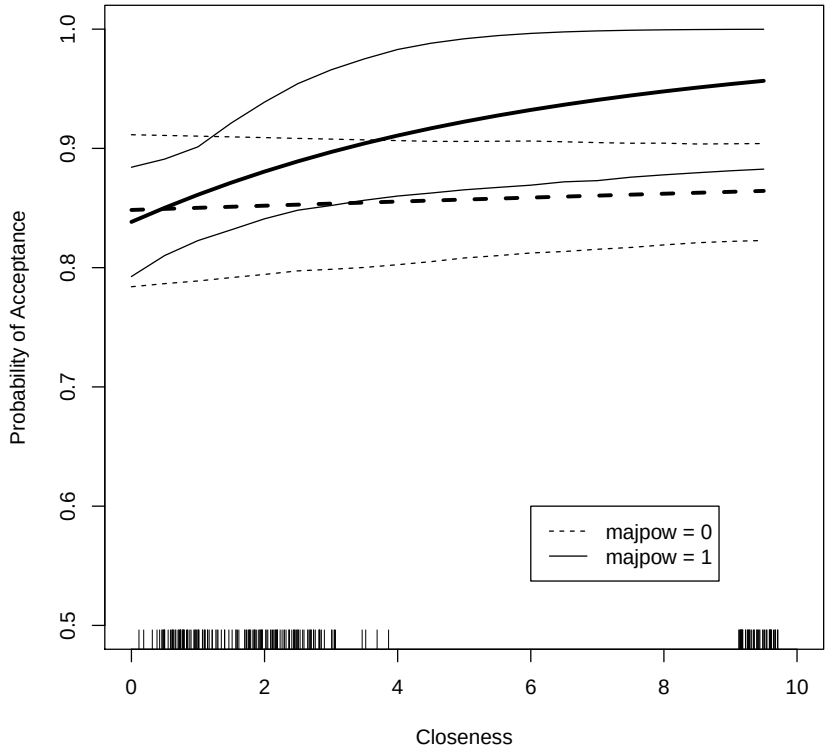
Table 4.4: Endogenous Stratified Sampling Heckman Probit Results

Variable	Coefficient	95% CI
Acceptance		
Closeness	0.007	(-0.01, 0.02)
Major Power	-0.10	(-0.31, 0.10)
Closeness*MP	0.04	(-0.003, 0.138)
Log Battle Deaths	-0.001	(-0.03, 0.03)
Duration	0.02	(-0.003, 0.033)
Duration^2	-0.0006	(-0.001, 0.00003)
Constant	1.03	(0.68, 1.40)
Offer		
Closeness	0.13	(0.12, 0.15)
Major Power	1.12	(0.96, 1.28)
Closeness*MP	-0.11	(-0.15, -0.07)
Log Battle Deaths	0.05	(0.02, 0.07)
Duration	0.03	(0.007, 0.045)
Duration^2	-0.0005	(-0.001, -0.00004)
Time	-0.20	(-0.27, -0.14)
Time2	0.01	(0.004, 0.018)
Time3	-0.0002	(-0.0003, -0.00002)
Historic Link	0.44	(0.20, 0.65)
Sum(Acceptances)	0.65	(0.54, 0.76)
Constant	-3.50	(-3.72, -3.30)
rho	-0.25	(-0.44, -0.06)

Results of the bootstrapped endogenous stratified sample Heckman probit. These results are nearly indistinguishable from the original bootstrapped results, thus providing strong evidence that the rarity of mediation offers has not biased the results of the main analysis.

analyzing civil wars that have been in progress for three or more years, although the effect is estimated less precisely due to a substantial amount of observations being dropped. This result is reported in column 1 of Table 4.5, and the substantive effects are depicted in Figure 4.7. The model estimated on this restricted sample finds that the predicted probability of a close major-power generating a round of mediation is eight percentage points higher than that of a far-flung, non-major power; this difference is

Figure 4.6: Estimated Probability of Mediation Acceptance: Endogenous Stratified Sample

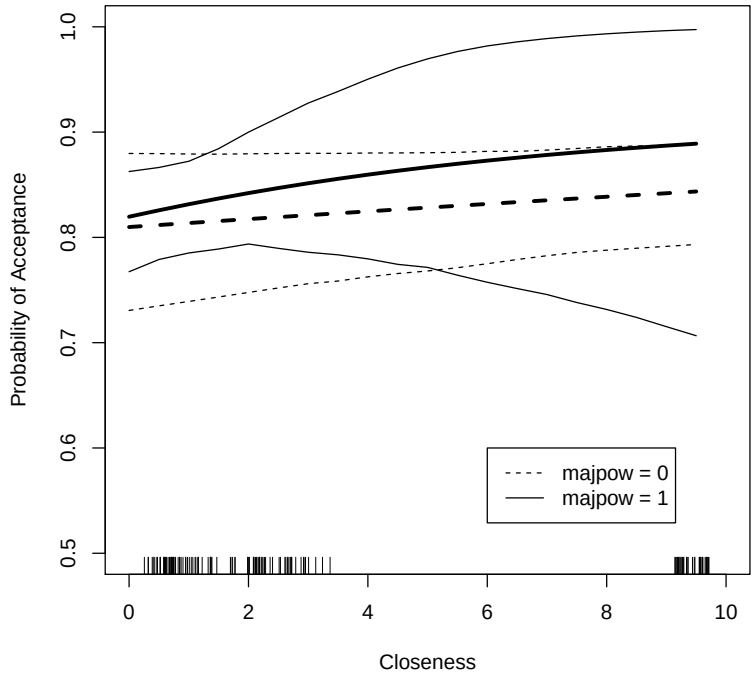


Predicted probability of mediation acceptance across the range of closeness, for both major powers and non-major powers. Bold lines denote estimates; lighter lines indicate 95% confidence intervals. The rug along the x-axis depicts jittered observed instances of closeness. The graphic demonstrates the rarity of mediation offers has not biased the results of the main model.

highly statistically significant ($p<0.01$). This empirical evidence points to the likelihood that strong, interested mediators are enforcing the tacit agreement to bargain, rather than being expected to provide more or better information.

According to the theory of intra-bargaining commitment dynamics, bargaining creates a window in which sides can attempt to gain an advantage without the pressure of active military conflict. We should expect that the usefulness of a break in fight-

Figure 4.7: Estimated Probability of Mediation Acceptance: Conflicts Older than Two Years



Predicted probability of mediation acceptance across the range of closeness, for both major powers and non-major powers, in conflicts that have endured for at least three years. Bold lines denote estimates; lighter lines indicate 95% confidence intervals. The rug along the x-axis depicts jittered observed instances of closeness. These results provide evidence that the relationship observed is not being driven by strong, interested mediators being better at providing or transmitting information.

ing is dependent upon the intensity of fighting. Put differently, a break from a very low-level conflict probably affords little additional opportunity to rest, re-arm, reposition troops, and seek additional political support, because these things can be done in the shadow of low-level conflict. Thus, if correct, the theory is perhaps best tested in the context of violent conflicts. I re-estimated the model on those conflicts with annual fatalities above the tenth percentile, and again found that the substantive size of

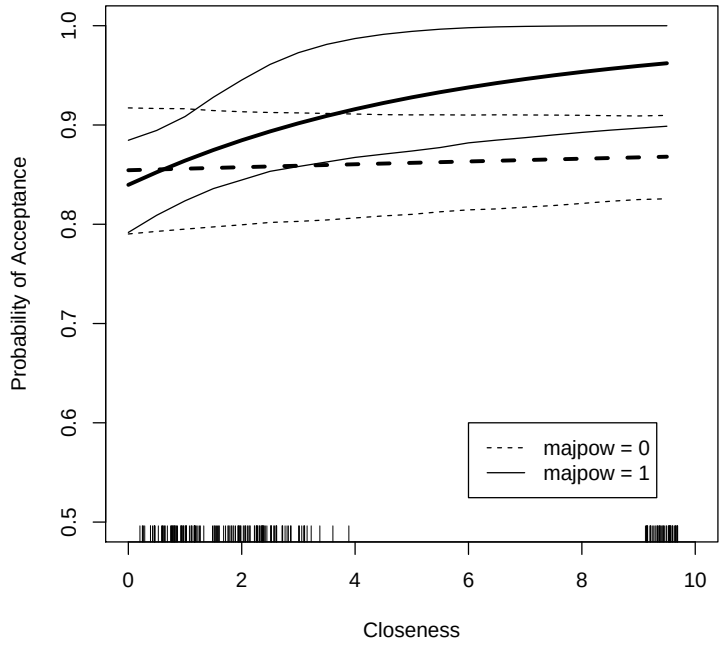
Table 4.5: Scope Condition Robustness Checks

Variable	Non-new Conflicts	Violent Conflicts
Acceptance		
Closeness	0.01 (-0.003, 0.03)	0.006 (-0.01, 0.02)
Major Power	0.009 (-0.18, 0.20)	-0.12 (-0.36, 0.07)
Closeness*MP	0.009 (-0.04, 0.09)	0.05 (-0.002, 0.15)
Log Battle Deaths	-0.03 (-0.06, 0.01)	0.007 (-0.03, 0.04)
Duration	0.03 (0.01, 0.05)	0.02 (-0.001, 0.034)
Duration^2	-0.001 (-0.002, -0.0005)	-0.0007 (-0.0001, -0.00003)
Constant	1.03 (0.70, 1.36)	1.00 (0.64, 1.43)
Offer		
Closeness	0.13 (0.11, 0.15)	0.13 (0.12, 0.15)
Major Power	1.03 (0.85, 1.19)	1.12 (0.96, 1.27)
Closeness*MP	-0.13 (-0.19, -0.08)	-0.11 (-0.16, -0.07)
Log Battle Deaths	0.02 (-0.01, 0.05)	0.04 (0.02, 0.07)
Duration	0.01 (-0.01, 0.03)	0.03 (0.008, 0.05)
Duration^2	-0.0002 (-0.0007, 0.0002)	-0.0005 (-0.0012 -0.00007)
Time	-0.20 (-0.28, -0.14)	-0.20 (-0.27, -0.14)
Time2	0.01 (0.005, 0.018)	0.01 (0.014, 0.018)
Time3	-0.0002 (-0.0004, -0.0001)	-0.0002 (-0.0003, -0.00002)
Historic Link	0.53 (0.28, 0.76)	0.04 (0.19, 0.64)
Sum(Acceptances)	0.64 (0.54, 0.73)	0.64 (0.54, 0.75)
Constant	-3.16 (-3.43, -2.92)	-3.49 (-3.73, -3.26)
rho	-0.24 (-0.42, -0.05)	-0.28 (-0.47, -0.08)
N	144,350	173,638

Scope condition robustness checks. The first column drops civil conflicts that are less than three years old. The second column drops conflict-years that see fewer than the tenth decile level of battle deaths.

the relationship between major power status, distance, and mediation acceptance remains the same. These results are reported in column 2 of Table 4.5; the substantive effects of this model are presented in Figure 4.8. Here again, the difference between the predicted probability of a mediation onset when a nearby major power offers to mediate is 10 percentage points higher than when a far-off, non-major power does so. This difference is highly statistically significant ($p<0.01$).

Figure 4.8: Estimated Probability of Mediation Acceptance: Violent Conflicts Only



Predicted probability of mediation acceptance across the range of closeness, for both major powers and non-major powers, in conflict-years with fatalities above the tenth percentile. Bold lines denote estimates; lighter lines indicate 95% confidence intervals. The rug along the x-axis depicts jittered observed instances of closeness.

4.5 Empirics 1 Conclusion

Overall, the results presented here are substantively large, statistically significant, and highly robust. In sum, these results provide strong evidence for the intra-bargaining commitment theory presented in the previous chapter: strong, interested mediators do help disputants get to the table by allaying each disputant's fear that the other will bargain in bad faith. This finding is important substantively because bargained resolutions cannot occur without disputants first being willing to bargain with one another. The next chapter goes on to test the hypothesis that strong, interested mediators help

disputants strike bargains once at the bargaining table.

Chapter 5

Empirics 2: Mediation Success

5.1 Mediation Success in Civil Wars

This chapter tests the second direct implication of the intra-bargaining commitment theory: strong and interested mediators are more likely to generate successful instances of mediation than their less powerful and less interested counterparts. Studying the causes of mediation efficacy is important not only insofar as it is important in testing the veracity of this theory, but also because of the importance of mediation efficacy for disputants and would-be mediators. The chapter begins by discussing the challenges that arise in any attempt to study mediation success. I lay out a set of strategies to deal with these inferential issues, then move on to discuss the data used for the analysis. Finally, I describe the results of a model of mediation success that provides strong support for the chapter's main proposition. I then go on to examine the robustness of this finding, before concluding.

5.2 Defining Success

Recently, the concept of mediation success has been shown to be too broad to be analytically useful. Several studies argue theoretically or demonstrate empirically that mediation is not effective. For example, Werner and Yuen (2005) find that ceasefires are shorter-lived after instances of mediation. Similarly, Gartner and Bercovitch (2006) find that mediation fares more poorly than negotiation with regards to success. However, other studies have found mediation to be successful, for instance Beardsley et al. (2006), Svensson (2007), and Regan and Aydin (2006). Beardsley (2008) examines these conflicting findings, and demonstrates empirically that they result from different definitions of "success." Specifically, he shows that mediation positively impacts the ability of disputants to reach agreements, but hinders their ability to fundamentally resolve the issues in contention. That is, mediation generates settlements in the short-run, but makes conflicts more likely to recur in the long-run.

