Policy Bargaining and Incompatibilities in Civil Wars: Intervention, Power-Sharing, and Preferences

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Contents

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Summary

Civil wars in which conflict parties claim a regime lead to crisis at both domestic and international levels. Such claims for new regime have been a part of the democratization process throughout history. Thus, for both domestic and international participants in civil conflicts, bargaining is often a central issue. While conflict parties face pressure to cease civil war, salient issues at stake sometimes make parties less inclined to settle. Even if parties reach an agreement, in many cases, this is only a part of the long process of ending war. The outcome might also create incompatible situations for different parties, in some cases, causing another conflict. In other cases, such an outcome simultaneously solves other parties' incompatible situations. This dissertation investigates how and when politically incompatible situations in civil wars are resolved through the process of war termination. It re-examines the arguments used for international relations and civil conflict terminations with a particular focus on the subject of bargaining over political institutions, and the changing phases of termination process. Those theories are tested by using various potential outcomes as measures of conflict terminations in civil wars over government.

1 Introduction

Political conflicts arise when participants are not satisfied with the political and governmental status quo, and take up arms. Dissatisfaction with the political status quo can be therefore seen within the specific actions taken, especially in terms of the demands of rebel groups. In some instances, demands involve regime change or political institutional change, while in other cases, rebel groups demand positions in government or legitimacy of their own leadership. From this position, several questions arise. Why are such political incompatibilities sometimes resolved through civil war but in some instances are not? How do parties solve such political incompatibilities? Is an adaptation by a government of a particular institutional arrangement influenced by those demands? If so, does such an arrangement last longer while addressing the roots of dissatisfaction? How do external parties influence such arrangements through the negotiation phase and compliance phase? If demands arose due to dissatisfaction with the status quo policy, then, when the status quo changes, do rebel groups stop fighting or were demands simply bargaining positions?

Recent intense civil wars in