Given the fuzziness in the concept of mediation success, it is important to refine it to its applicable components for analysis. The intra-bargaining commitment theory makes claims about the conditions under which disputants will reach a settlement. However, it does not make predictions about the durability of these agreements. Thus, in the following analysis, I define mediation "success" or efficacy to mean the extent to which mediation helps disputants reach settlements in the short term. The concluding chapter of this dissertation returns to the discussion of mediation's contribution, if any, to lasting peace.

5.3 Inference in the Study of Mediation Outcomes

There are several potential threats to inference that must be accounted for when using observational data on conflict mediation. Foremost, mediator characteristics, such as strength and interest, may be correlated with factors that make mediation more or less likely to be successful. For instance, mediators are known to be active in cases that are less likely to be resolved, such as those with high levels of violence (Gartner and Bercovitch (2006), Gartner (2011)). This threat to inference arising from confounding can be ameliorated by accounting for likely confounding covariates in a regression framework.

More troubling than simple confounding is the fact that mediators, by definition, are only present in a conflict if both the mediator in question and both parties to the dispute want mediation to occur. This opens any analysis of mediation efficacy to the possibility that unobservable or unmeasured factors may influence the process of mediation onset and the process that leads to mediation outcomes. Importantly, these unobserved or unmeasured factors could be related to why mediators intervene, or they could be related to why disputants accept mediation, or both. In the language of econometrics, there could be selection bias present due to unobservable factors related to mediator or disputant motivations.

For instance, it could be the case that mediators who are highly biased in favor of one party or the other are likely to offer mediation, and that mediation by highly biased third parties is likely to fail. Alternatively, disputants may opt into mediation in hopes of a third party intervening on their behalf militarily, only for this to cause a breakdown

in peace talks.[1] A third potential driver of selection bias is the prior each disputant has on its opponent being able to reap a large power shift during bargaining. This unobservable factor would cause mediation to be less likely to begin, and more likely to fail once begun. However, it is not clear that any of these concerns about selection bias are well-founded. For instance, Beardsley (2008) utilizes a selection model to account for selectivity, but empirically finds little evidence of selection bias. This may be because selection bias is not present, or it may be because there are different selection biases present which cut in opposite directions, thus largely canceling each other out. Either way, a careful empirical examination will need to begin by being wary of the threat of selection bias (Heckman 1979).

As noted in the previous chapter, instances of mediation are not randomly assigned with respect to a conflict's history. Conflicts that attract offers of mediation tend to attract several of them in close succession, while those that attract few offers in a given period are likely to continue to be unmediated in the future (Greig and Regan 2008). As in the previous chapter, I account for the temporal effects of mediation offers on subsequent offers by including the time since last mediation offer by any party, its square, and its cube (Carter and Signorino 2010). As in Chapter 4, generically I estimate a Heckman probit model:

$$y_{sel}^{probit} = \beta_{sel} x + \gamma_{sel} x_c + \gamma_t + u_{sel}$$

$$y_{out}^{probit} = \beta_{out} x + \gamma_{out} x_c + u_{out}$$

$$corr(u_{sel}, u_{out}) = \rho$$

[1] Favretto (2009) explores a dynamic similar to this.

where y_{sel} is whether mediation occurs in a particular year, y_{out} is whether the given instance of mediation is successful, and β is a coefficient on a variable of interest, x. γ represents a coefficient on each control variable, x_c, and γ_t is a coefficient for each temporal dependence variable. u represents an error term, and ρ is the correlation in the errors, which is assumed to be bivariate normal.

5.4 Concepts and Measures

This chapter tests the proposition that mediators who are stronger and more interested are more successful in their efforts to foster settlements than weaker, less interested ones. Testing this hypothesis requires measurements for three concepts: mediator strength, mediator interest, and mediation success.

I utilize geographic distance as a proxy for mediator interest in a conflict. Distance is closely linked with security externalities, economic outcomes, and the presence of security communities, all of which heighten a state's interest in helping disputants reach a mediated peace. See Section 4.2 for a full discussion of how distance serves as a valid proxy for interest.

I utilize major power status as a proxy for mediator strength. The capacity of a mediator to bring economic, military, or persuasive power to bear varies greatly, and no single type of leverage will always be applicable. However, major power status generally captures the concept of "strength," or the *ability* to utilize sticks and carrots to enforce disputants' tacit agreement to bargain. Again, see Section 4.2 for a full discussion of how major power status serves as a valid proxy for strength. It is worth reiterating

one point made in that section here. The operationalizations of interest and strength are reasonable, but likely to be noisy. This loose correlation between the measure and the concept will undoubtedly cause attenuation bias in the statistical tests reported below, and as such serve to make them more conservative.

The final concept to be operationalized is mediation success. In terms of the theory being tested here, mediation success is a short-term concept that deals with the extent to which mediators are able to help disputants reach settlements. This concept is intentionally narrow; it is not meant to include the durability of settlements, how the disputants view the fairness of settlements, or any other facet of agreements. From the point of view of the intra-bargaining commitment theory, an instance of mediation is successful if a settlement is reached, and unsuccessful if, instead of reaching some agreement, the disputants return to violent conflict.

I use Bercovitch's coding of settlement from the International Conflict Management (ICM) data set. Specifically, I create a variable that takes on a value of one if a full or partial settlement is reached, and zero otherwise. This variable captures the concept of short-term bargaining success, and thus mirrors the concept described in the theory nicely. Understanding short-term bargaining success is also important for practical and humanitarian reasons. On the pragmatic side, questions about settlement duration and settlement enforcement are all moot unless disputants can agree to a settlement in the first place. On the humanitarian side, settlements, even short-lived ones, can still afford time for aid workers to assist with refugee relocation, dispersing food aid, and providing medical assistance to soldiers and bystanders (Touval 1995).

5.5 Data and Model

I analyze a data set of potential and actual third party mediation efforts. To construct this data set, I began with the Greig and Regan (2008) potential intervenor-conflict-year data set employed in the previous chapter. This data set has an observation for every potential state mediator, for every civil conflict, in every year that that conflict persisted. Thus, an observation in that data set is, for example, Germany-Surinam Guerilla Insurgency-1993. As in, during 1993 the Surinam Guerilla Insurgency (a civil war) was ongoing, and Germany was a state in the system, and thus could have offered to mediate. I add data on mediation outcomes from the ICM data set (Bercovitch 2000). I chose to keep all observations when there are multiple instances of mediation in a single intervenor-year.

As mentioned above, I utilize a Heckman probit model to account for the possibility of selection bias. In the data set, there are 173,017 potential or actual intervenor-years. Of these, 241 experience a mediation effort. I use Bercovitch's coding of mediation success, in which each mediation instance leads to a full or partial settlement, or is coded as being unsuccessful. Of the 241 mediation efforts, 108 reach some degree of settlement.

The first equation in the selection model estimates the probability of mediation occurrence. I analyze all potential intervenors, rather than just each conflict-year, in order to account for both supply- and demand-side unobservables that may generate selection bias. Here, I adapt the model used in Chapter 4 for mediation onset. I model mediation onset as a function of both dispute and potential mediator factors. Dispute-

specific variables include the duration of the dispute to date, in years; the log of the number of battle deaths in the dispute to date; the sum of previous mediation efforts in the dispute; and the number of years since the last mediation effort (and its square and cube), to account for duration dependence. As mediator-specific characteristics, I include: historic ties to the country in conflict; major power status; the distance from the potential intervenor to the conflict; and the interaction between distance and major power status. The data on mediation onsets, mediator characteristics, and historic ties come from Greig and Regan (2008). The distance between potential intervenors and the civil war state is taken from the C-Shapes R package, and utilizes the inter-border distances between states (Weidmann and Gleditsch 2010).[2] Summary statistics are presented in Table 5.1.

Table 5.1: Summary Statistic

Variable	Min	1Q	2Q (Mean)	3Q	Max
Log Battle Deaths	0	5.3	6.9	8.2	12.8
Major Power	0		.0.4		1
Closeness	0	0.60	1.0	1.53	9.4
Closness*MP	0	0	0	0	9.4
Historic Ties	0		0.01		1
Sum of Previous Acceptances	0	0	0.01	0	5
Dispute Duration	1	3	7	14	52
Mediation Efforts	241				
Mediation Successes	108				

Summary statistics for variables used in the selection model. Values are shown for the minimum, first, second, and third quartiles, and maximum of continuous variables. Values are shown for the minimum, mean, and maximum of dichotomous variables.

In the outcome equation, I predict the probability of any settlement, whether par-

[2] Recall that I take the log of this variable, and reverse code it into a variable called "closeness," which takes its minimum for states on opposite sides of the globe, and its maximum for contiguous states.

tial or full under the Bercovitch codings, being reached. The theory predicts that interested, capable mediators should generate a higher probability of mediation success. As such, I include closeness, major power status, and the interaction of these two variables. The formal model makes clear that the relationship between the probability of mediation success and mediator characteristics, w, may vary by level of costs of conflict. As such, I control for the log of cumulative battle deaths. Following Achen (1986), I limit the amount of miscellaneous control variables in the outcome equation, as doing so may worsen the estimate of the treatment effect. Furthermore, few standard controls are likely to correlate with the specific mediator characteristics examined here (power and distance) *and* mediation acceptance. As a final rationale for utilizing a minimal set of controls in the outcome equation, there are only 241 uncensored observations, making the use of more than 4 covariates in the outcome equation questionable. Finally, I bootstrap the standard errors, as Heckman probit models generate poor estimates of uncertainty (Brandt and Schneider N.d.).

Table 5.2 reports the results of the bootstrap estimation of the Heckman probit model. The selection stage estimates are perhaps surprising at first. However, the results from this first stage should not be given too much credence as there is undoubtedly a large amount of selection bias present. That is, mediation onset is a result of offers and acceptances, and to estimate unbiased coefficients for mediation onset, one would have to include a selection stage prior to this. Put still differently, the entire purpose of the selection model in Chapter 4 is to account for the high level of selection bias that would result from estimating a model of mediation onsets without taking into ac-

count the unobserved factors that correlate with both mediation offers and mediation onsets.

The purpose of the first stage of this model is not to accurately estimate these betas, but to account for a portion of the variation in mediation onsets in order to estimate the degree of correlation in the errors between this stage and the outcome equation. Thus, the finding that conflicts with more deaths are no more likely to receive mediation should not be taken too seriously. The model also finds that major powers and nearby interveners are more likely to generate mediation onset. However, the model estimates a negative relationship between the interaction term and mediation onset, the opposite of the finding in the previous chapter. Again, this is demonstrative of the high degree of selection bias present in estimating mediation onsets, rather than being disconfirming evidence of the hypothesis tested in the previous chapter.

Furthermore, in spite of these biased estimates and the negative coefficient on the interaction term, the predicted probabilities from this mis-specified model still support the hypothesis from Chapter 4 that mediators who are strong and interested are more likely to generate mediation onsets that weak, disinterested ones. Specifically, the selection stage predicts that close, major power mediators are 8 percentage points more likely to generate a round of bargaining than far-flung, non-major power mediators. This difference remains highly statistically significant ($p<0.01$).

Is is natural to wonder to what extent the mis-specification of the selection stage biases the results of interest in the outcome stage. In the Appendix, I describe a Monte Carlo experiment which demonstrates that a mis-specification of this type does not

bias the coefficients in the outcome stage, though it does make them less efficient.

More consonant with previous findings, states with historic ties to conflicted states are more likely to mediate, and conflicts that are older and have seen more instances of mediation previously are more likely to experience mediation. Finally, the selection stage provides evidence of temporal dependence, as made clear by the modest but precisely estimated coefficients on the time since last mediation variables.[3]

Table 5.2: Selection Model Results

Variable	Coefficient	95% CI
Mediation Outcome		
Log Battle Deaths	-0.07	(-0.16, 0.02)
Closeness	0.08	(0.02, 0.15)
Major Power	0.13	(-0.60, 0.83)
Closeness*MP	0.24	(0.03, 0.60)
Constant	-1.31	(-2.46, -0.06)
Mediation Onset		
Time	-0.20	(-0.28, -0.15)
$Time^2$	0.007	(0.003, 0.016)
$Time^3$	-0.00005	(-0.0002, -0.00001)
Closeness	0.16	(0.14, 0.17)
Major Power	1.33	(1.17, 1.50)
Closeness*MP	-0.15	(-0.22, -0.09)
Historic Link	0.53	(0.35, 0.70)
Duration	0.06	(0.03, 0.12)
$Duration^2$	-0.002	(-0.004, -0.0007)
Sum(Acceptances)	0.59	(0.50, 0.67)
ln(Battle Deaths)	-0.007	(-0.03, 0.02)
Constant	-3.25	(-3.48, -3.03)
rho	0.48	(0.21, 0.72)

Heckman probit results. N=173,017 with 1,000 bootstrapped samples. Note the highly statistically significant positive correlation between the selection and outcome equations, rho. This result means that the selection model setup is necessary.

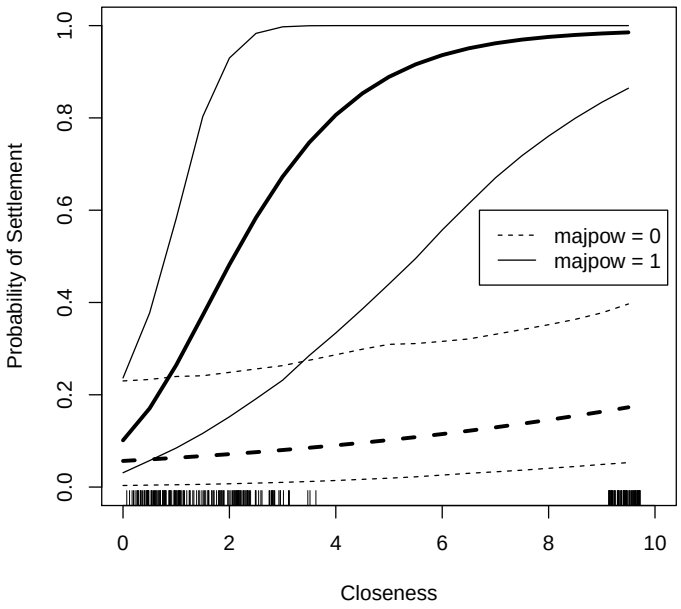
None of the coefficients in the outcome equation in Table 5.2 directly speak to the

[3]These variables exhibit a very high joint level of statistical significance, p<0.001.

hypothesis that strong and interested mediators are more effective than their weaker, less interested counterparts. Analyzing the degree of support for that hypothesis requires generating predicted probabilities of mediation success for both types of mediators, and comparing them directly. Figure 5.1 depicts the predicted probability of mediation success across the range of closeness, for both major powers and non-major powers, with the log of battle deaths held at its mean. The graphic makes it clear that major power mediators in close proximity to civil wars are highly effective, generating settlements in a predicted 98% of mediation efforts. Meanwhile, mediators who are not major powers, and who are far from the disputants they are serving, are much less effective, generating settlements in a predicted 6% of mediation efforts. This difference is highly statistically significant ($p<0.001$). Figure 5.2 displays the distribution of differences in predicted probability of success for nearby, major power mediators versus far-flung, non-major power mediators. The mean of this distribution is 0.93, denoting that, on average, strong, interested mediators have a success rate 93 percentage points higher than their far-flung, weaker counterparts.

As in Chapter 4, I move on to estimate a semi-parametric variant of the selection model presented above. As Kenkel and Signorino (N.d.) note, selection bias can be re-cast as an omitted variable problem. As such, fitting a very flexible semi-parametric model is an alternative to the Heckman setup that allows for estimation of the outcome stage with fewer assumptions. Thus, I follow Kenkel and Signorino (N.d.) and estimate a third-order basis expansion of the outcome equation, and utilize an adaptive lasso procedure to prune trivial coefficients. Estimates of uncertainty are generated through

Figure 5.1: Estimated Probability of Mediation Success: Bootstrapped Estimates

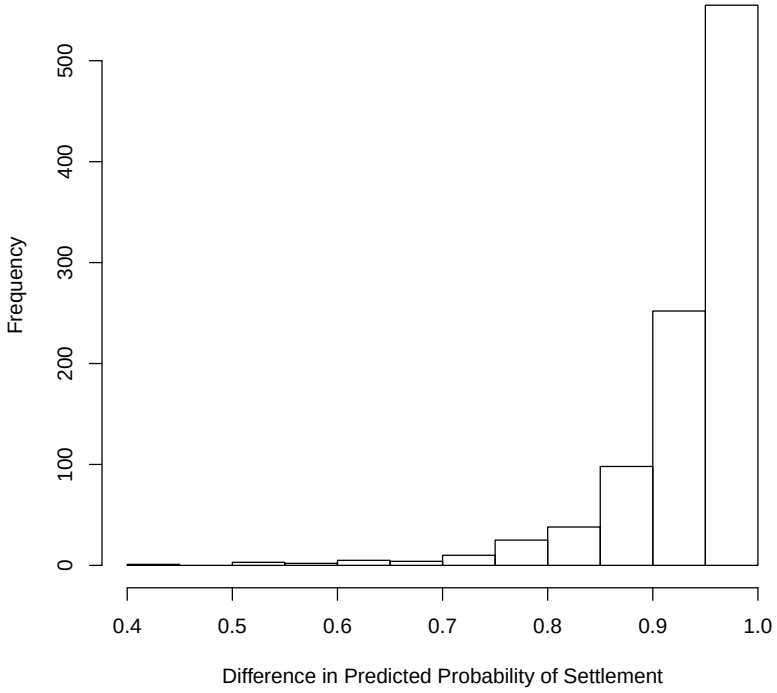


Predicted probability of settlement across the range of closeness, for both major powers and non-major powers. Bold lines denote estimates; lighter lines indicate 95% confidence intervals. The rug along the x-axis depicts jittered observed instances of closeness. This graphic displays strong support for the hypothesis that close, major power mediators are much more successful than far-flung, non-major power mediators.

bootstrapping. All of this is done in the polywog R package produced by Kenkel and Signorino.

Models fit in this way do not generate useful tables of coefficients; rather, the estimates of the basis expansion are used to plot predicted outcomes of interest. Figure 5.3 plots the predicted probabilities from the basis expansion estimates for both major powers and non-major powers, across the range of closeness. Though not identical to Figure 5.1, the substantive results of the basis expansion model are broadly similar, and thus suggestive that this chapter's main model is reasonably well specified. Like

Figure 5.2: Difference in Predicted Probability of Settlement: Close Major Powers Minus Far-flung Non-major Powers



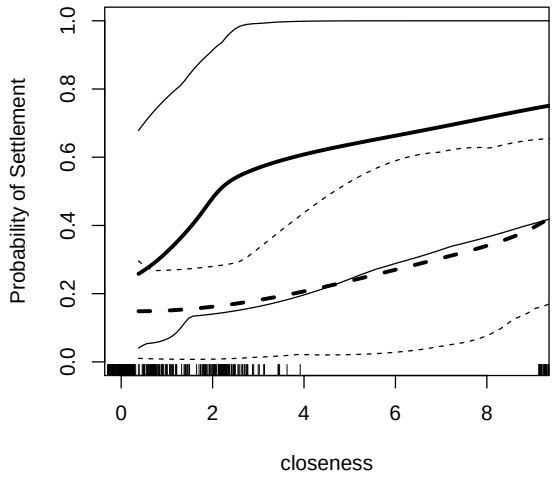
Simulated differences in the predicted probability of settlement. The difference is the predicted probability of settlement under mediation by a nearby major power versus a far off non-major power. The vertical line at zero is a point of reference. This distribution is statistically distinct from zero, with $p<0.001$. The average difference in predicted probability of mediation onset is 93%.

Figure 5.1, Figure 5.3 lends support to the hypothesis that strong, nearby mediators generate settlements at a higher rate than weak, far-flung mediators.

5.6 Robustness Checks

This section examines the robustness of the results reported above to two different types of alternative modeling choices. The first set of robustness checks, along with

Figure 5.3: Estimated Probability of Mediation Success: Basis Expansion



Predicted probability of mediation acceptance across the range of closeness, for both major powers and non-major powers. Bold lines denote estimates; lighter lines indicate 95% confidence intervals. The rug along the x-axis depicts jittered observed instances of closeness.

the basis expansion model, demonstrate that the exact specification of the selection stage does not influence the results in the outcome stage. The second set of robustness checks demonstrate that the results of the model are unaffected by limiting the analysis to observations that conform more closely to the theoretical model's implied scope conditions.

Selection models can be sensitive to the exact specification of the selection stage (Brandt and Schneider N.d.). Though the semi-parametric basis expansion model provides evidence that this chapter's main model is not poorly specified, I move on to estimate two additional variants of the main model, each with a different selection stage. In this first, I employ Greig and Regan's theoretically-driven selection stage to model the onset of conflict mediation. This variant models mediation onset as a function

Table 5.3: Selection Model Robustness Checks

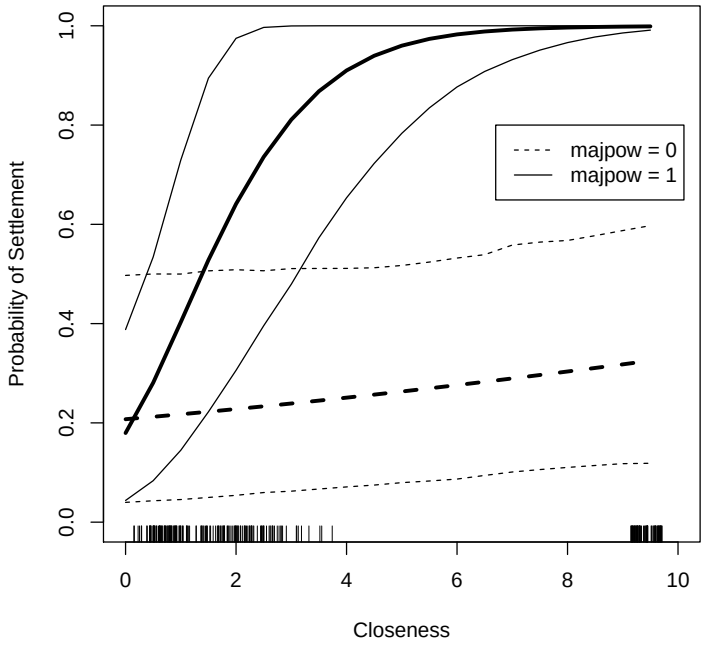
Variable	Greig & Regan	Simplified
Settlement		
Closeness	0.04 (-0.02, 0.11)	0.06 (-0.01, 0.13)
Major Power	-0.43 (-1.06, 0.17)	-0.12 (-0.86, 0.54)
Closeness*MP	0.31 (0.12, 0.68)	0.27 (0.05, 0.65)
Log Battle Deaths	-0.06 (-0.16, 0.03)	-0.06 (-0.16, 0.04)
Constant	-0.46 (-1.56, 0.61)	-0.89 (-2.22, 0.47)
Mediation Onset		
Closeness		0.15 (0.13, 0.16)
Major Power		1.26 (1.10, 1.42)
Closeness*MP		-0.14 (-0.21, -0.09)
Log Battle Deaths		0.01 (-0.01, 0.04)
Historic Link	1.03 (0.83, 1.22)	0.55 (0.34, 0.74)
Sum(Acceptances)	0.31 (0.18, 0.44)	0.39 (0.26, 0.50)
Trade Interest	-6.29 (-12.23, -2.69)	
Defense Pact	0.04 (-0.17, 0.23)	
Log(Distance)	-0.12 (-0.14, -0.10)	
Other Med$_{t-1}$	0.28 (0.15, 0.40)	0.30 (0.15, 0.44)
Prior Military Int	0.44 (0.22, 0.64)	
Prior Econ Int	0.62 (0.29, 0.92)	
This Med$_{t-1}$	1.09 (0.74, 1.41)	0.99 (0.65, 1.38)
Constant	-2.30 (-2.43, -2.17)	-3.75 (-3.93, -3.58)
rho	0.23 (0-0.01, 0.47)	0.33 (0.04, 0.59)

This table presents results of different variants of the selection stage. The model reported in the first column utilizes Greig and Regan's selection stage, while the model reported in the second column utilizes a simplified selection stage. The statistical and substantive effects reported in the main model are unchanged by these alterations.

of potential mediator trade interest, whether or not a potential mediator and country experiencing conflict have a defense pact or a historical connection, whether a potential mediator has intervened economically or militarily in the civil conflict, whether a particular potential mediator mediated in the previous year, whether any other mediator mediated in the previous year, the distance between a potential mediator and a civil war state, whether the potential mediator is a major power, and the interac-

tion between distance and major power status (w). The results of this model are presented in column 1 of Table 5.3, while the substantive effects of the model are plotted in Figure 5.4. The coefficients are largely unchanged from the original model, and the substantive effects are nearly identical. Overall, the model is robust to this particular perturbation.

Figure 5.4: Estimated Probability of Mediation Success: Greig and Regan Selection Stage



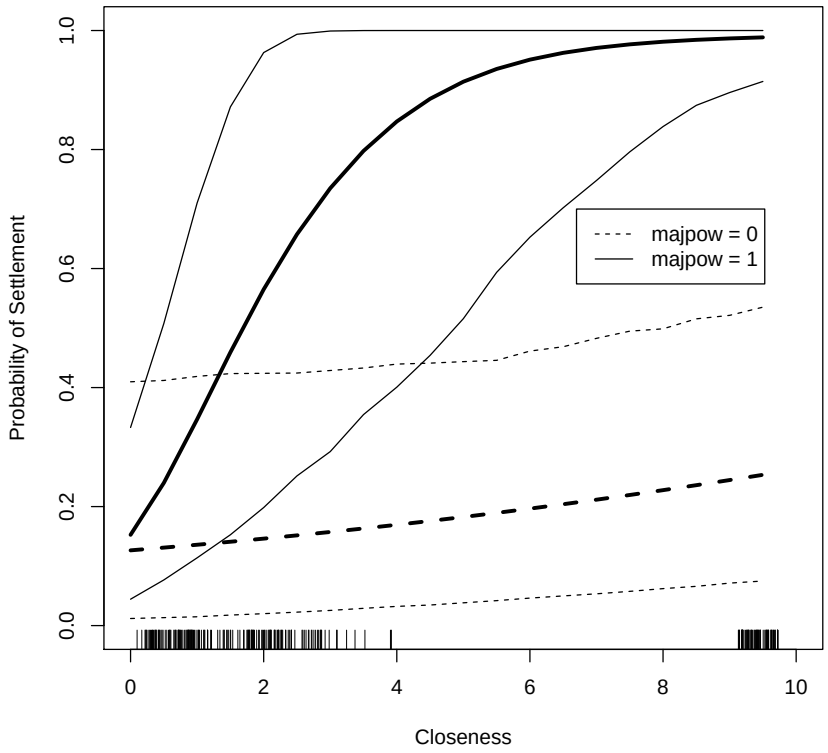
Predicted probability of settlement across the range of closeness, for both major powers and non-major powers, in conflicts that have endured at least three years. Bold lines denote estimates; lighter lines indicate 95% confidence intervals. The rug along the x-axis depicts jittered observed instances of closeness. This plot shows that the substantive results of the model do not change when using Greig and Regan's alternative specification for the selection stage.

Column 2 of Table 5.3 presents the results of a model which implements a drastically simplified selection stage. Figure 5.5 plots the substantive effects of this sim-

plified model. As is clear, the substantive effects of the model are unchanged when using this simplified selection stage. Also of note is the fact that both of these models with altered selection stages produce similar estimates of rho, the correlation between the selection and onset stage errors, as the main empirical model. Overall, the basis expansion model and selection stage robustness checks all support the inference that the conclusions from the main model are not being driven by a mis-specified selection stage.

The theory of intra-bargaining commitment dynamics holds that strong, interested mediators are more effective at helping potentially ascendant disputants credibly commit to bargaining in good faith. However, it is possible that these same mediators are more effective than their less powerful, more far-flung counterparts not due to this hands-tying mechanism, but rather because they are better at providing and exchanging information to and between disputants. In order to rule out this competing explanation, I re-run the previous Heckman probit model, but restrict the sample to those conflicts that have been in progress for three or more years. This obviates the informational alternative explanation because, as Fearon (2004) notes, "it strains credulity to imagine that the parties to a war that has been going on for many years, and that looks very much the same from year to year, can hold any significant private information about their capabilities or resolve." The first column of Table 5.4 displays the results of this model, while Figure 5.6 depicts its substantive effects. The model behaves very similarly, both in terms of its estimates, and also the predicted probabilities it generates. Overall, the model estimated on this reduced sample still shows strong

Figure 5.5: Estimated Probability of Mediation Success: Simplified Selection Stage



Predicted probability of settlement across the range of closeness, for both major powers and non-major powers, in conflicts that have endured at least three years. Bold lines denote estimates; lighter lines indicate 95% confidence intervals. The rug along the x-axis depicts jittered observed instances of closeness. This plot shows that the substantive results of the model do not change when using a dramatically simplified specification for the selection stage.

support for the hypothesis that strong and interested mediators generate settlements at a higher rate than do weak, uninterested mediators.

The theory of intra-bargaining commitment dynamics holds that mediators can threaten to punish disputants for bargaining deviously, thus helping disputants commit to bargaining. We might expect that the incentives to bargain deviously are higher during more intense phases in any given conflict, because it is in those periods where

Table 5.4: Scope Condition Robustness Checks

Variable	Non-new Conflicts	Violent Conflicts
Settlement		
Closeness	0.06 (-0.01, 0.13)	0.09 (0.02, 0.16)
Major Power	0.13 (-0.59, 0.88)	0.23 (-0.48, 0.86)
Closeness*MP	0.20 (-0.01, 0.54)	0.24 (0.03, 0.60)
Log Battle Deaths	-0.10 (-0.22, 0.03)	-0.05 (-0.15, 0.06)
Constant	-1.05 (-2.35, 0.20)	-1.64 (-2.92, -0.31)
Mediation Onset		
Closeness	0.15 (0.13, 0.17)	0.16 (0.14, 0.17)
Major Power	1.31 (1.11, 1.51)	1.36 (1.19, 1.53)
Closeness*MP	-0.15 (-0.24, -0.09)	-0.15 (-0.23, -0.09)
Log Battle Deaths	-0.01 (-0.04, 0.01)	-0.01 (-0.04, 0.02)
Duration	0.03 (-0.002, 0.098)	0.06 (0.03, 0.12)
Duration^2	-0.001 (-0.004, -0.0002)	-0.002 (-0.004, -0.001)
Time	-0.21 (-0.29, -0.15)	-0.19 (-0.27, -0.14)
Time^2	0.008 (0.004, 0.017)	0.007 (0.003, 0.015)
Time^3	-0.0001 (-0.0003, 0.0000)	-0.0001 (-0.0003, 0.0000)
Historic Link	0.58 (0.36, 0.78)	0.53 (0.34, 0.73)
Sum(Acceptances)	0.58 (0.49, 0.66)	0.57 (0.48, 0.66)
Constant	-3.00 (-3.31, -2.71)	-3.23 (-3.48, -2.99)
rho	0.51 (0.25, 0.75)	0.51 (0.23, 0.77)
N	139,645	163,268

Scope condition robustness checks. The first column drops civil conflicts that are less than three years old. The second column drops conflict-years that see fewer than the tenth decile level of battle deaths.

the gains to breaks in fighting may be largest. Thus, if the theory is correct, we should expect hypotheses derived from it to receive support in relatively high intensity conflicts. The second column of Table 5.4 displays the results of the main model, re-estimated on only the subset of civil war-years that experienced battle deaths above the tenth decile. The results of this model are very similar to the results for non-new conflicts, and also to the main model. Figure 5.7 depicts the substantive effects of this robustness check for the independent variables of interest. Again, this figure makes clear that strong, nearby mediators are much more effective than mediators who are

Table 5.5: UN Action Robustness Check

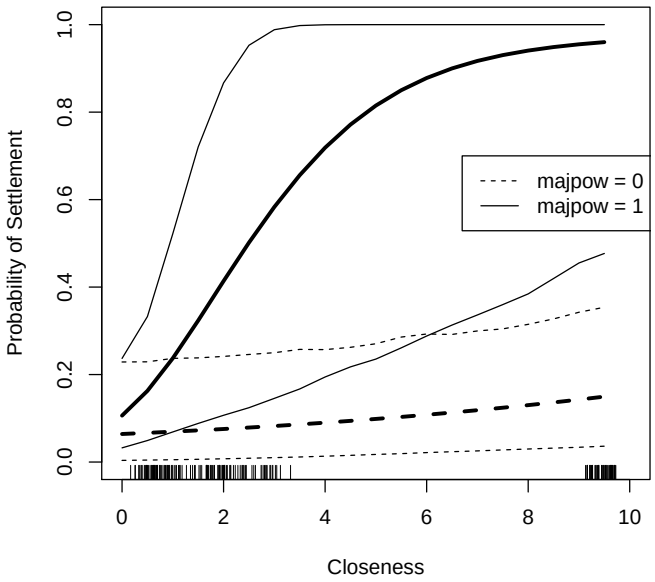
Variable	
Settlement	
Closeness	0.08 (0.02, 0.15)
Major Power	0.14 (-0.59, 0.77)
Closeness*MP	0.25 (0.03, 0.62)
Log Battle Deaths	-0.07 (-0.16, 0.03)
UN Peacekeeping	0.05 (-0.35, 0.40)
Constant	-1.39 (-2.55, -0.08)
Mediation Onset	
Closeness	0.16 (0.14, 0.17)
Major Power	1.34 (1.17, 1.51)
Closeness*MP	-0.15 (-0.24, -0.09)
Log Battle Deaths	-0.006 (-0.03, 0.02)
Duration	0.06 (0.03, 0.12)
$Duration^2$	-0.002 (-0.005, -0.001)
Time	-0.20 (-0.30, -0.15)
$Time^2$	0.007 (0.003, 0.017)
$Time^3$	-0.00006 (-0.0003, 0.0000)
Historic Link	0.53 (0.33, 0.71)
Sum(Acceptances)	0.59 (0.51, 0.68)
Constant	-3.25 (-3.49, -3.03)
rho	0.49 (0.22, 0.73)
N	172,950

This model adds a control for UN peacekeeping in the outcome equation.

less powerful and less geographically proximate.

The theory of intra-bargaining commitment holds that strong, interested mediators are more capable of enforcing the tacit agreement between disputants to bargain. However, an alternative line of argumentation holds that it is the post-agreement environment that is particularly dangerous for rebels, in that governments face a stark commitment problem: they would like to be able to promise not to renege on bargains struck, but find themselves tempted to renege once rebels begin to disarm. Walter (2002) lays out this line of reasoning, and holds that third party promises to enforce the

Figure 5.6: Estimated Probability of Mediation Success: Non-new Conflicts

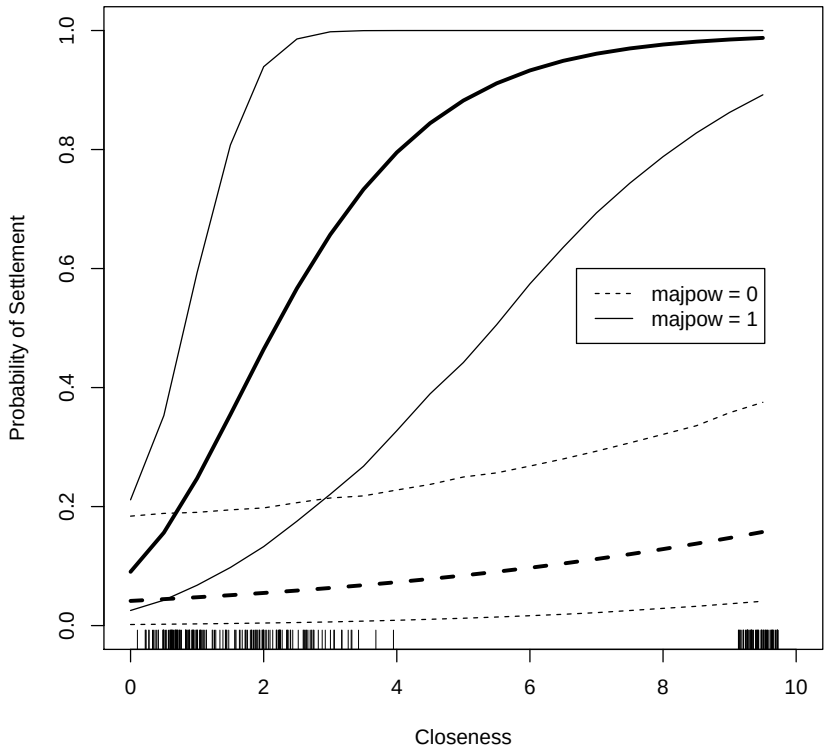


Predicted probability of settlement across the range of closeness, for both major powers and non-major powers, in conflicts that have endured at least three years. Bold lines denote estimates; lighter lines indicate 95% confidence intervals. The rug along the x-axis depicts jittered observed instances of closeness. This figure provides evidence that the results of the main model are due to the theorized enforcement mechanism, and not related to information transmission dynamics.

post-agreement period are predominately responsible for parties to a civil war reaching settlements. If that is the case, perhaps the result presented above is confounded by strong parties being more effective at securing UN peacekeeping forces to enforce and monitor the post-settlement period. To allay concerns about this specific potential cause of confounding, I again run the Heckman probit model, and include a control in the outcome stage for whether UN peacekeeping forces are promised or underway.

Table 5.5 reports the results of this analysis. These estimate do not differ substantially from the estimates presented in the main model. Figure 5.8 depicts the predicted

Figure 5.7: Estimated Probability of Mediation Success: Violent Conflicts



Predicted probability of mediation acceptance across the range of closeness, for both major powers and non-major powers, in conflict-years with battle deaths above the tenth decile. Bold lines denote estimates; lighter lines indicate 95% confidence intervals. The rug along the x-axis depicts jittered observed instances of closeness.

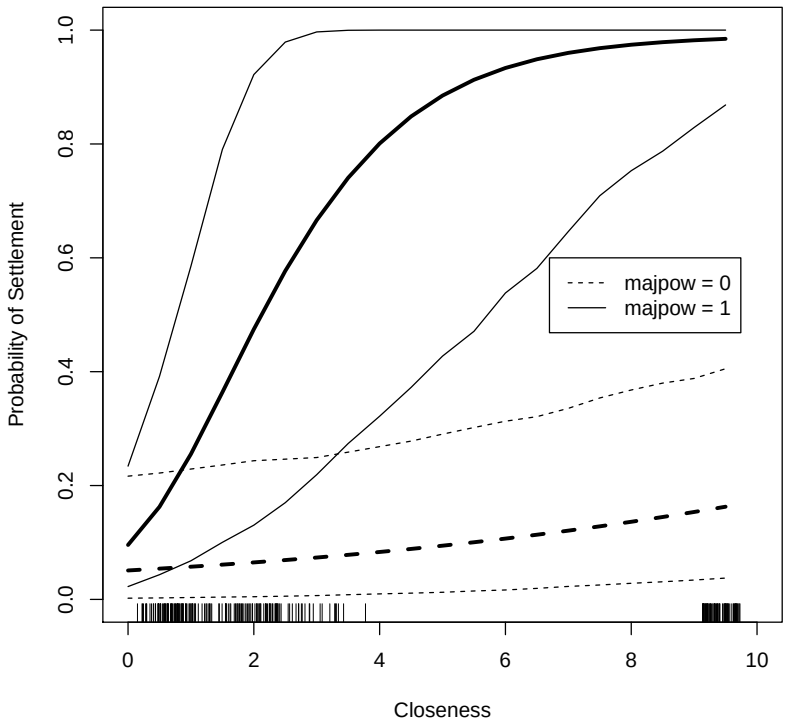
settlement rate for major power and non-major powers across the range of closeness as predicted by the model controlling for the presence of peacekeepers. As is apparent, strong, interested mediators are still predicted to be much more effective in this model than their weaker, non-interested counterparts. Demonstrating this is particularly important here, as its inclusion in the previous empirical chapter might not be dispositive if disputants move for conflict mediation without, but in hopes of obtaining, promises of downstream enforcement, as Walter argues they often do. Interest-

ingly, the dummy variable for UN peacekeeping being promised or underway is estimated as being close to zero, with a large standard error. This may be a manifestation of what Greig and Diehl (2005) call "the peacekeeping-peacemaking dilemma," wherein early action to keep sides safe lowers the incentives for them to strike war-terminating bargains. Specifically, keeping the sides separated may lower the cost of conflict to nearly zero, which makes its continuation less problematic for disputants. However, one should be careful when interpreting this result because the model is not designed to account for confounders related to this control variable.

5.7 Aggregation of Statistical Evidence

Overall, this chapter provides strong empirical support for the second hypothesis generated by the intra-bargaining commitment theory: strong, interested mediators help disputants reach settlements by allaying each one's fear that the other is bargaining in bad faith. Taken together with the evidence from the preceding chapter, the theory is strongly supported. In fact, in a frequentist sense, the probability of observing a relationship as strong or stronger than the one unearthed here if there were actually no relationship is tiny, regardless of which model specification is examined. The probability of that same in the previous chapter was also estimated to be extremely small. Overall, the likelihood of seeing both of these pieces of evidence if the theory were false (i.e. if mediator strength and interest did not affect mediation onsets or outcomes) is at least as small as the smaller of these two probabilities, though perhaps much smaller depending on the unknown joint distribution of these parameters. While we cannot

Figure 5.8: Estimated Probability of Mediation Success: Controlling for UN Peacekeeping



Predicted probability of mediation acceptance across the range of closeness, for both major powers and non-major powers, controlling for the presence of UN peacekeepers. Bold lines denote estimates; lighter lines indicate 95% confidence intervals. The rug along the x-axis depicts jittered observed instances of closeness. This figure demonstrates that the results of the model are not confounded by controlling for the presence of UN peacekeepers.

know this omnibus probability with certainty, we can estimate its bounds. If the estimates in the outcome equation of both chapters are perfectly correlated, then the probability of seeing these outcomes given no relationship is as small as the smallest p-value for the difference in the effectiveness of strong, interested mediators and weak, disinterested ones. If these estimates exhibit zero correlation, then the probability of seeing these two pieces of evidence given no relationship is the product of the

p-value for the above quantity derived from each of the main models in this and the previous Chapter. Overall then, this statistical evidence is strong, and even more so when accounting for the likely attenuation bias caused by the noisy measures of the key concepts under study.

Chapter 6

Conclusion

This chapter concludes by reviewing the theoretical insights developed formally by this dissertation and the evidence in support of the theory. I then discuss the importance of this theory with respect to the political science literature on conflict bargaining and conflict resolution, and with respect to its implications for policy. The chapter closes with a discussion of the limitations of this research project.

6.1 Questions and Answers

This dissertation is fundamentally hopeful. It exposes a heretofore under-studied strategic dynamic that keeps bargaining from beginning, and that keeps it from succeeding once begun. It goes on to theorize about ways the international community can help overcome both of these hurdles. The introductory chapter asked what keeps bargaining from happening. Many models of conflict bargaining envision negotiations occurring either constantly, or after every battle; however, empirically we know that

negotiation is a rare event. I have argued that one reason bargaining is rare is because disputants are fearful that their opponent will bargain in bad faith. Bargaining takes time and often happens during a ceasefire, allowing disputants to take steps to increase their fighting power during bargaining. While not all disputants will undertake these measures, any disputant could, thus making many disputants fearful of being tricked into a round of insincere bargaining. Exacerbating this problem is the fact that this devious bargaining is observationally equivalent to hard bargaining over a valuable good – that is, disputants have no way of knowing whether their opponent is bargaining in good or bad faith even while they are doing so.

This dissertation also provides an answer to why disputants fail to reach settlements having made it to the bargaining table. Why is it that bargaining success is not endogenous to bargaining onset? The theory of intra-bargaining commitment problems proposes an answer to this question. Disputants move to the table in hopes of ending a costly conflict. They do this, however, at their own peril – their opponent may take measures to strengthen itself during bargaining and impose even higher costs during a planned return to conflict. As noted above, disputants have no way to know whether their opponent is bargaining in bad faith until it is too late. However, this risk can be worth it to disputants facing high costs of conflict, and to those facing opponents who are unlikely to become much stronger during a period of prolonged bargaining. This fact also helps explain why disputants who have been fooled in the past, like the Sri Lankan government, agree to bargain with their previously devious adversary. An adversary who bargained deviously in the past may or may not have the

capability to do so again.

Finally, and most importantly, this dissertation asks what can be done to lessen the strategic problem that keeps disputants from initiating peace processes, and from being successful therein. Is the problem of bad faith bargaining a hindrance without a solution, an unfortunate fact of the anarchic international order, or is there something to be done about it? I argue that strong, interested third parties can effectively lessen both problems by offering to punish disputants that bargain in bad faith. This punishment acts as a hand-tying device for the potentially ascendant side, helping it to commit to searching for a bargained resolution. This in turn gives the concerned, descendant disputant more reason to trust its adversary, thus incentivizing it to agree to bargain in the first place. An interesting aspect of this theory is that it helps us understand the circumstances in which disputants would voluntarily agree to this hands-tying. That is, it does not necessitate armed intervention, but rather utilizes consensual enforcement.

6.2 Empirical Summary

Chapters 4 and 5 implemented a host of tests of the two main propositions that fall from the theory of intra-bargaining commitment. In Chapter 4, I tested the hypothesis that strong and interested mediators are more likely to generate an instance of mediation than weak, disinterested ones. The main empirical model presented in Chapter 4 predicts that strong, interested mediators generate instances of mediation at a rate 11 percentage points higher than their weak, disinterested counterparts. This finding is highly statistically significant, substantively meaningful, and robust to a wide variety

of modeling choices.

In Chapter 5, I tested the hypothesis that strong and interested mediators are more likely to help disputants reach settlements than weak and disinterested mediators. The main empirical model presented in Chapter 5 lends strong support for this hypothesis, predicting that powerful, interested mediators generate settlements at a rate 93 percentage points higher than mediators who are neither strong nor interested. This finding is highly statistically significant, substantively very large, and is also robust to a wide array of modeling choices. In sum, Chapters 4 and 5 provide strong evidence that mediators who generate large expectations about their ability and willingness to enforce the tacit agreement to bargain do help disputants to reach the bargaining table, and to reach settlements once there.

6.3 Implications for the Study of Conflict

The theory of intra-bargaining commitment problems set out in this dissertation has a host of implications for the study of conflict bargaining and conflict resolution generally. Foremost, it adds a large amount of nuance to the idea of commitment problems. Often, commitment problems are thought of as adhering after a bargain has been struck. However, this dissertation has shown that they can actually occur *during* bargaining. Other times, commitment problems are conceptualized as being driven by exogenous changes in power, such as demographic or economic growth. However, this dissertation project has shown that commitment problems are an endogenous part of the bargaining process. Merely moving to begin a peace process or round of negotia-

tions creates the potential for commitment problems between disputants.

Importantly, the theory of conflict bargaining set out in this dissertation may interact with learning-based theories, such as bargaining models of war. Those theories are usually represented by formal models which assume that bargaining happens between each round of fighting, and that bargaining is unproblematic – that is, it may confer information, but it creates no additional strategic tensions. However, the fact that bargaining creates commitment problems complicates these theories. I have abstracted away from informational asymmetries about the current balance of power and resolve here in order to focus on the intra-bargaining commitment problem, but it may be that intra-bargaining commitment problems hinder learning in an interactive way. One potential source of this interaction is the fact that expectations of an opponent's potential increase in power are intrinsically bound with estimates of the opponent's current power, which may be in contention. Future research will need to examine this interaction, to the extent that the problem is tractable.

The theory put forth in this dissertation also confounds the sharp distinction between commitment and informational problems. Though cast as a commitment problem for expositive purposes, the strategic dynamic here might be more accurately represented as a case of incomplete information about the existence or degree of an intra-bargaining commitment problem. Described in that manner, the research presented here is similar to Kydd's (2006) research which examines mistrust, or uncertainty over the existence or degree of a post-settlement commitment problem. Kydd's work elucidates the conditions under which a mediator could provide credible information about

the extent of a post-settlement commitment problem, whereas this dissertation examines how a mediator might be able to ameliorate the commitment problem by acting as an enforcer. Overall, it is unclear how long the sharp distinction between informational problems and commitment problems will prove useful, rather than being a barrier to comprehension and communication.

This dissertation imagines a new role for mediators: enforcing disputants' tacit agreement to bargain. This task is fundamentally different than enforcing settlements, providing or relaying information, articulating potentially agreeable settlements, or providing good offices. Mediators who can and will enforce the tacit agrement to bargain can help disputants trust one another enough to begin dialogues, and also to agree to settlement terms. Moving forward, scholars will need to begin to weigh the relative importance of all of a mediator's different functions in order to better understand who should mediate, and how. This is necessary because different mediator functions are best served by different types of mediators. For instance, this dissertation has shown that mediators who are highly interested in seeing a settlement reached are effective in enforcing the tacit agreement to bargain. For this same reason, these mediators are likely to be effective post-settlement enforcers. However, other formal work has demonstrated that highly interested mediators may be unable to credibly communicate information between disputants (e.g. Kydd (2006); Smith and Stam (2003)). Coming to a theoretical and empirical understanding of the magnitude of this and other tradeoffs will be important in formulating future policy prescriptions.

Another important implication of this dissertation is its ability to advance our un-

derstanding of bargaining failures. To date, scholars have been forced to interpret failed instances of negotiation or mediation as having one of two causes: failure to locate a mutually acceptable agreement, or fear of downstream enforcement problems. As I argue above, fears of downstream enforcement problems are a strange cause for bargaining failure, because they cannot account for why disputants were willing to bargain in the first place. The response that disputants may do so in hopes that an enforcer will materialize seems strained. This dissertation points to another potential cause for bargaining failure: power shifts during bargaining. More specifically, there are a set of failed negotiations, both bilateral and mediated, that are actually the result of one or both disputants having no intention of settling. This fact has important implications for the study of conflict bargaining. Foremost, in tests of mediation efficacy by means of information provision or post-settlement enforcement, there are potentially a large subset of cases in which mediation had a zero probability of success, regardless of its informational content or enforcement power. Thus, these empirical tests are probably biased towards finding that mediation is ineffective.

Also of interest is whether scholars can identify devious or insincere disputants ex post. Doing so would allow us to cull these observations from tests of mediation efficacy (through mechanisms other than enforcing the tacit agreement to bargain). Even more important are efforts to identify insincere bargainers a priori. Understanding the conditions under which disputants are likely to bargain in bad faith would have a profound impact on both the study and practice of negotiation and mediation. However, this task is likely to be difficult in light of the strong incentives disputants have to

hide their devious intentions. Devious disputants must pool with their sincere counterparts to be effective, and any signals they try to send of their sincerity are likely to be perceived as cheap talk. Further compounding this problem is the observational equivalence between stalling and hard bargaining.

The probabilistic identification of devious disputants a priori raises potential ethical considerations as well. Foremost, identifying a disputant as having incentives to act deviously does not mean that she will do so. Importantly, the correlates of deviousness are likely to be circumstantial, arising from the degree to which an actor might be able to gain from a break in fighting. Disputants and practitioners who use this circumstantial evidence as a rationale for avoiding bargaining risk missing opportunities to bargain with sincere adversaries, thus prolonging costly conflicts.

The theory of intra-bargaining commitment also hints at an implication for the duration of mediated versus negotiated bargaining. If disputants are concerned about their adversary gaining strength during bargaining, perhaps they have incentives to bargain more quickly, or leave the table sooner when faced with a lack of progress, in the absence of a strong, interested enforcer. To this author's knowledge, there have been no direct studies of the duration of bargaining. However, the ability to bargain over time without fear of an opponent becoming more formidable may aid disputants trying to reach conflict-terminating settlements.

6.4 Policy Implications

The theory put forward in this dissertation generates a host of policy implications, particularly for active and would-be mediators. Foremost, mediators can help get disputants to the table, and can help them strike bargains once there, but only if they are capable of imposing costs on disputants for devious behavior, and willing to do so. In Chapter 4, I estimated that strong mediators who are reasonably interested in seeing a conflict resolved are 11 percentage points more likely to have their offers of mediation accepted than their weak, uninterested counterparts. In Chapter 5, I estimated that strong, interested mediators are nearly ten times as likely to generate a settlement. The fact that interest is a factor promoting mediation success is in contrast to theories of information transmission, wherein a generalized interest in seeing a peaceful settlement makes mediators less effective (eg. Kydd (2006); Smith and Stam (2003)). The theory has important implications for how, and indeed whether, a mediator should offer its services. This dissertation shows that disputants have incentives to move for mediation insincerely, and in these cases mediation may exacerbate a conflict that otherwise holds few residual informational or commitment-based challenges. This fact should certainly give low-capacity third parties pause when contemplating offering to mediate, like the Norwegian efforts to mediate the civil war in Sri Lanka. Norway was unable to pressure the sides into bargaining in good faith, and thus allowed the LTTE to take advantage of repeated ceasefires.

An additional set of implications that derive from the theory of intra-bargaining commitment dynamics has to do with how to hold peace talks. Given the fact that in-

crements of power likely accrue over time during negotiations in the context of ceasefires, perhaps mediators should strive to shorten the length of each round of negotiations. Avoiding the temporal cost of shuttle diplomacy, doing away with formalities, and insisting on daily progress throughout negotiations may help in this respect. Another option is to perform more significant pre-talks, such that when an actual ceasefire breaks out bargaining can happen more quickly due to preliminary discussions and due diligence having already been carried out.

This dissertation also points to the possibility that assigning third parties a monitoring role *during* talks may be useful in allaying a disputant's legitimate fears of devious behavior by its adversary. If third parties are given leeway to inspect military positions during talks, disputants could be more confident in each other's good intentions. However, it is unclear whether disputants would find this acceptable. Trusting a third party to participate at the negotiating table is very different from allowing one to inspect your military installments. Furthermore, monitoring disputant operations during a ceasefire would only be feasible for very high-capacity mediators, and even then would be very difficult. For instance, it is unlikely that any third party would have been able to differentiate between legitimate and illicit shipping between India and Sri Lanka during the 1994-1995 ceasefire.

Finally, in laying out a new role for mediators, this dissertation highlights the need to closely match mediator capabilities with disputant needs. Mediation serves several purposes, and various types of mediators are better suited to each. Strong, interested mediators can enforce the tacit agreement to bargain, and likely make highly effective

enforcers of the post-settlement period as well. However, less-interested mediators may have advantages in conveying information about conflict-relevant parameters to and between disputants. Finally, mediators biased towards one disputant are uniquely situated to convince that disputant to make concessions. In light of these varied roles and conflicting optimal mediators for each, future studies should continue to explore what type of mediator, and mediator activities, are most appropriate to each different conflict dynamic (Keashly and Fisher 1990).

What does this dissertation imply for current conflicts? Unfortunately, the prospects for peace in Syria seem bleak. The various rebel groups there are relatively poorly equipped, and struggling to capture and hold important strategic pieces of territory. Thus, Assad likely correctly estimates that the various rebels groups would stand to gain a large increase in fighting capacity if given time to organize and re-equip during a ceasefire. Additionally, the bias of most of the interested high-capacity mediators, such as the US and Russia, makes them non-starters with one or the other party to the dispute. Thus, facing a large potential power shift and without a mediator who could keep the rebels from taking advantage of it, bargaining is unlikely in Syria, at least in the near future.

The prospects for peace in the eastern region of the Democratic Republic of the Congo seem greater. Conflict in the area has been spurred, and is often characterized by, cross-border raids. However, in February a group of states and regional organizations signed the Peace, Security, and Cooperation Framework, an agreement which, among other things, gives regional organizations a greater ability to sanction states

and sub-state actors that use borders as barriers behind which to rest, rearm, and recruit (Sunday Post 2013). This explicit mandate may help the disputants commit to bargaining, rather than initiating talks during times of weakness, only to renew attacks once strengthened.

Meanwhile, in Sudan, and African Union has taken a lighter stance in its mediation of the conflict between the Sudanese government and the Sudan People's Liberation Movement-North (SPLM-N). There, the parties to the conflict cannot agree to a framework under which they can begin talks in part because of intense fears on the rebel side that a long break in fighting would behoove the government. Specifically, SPLM-N contends that the government would "buy time, continuing its policy of denying access [to food] as a weapon" (Sudan Tribune 2013). Without an intermediary who can and will enforce the tacit agreement of these sides to bargain, and punish the government for employing painful stalling tactics, the low-level conflict between these groups is likely to continue to fester.

6.5 Limitations and Caveats

In crafting the theory and tests that comprise this dissertation, I have made every effort to be both careful and thorough. Still, the conclusions presented are subject to theoretical, empirical, and impact limitations and caveats that are important to note. In this closing section, I take a blunt look at the limits of the research conducted herein.

The formal theory presented in Chapter 3, like all theories, makes a host of assumptions. While most of them are innocuous, one warrants closer attention in future work.

The model presented makes the assumption that disputants have two options: negotiate bilaterally or utilize a mediator of fixed strength. This setup allows for a comparison between dichotomous alternatives. However, it is possible that if the first mover got to choose the mediator's strength (i.e. what mediator to invite) the dynamics presented here could be altered. Specifically, it may be the case that a devious first mover could choose a mediator strong enough to convince its opponent to agree to bargain, but insufficiently strong to keep it from bargaining in bad faith.

There are two reasons this concern may not be warranted. Foremost, empirically disputants do not often have the luxury of choosing from a continuous menu of mediators of varying capacities. It is much more common for a single mediator to offer its services in any given timeframe, and for disputants to have to choose between accepting that offer, moving for bilateral talks, or declining to bargain. Second, it is possible that, if the choice of mediator is modeled as a continuous choice, the downstream player would form beliefs about the first mover's type based on the choice, and first movers opting for low capacity mediators are likely to be seen as potentially devious, thus making the strategy of choosing a mediator just strong enough to induce bargaining untenable.

Though I made every effort to be thorough and conservative in the empirical portions of this work, no large-N study is without its drawbacks; this one is no different. First, there were a fair number of mismatches between the Regan and Greig data set, which coded possible instances of mediation, and the Bercovitch data set, which I used to account for mediation success. By mismatch, I mean instances where Regan and

Greig's data indicate that mediation took place by a given state in a particular conflict-year, but the Bercovitch data had no record of this occurrence. The converse, where the Bercovitch data listed a mediation outcome but Regan and Greig had no record of a mediation occurrence, also happened. Though it is doubtful that these mismatches were correlated with mediator characteristics and mediation outcomes in a systematic way, they are worth noting.

The second empirical limitation of the study is its limited temporal coverage and empirical domain. In Chapters 4 and 5, I tested the hypotheses generated by the theory of intra-bargaining commitment problems on instances of mediation in civil conflicts from 1945-1999. Further information could be brought to bear in testing the theory by extending the data used further in time. Additionally, the theory put forward here is not only applicable to intra-state conflicts. Testing the theory in the domain of inter-state conflict would be useful for understanding the extent to which deviousness is a problem in that context, and to what extent mediation can be helpful there as well.

This theory argues and finds empirically that mediation helps disputants reach settlements. They do this by threatening to impose costs on disputants who bargain in bad faith. However, Beardsley (2008, 2011) presents compelling evidence that mediators who use "hard" or coercive tactics to push disputants towards settlements cause those settlements to be short-lived because most mediators' incentives to remain involved in any given conflict wane over time. One might worry that this argument applies to settlements generated by enforcement of the agreement to bargain as well. Disputants who are able to make military gains during ceasefires may not take advan-

tage of them because of the threat of punishment by the mediator. However, as the mediator is forced to shift its attention to other conflicts or areas of foreign policy importance, the ascendant side may find the enforcement threat less credible.

On the other hand, the conditional nature of the "sticks" used by the mediator present in the theory of intra-bargaining commitment problems makes it inexpensive for the mediator to continue its involvement. Rather than having to continually make peace more valuable than war, like the US does for Israel and Egypt, the only recurring cost to the mediator of downstream enforcement comes in the form of relatively inexpensive attentional resources. So, perhaps agreements struck under the watchful eye of a mediator are not more likely to be short-lived after all.

Appendix A

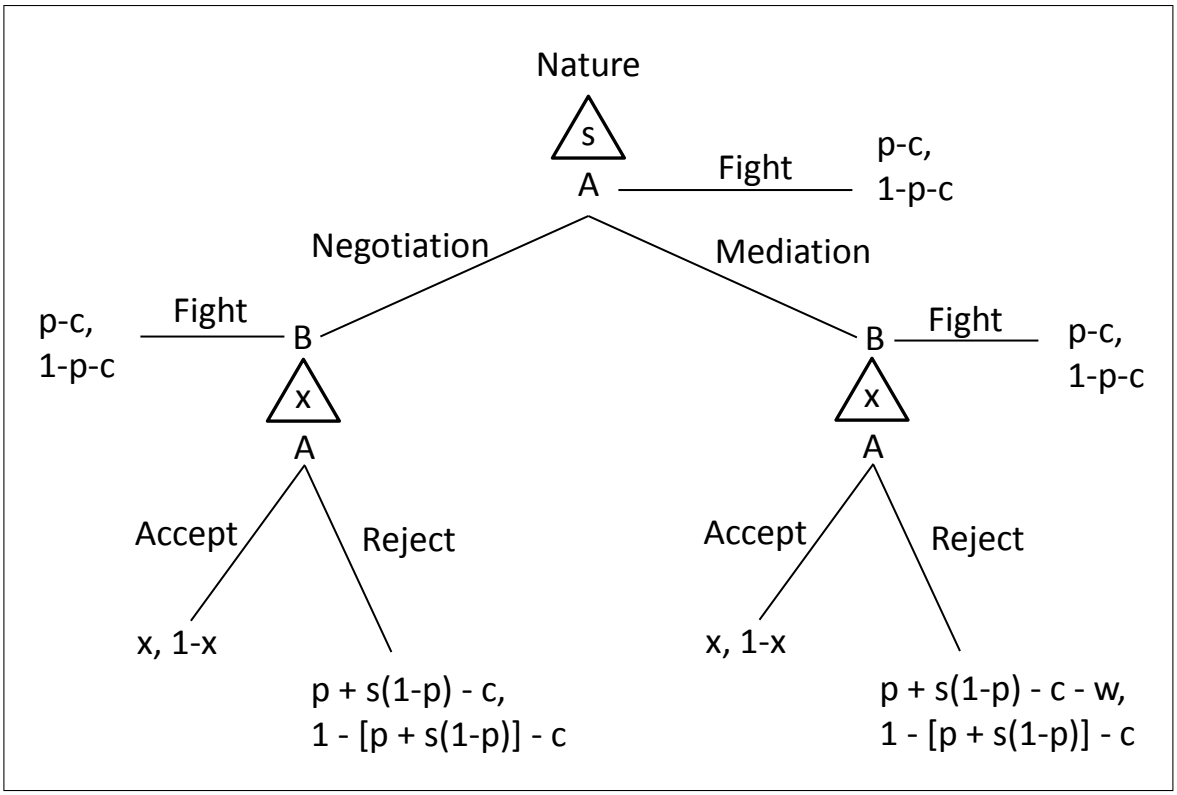
Game Theory Appendix

A.1 Overview of the Game

Assume two disputants, A and B, are in conflict over a good valued at 1. Both face identical, known costs to this conflict, c. Let A's known current probability of victory be p. A may initially move to Fight, Negotiate, or Mediate. B, if it receives an offer of bilateral or mediated talks, may make an offer, x, or decline to do so and Fight. If fighting occurs up to this point, A's payoff is p-c and B's is 1-p-c. If bargaining occurs, B offers x to A, proposing that it keep 1-x. If A rejects this offer, fighting breaks out, but A's power grows by a proportion of the extent to which it could possibly grow. Denote this proportion s, and furthermore let Nature inform A of s instantly, while B only knows its distribution, $f(s) = 2 - 2s$. Thus, if A rejects an offer it receives $p + s(1-p) - c$, while B gets a payoff of $1 - [p + s(1-p)] - c$. The mediation branch is identical, except that A's payoff for rejecting an offer is reduced by w to $p + s(1-p) - c - w$. Figure A.1 shows the

sequence of play.

Figure A.1: Game Tree



A.2 Negotiation Equilibrium

Formally, I show that the following constitutes a Perfect Bayesian Equilibrium:

$$A: \left\{ \begin{array}{ll} N, A & \text{if } s < s_N^* \\ N, R & \text{if } s > s_N^* \end{array} \right\}$$

$$B: \left\{ \begin{array}{r} x = x_N^* \\ b(s) = f(s) = 2 - 2s \end{array} \right\}$$

The proof proceeds in the reverse order of play. Suppose A is contemplating an offer, x, conditional on all types of A pooling on negotiation, and having been made an offer by B. A accepts when $x > p + s(1-p) - c$, else he rejects this offer. Solving for s gives $s_N^* = \frac{x-p+c}{1-p}$. In calculating what offer to make, B maximizes her expected utility,

$$EU_B(x) = \frac{x^3-3cx^2-3x^2-3p^2x+6px-9c^2x+6cx+3p^2-6p-5c^3+9c^2-3c+2}{3p^2-6p+3}$$

with respect to her choice parameter, x. Differentiating with respect to x gives:

$$EU_B(x)' = \frac{x^2-2cx-2x-p^2+2p-3c^2+2c}{p^2-2p+1}$$

which has a second-derivative

$$EU_B(x)'' = \frac{2x-2c-2}{p^2-2p+1}$$

which is negative when $p, c \in [0,1]$. Thus, this is a local maximum. Setting the derivative equal to zero gives:

$$x_N^* = \pm\sqrt{p^2-2p+4c^2+1}+1+c.$$

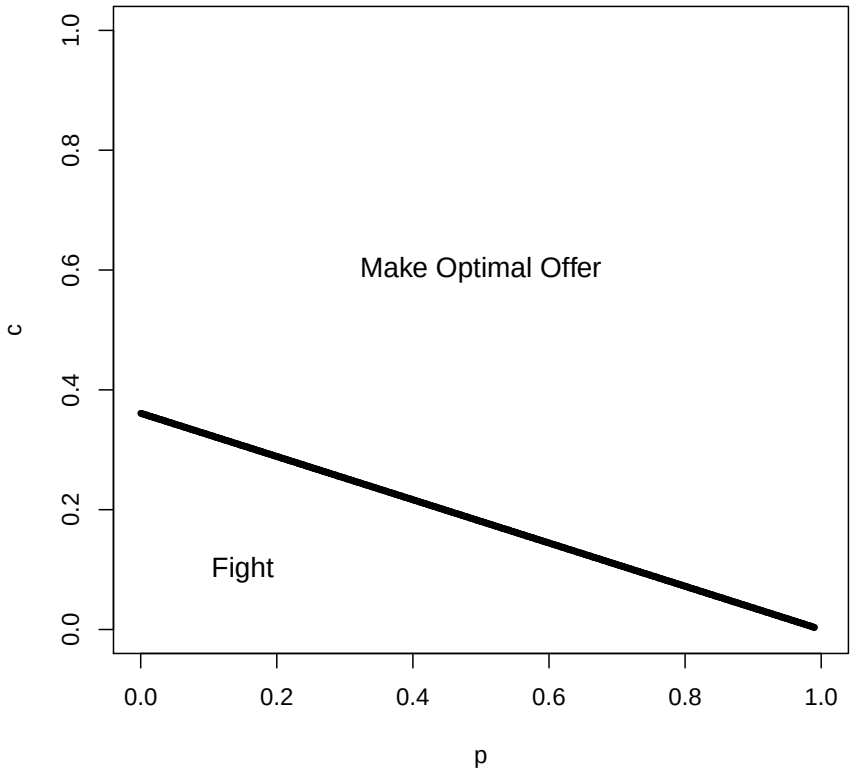
Only the negative root is operative, as offers are only sensible in $[0,1]$. B's expected utility to making this offer is:

$$EU_B(x^*) = \frac{\sqrt{p^2-2p+4c^2+1}(2p^2-4p+8c^2+2)-3cp^2+6cp-16c^3-3c}{3p^2-6p+3}.$$

For her to prefer to bargain rather than fight at her choice node, B must find that this equation's value is higher than her payoff for fighting, $1-p-c$. Figure A.2 depicts this tradeoff visually, as solving algebraically is intractable.

At her first choice node, all types of A (that is, for every value of s) strictly prefer to move for negotiations rather than fighting initially. Moving for negotiations generates one of two outcomes for A: B declines to bargain and fights, or B makes an offer. If B fights, this leaves A indifferent. If B makes an offer, A may choose between rejecting,

Figure A.2: B's Choice Between Fighting and Making an Optimal Offer, Given A Pools on Negotiation



B's choice between fighting and making an optimal offer, given that all types of A pool on moving for negotiation. p is A's pre-shift probability of victory, and c is the common cost for conflict to both A and B. In the upper space, B prefers to make the optimal offer, $\max(x_N^*, 0)$. In the lower space she prefers to fight.

which is always preferable to fighting early when s is non-zero:

$$p + s(1-p) - c \geq p - c.$$

Else, B may make an offer, x, that is larger than A's value for rejecting, which implies that it is also larger than A's value for fighting initially. Thus, A has no incentive to fight early.

What types of A have incentives to deviate to mediation at their first choice node?

Answering this requires specifying beliefs for B given this off-path move. Why might A deviate? Types of A expecting small shifts can expect to settle under negotiations. They may be able to do so as well under mediation, but with a worse settlement (as I show below). Thus, these types have no incentive to deviate. Strong types of A expect to bargain deviously, that is, move for negotiations then reject a modest offer. These types would also be worse off under mediation, as they would incur the mediator's penalty, w, and thus have no incentive to deviate.

A.3 Mediation Equilibrium

Formally, I show that the following constitutes a Perfect Bayesian Equilibrium:

$$A: \left\{ \begin{array}{ll} M, A & \text{if } s < s^*_M \\ M, R & \text{if } s > s^*_M \end{array} \right\}$$

$$B: \left\{ \begin{array}{r} x = x^*_M \\ b(s) = f(s) = 2 - 2s \end{array} \right\}$$

The proof proceeds in the reverse order of play. Suppose A is contemplating an offer, x, conditional on all types of A moving for mediation, and B having made an offer. A accepts when $x > p + s(1-p) - c - w$, else he rejects this offer. Solving for s gives $s^* = \frac{x-p+c+w}{1-p}$. In calculating what offer to make, B maximizes her expected utility,

$$EU_B(x) = \frac{x^3-3cx^2-3x^2-3w^2x-12cwx-3p^2x+6px-9c^2x+6cx-2W^3+3w^2-9cw^2+12cw-12c^2w+3p^2-6p-5c^3+9c^2-3c+2}{3p^2-6p+3}$$

with respect to her choice parameter, x. Differentiating with respect to x gives:

$$EU_B(x)' = \frac{x^2-2cx-2x-w^2-4cw-p^2+2p-3c^2+2c}{p^2-2p+1}$$

which has a second-derivative

$$EU_B(x)'' = \frac{2x-2c-2}{p^2-2p+1}$$

which is negative when $p, c \in [0,1]$. Thus, this is a local maximum. Setting the derivative equal to zero gives:

$$x_M^* = \pm\sqrt{w^2+4cw+p^2-2p+4c^2+1}+1+c.$$

Only the negative root is operative, as offers are only sensible in $[0,1]$. B's expected utility to making this offer is:

$$EU_B(x_M^*) = \frac{-2w^3+\sqrt{w^2+4cw+p^2-2p+4c^2+1}(2w^2+8cw+2p^2-4p+8c^2+2)-12cw^2-24c^2w-3cp^2+6cp-16c^3-3c}{3p^2-6p+3}$$

For her to prefer to bargain in the presence of a mediator rather than fight at her choice node, B must find that this equation's value is higher than her payoff for fighting, $1-p-c$. Figure A.3 depicts this tradeoff visually, as solving algebraically is intractable.

A will prefer moving for mediation under most circumstances, rather than moving to fight initially. Specifically, since the offer it expects, x_M^* is decreasing in w and the value for rejection is also decreasing in w, if w gets prohibitively large A would prefer defecting to fighting. Specifically, A would prefer to fight if

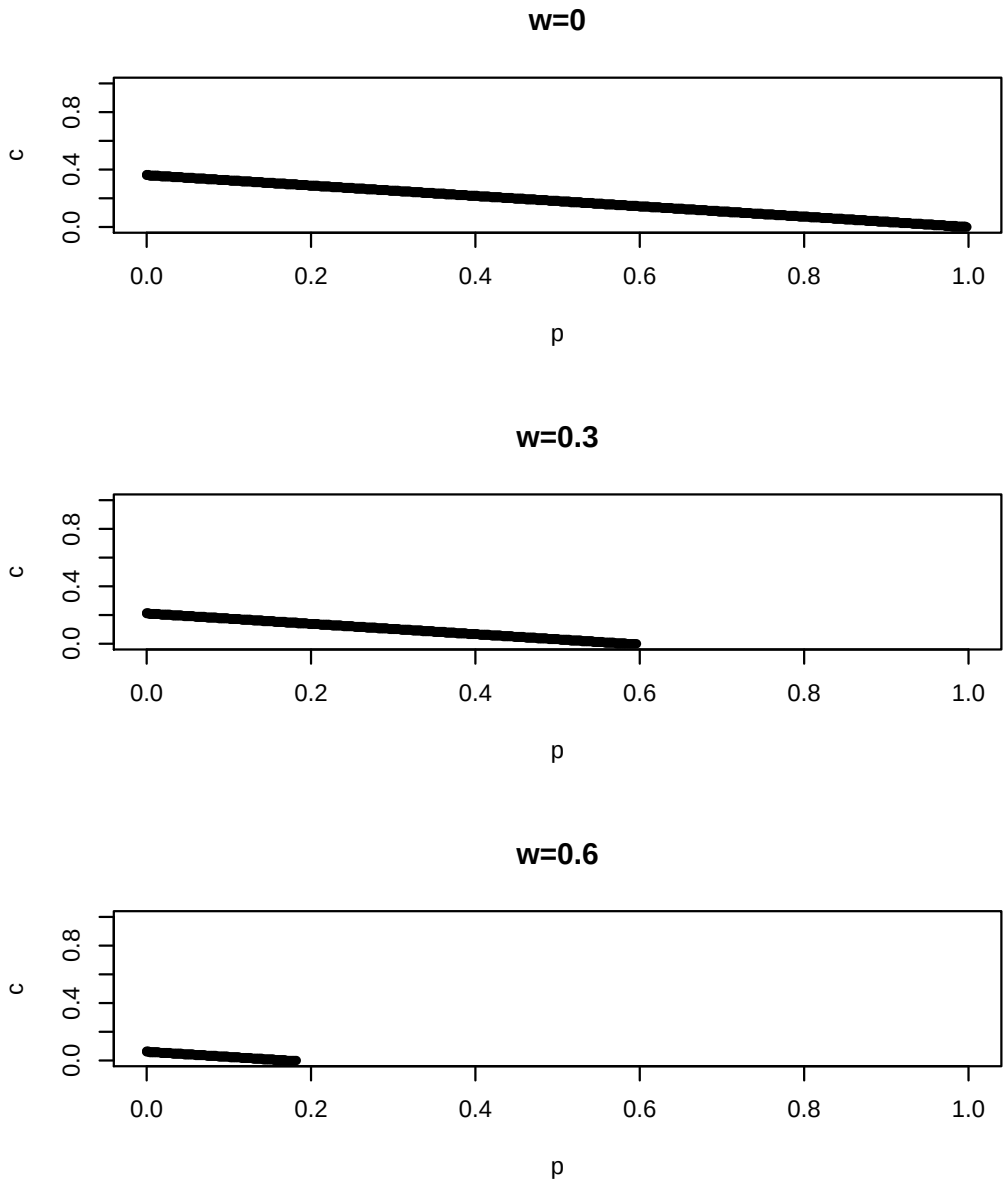
$$p < 1-\frac{w}{s}$$

and

$$p < 1-\frac{w^2}{4c}-w.$$

This pair of equations generates two implications. First, if p is very large, A simply fights. Second, w can grow so large that it keeps A from bargaining. This is because w lowers the offer A expects, and also its value for rejecting an offer. Overall, this concern

Figure A.3: B's Choice Between Fighting and Making an Optimal Offer, Given A Pools on Mediation



B's choice between fighting and making an optimal offer, given that all types of A pool on moving for negotiation. p is A's pre-shift probability of victory, and c is the common cost for conflict to both A and B. Above the line, B prefers to make the optimal offer, $\max x_N^*, 0)$. Below the line, she prefers to fight. The top panel shows B's choice when the mediator is impotent (w=0) – this is identical to Figure 3.2. As w grows (the middle and bottom panels), B prefers to go to the table and make offers over a larger portion of the space.

is unlikely to bind – recall that the value of the good is normalized to one. Thus, costs near one and values of w over, say, 1/3 are probably unrealistic. This pair of equations simply points out that no one would invite in a mediator who threatened sticks much more painful than the value of the good in contention.

Contemplating whether A prefers to deviate to negotiation requires specifying off-path beliefs for B given such a deviation. From the perspective of B, any A that deviates to negotiation is one of three types. First, it may be an A that expected to accept x_M^*, but prefers the slightly larger x_N^*. Second, an A that deviates to negotiation may anticipate rejecting x_M^*, and prefers to deviate to negotiation to avoid paying the mediator's penalty, w. Third, an A that deviates to negotiation may have anticipated accepting x_M^*, but would prefer to bargain deviously in the absence of a mediator. From B's perspective, this last type of A is the most pernicious. In light of the pervasive distrust surrounding conflict bargaining, I assume that B believes A is this last type upon seeing a deviation from mediation to negotiation. Thus, B's best play is to fight given a deviation to negotiation. This strategy profile makes all types of A better off staying with the mediation equilibrium than moving for negotiations. That is, whenever A prefers x_M^* or devious bargaining under mediation to fighting, he also prefers not to deviate to negotiation.

The assumption set out above is defensible in light of the pervasive suspicion surrounding conflict bargaining. Actors are highly unlikely to think a move away from an equilibrium involving the inclusion of a mediator-as-enforcer to a strategy that evades said mediator is benign. However, the assumption above, that every deviator is thought

to be one that would have bargained under negotiation, but prefers to reject an offer under negotiation, is unnecessary. A milder assumption suffices: that B believes that A has incurred a shift of at least $\underline{s}$ upon seeing a deviation from mediation to negotiation.

Specifically, I solve for the minimum $\underline{s}$ such that B prefers to Fight on seeing a deviation to negotiation from the posited pooling equilibrium in which all types of A move for mediation. This involves re-solving for B's optimal offer given a belief bounded below at $\underline{s}$, and finding the smallest $\underline{s}$ that solves:

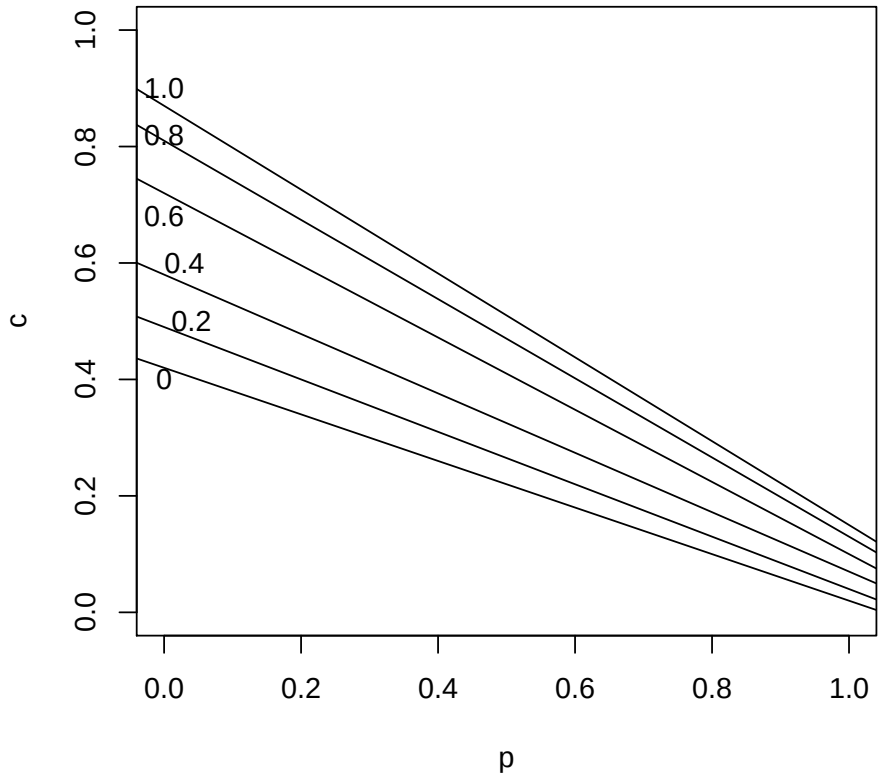
$EU_b(x*|s.low) = 1 - p - c$

The expression for B's expected utility to making her optimal offer is intractable given the need to integrate over s. Thus, I demonstrate the mildness of the assumption of restricting beliefs to be no lower than $\underline{s}$ graphically. Figure A.4 displays the minimum value of $\underline{s}$ that suffices to make B prefer to Fight on seeing a deviation to negotiation by A across a grid of values of c and p. In the bottom-left of the graphic B fights no matter what the level of $\underline{s}$. In the top-right of the graphic B prefers to bargain no matter what, and the equilibrium breaks down. In the area in between, the contour lines denote the minimum level of $\underline{s}$ for which B prefers to Fight, and thus the mediation equilibrium is sustained.

A.4 No Bargaining

When the conditions that support bargaining in the negotiated or mediated cases above do not hold bargaining does not occur. That is, when all types of A contemplate moving for negotiations, the following is a Perfect Bayesian Equilibrium when p and c put

Figure A.4: Minimum of B's Belief Distribution that Supports the Mediation Equilibrium

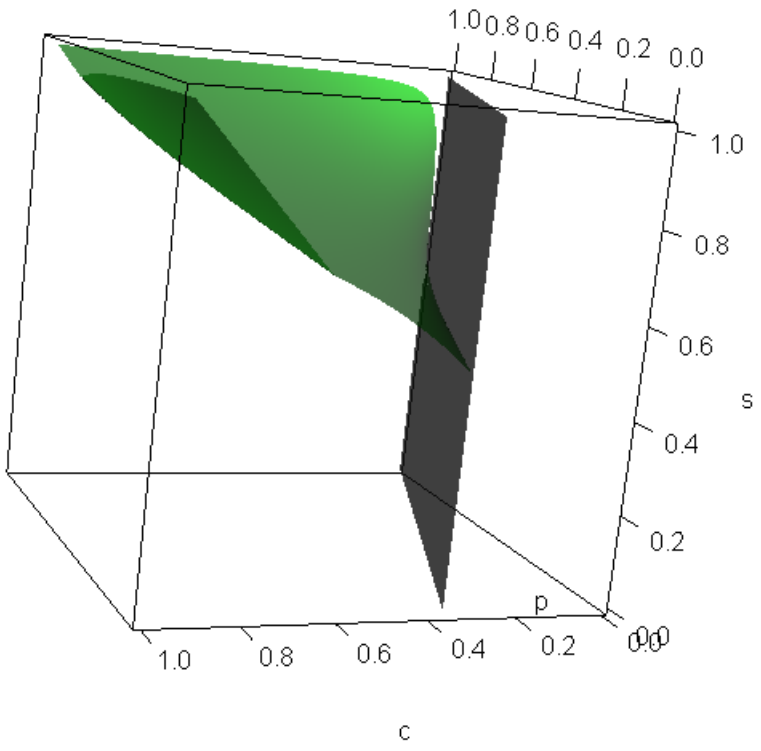


s.low is the minimum threshold on B's belief distribution of the type of A she is facing on seeing a deviation from the posited negotiation equilibrium that supports the equilibrium. Note that the necessary minimum beliefs are only a mild restriction across a wide range of p and c. At the lower-left, no restriction is necessary (that is, s.low is zero). At the upper-right, as s.low goes to 1.0, the equilibrium breaks down; however, that only holds for very uneven conflicts and those with extreme costs.

B into the portions of Figure A.2 below the cutting line:

$$A: \left\{ \begin{array}{ll} F, A & \text{if } s < s_N^* \\ F, R & \text{if } s > s_N^* \end{array} \right\}$$

Figure A.5: Equilibrium Space, A Pools on Negotiation



This Figure shows the same three-dimensional parameter space and equilibrium behavior when A pools on negotiation. In this Figure, the cost of conflict (c) is measured across the front-most axis, A's pre-shift strength (p) is measured in the depth dimension, and A's anticipated shift in power (s) is measured in the vertical dimension. The rectangular, vertical plane at the right of this figure denotes the points at which B is indifferent between making an offer and refusing to bargain. It is a vertical translation of the line that divides the spaces in Figure 3.2 through the s dimension. To the right of this plane, B declines to bargain, preferring to continue the conflict. To the left of this plane, B makes her optimal offer. The green, curved plane separates the space where A accepts offers (below the plane) from the space where he rejects them (above the plane).

$$B: \left\{ \begin{array}{r} F \\ b(s) = f(s) = 2 - 2s \end{array} \right\}$$

I assume that A prefers not to move for bargaining on indifference, given B's sequentially rational strategy of declining to bargain. A behaviorally similar equilibrium holds when all types of A pool on moving for mediation:

$$A: \left\{ \begin{array}{ll} F, A & \text{if } s < s_M^* \\ F, R & \text{if } s > s_M^* \end{array} \right\}$$

$$B: \left\{ \begin{array}{r} F \\ b(s) = f(s) = 2 - 2s \end{array} \right\}$$

The conditions for this equilibrium additionally concern w, and are depicted, again, in Figure A.3. In this world, fighting is also the outcome if: $p < 1 - \frac{w}{s}$ and $p < 1 - \frac{w^2}{4c} - w$.

Appendix B

Statistical Appendix

Chapter 5 utilizes a selection model in which the selection stage is explicitly mis-specified. That is, I employ a model that accounts for unobserved characteristics that affect both the selection into an instance of mediation, and that also affect whether or not a settlement is reached. However, this model does not account for the unobserved factors that affect both whether or not mediation is offered, and whether or not it occurs. I take this approach in spite of the strong evidence in Chapter 4 that there are unobserved factors of this latter variety. Throughout this section, I refer to whether or not mediation is offered as the first stage, whether or not mediation occurs as the second stage, and whether or not a settlement is reached as the third stage. The question is, to what extent is omitting a model of the first stage detrimental to accurately estimating the equation for the third stage? Although I employ a semi-parametric variant of the selection model to try to obviate this concern, and show that it generates substantively similar results to the main model, in this Appendix I describe the results of a Monte

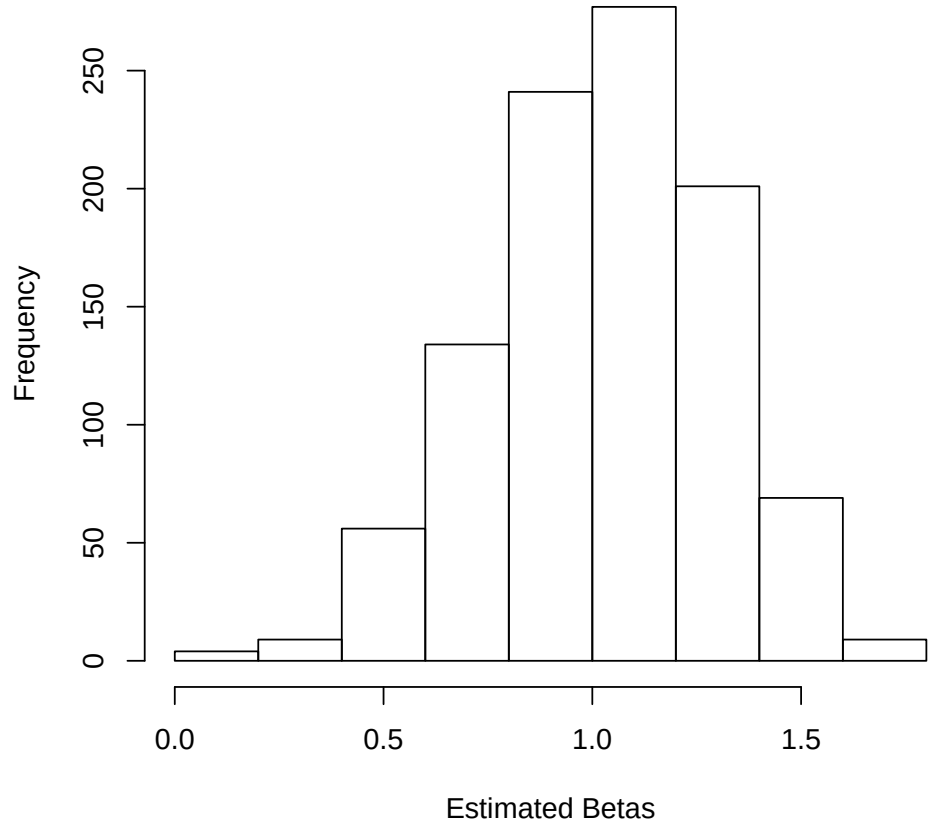
Carlo experiment that shows that the particular type of mis-specification in question does not harm inference in the third stage.

I set up a Monte Carlo experiment as follows: I first generate three random variables, x, z, and f. I then write equations for three means, where the first is a function of f, the second is a function of x and f, and the third is a function of x and z. I then draw three y variables according to each formula, with correlated errors between each. I then drop cases according to cut-offs in y1 (the first stage), and subsequently in y2 (the second stage). Finally, I dichotomize all three y values. This setup is meant to mimic a three-stage selection process where the selection mechanism is correlated with an independent variable in the following stage.

Utilizing a standard probit generates highly biased estimates of the third stage. However, a heckman model fit only to the second and third stages produces accurate estimates of the third stage, though the estimates of the second stage are biased. This is exactly what I found to be the case in Chapter 5. Though the selection model recovers the betas with no evidence of bias, the estimates are not very efficient.

Figure B.1 displays the results of a Monte Carlo experiment run 1,000 times set up as described above, with the following parameters: N=1000, means=c(1.5*f; 2*x-f; x+z), covariances in error processes=c(-.4, .5), and censoring of about one-half of the remaining cases at each step. Thus, the true effect of x on the outcome stage, y3, is 1. As is clear from Figure B.1, the selection model is able to recover this effect even without estimating stage 1 (that is, the selection model treats stage 2 as the selection stage and stage 3 as the outcome stage, just as the models in Chapter 5 do).

Figure B.1: Monte Carlo Results; True Beta Equals 1



This fundamental result holds for a variety of correlation structures, mean processes, and numbers of observations. Overall, I take this is strong evidence that the Heckman probit model, in spite of its other failings, is able to accurately estimate effects from data generating processes like the one for which I employ it.

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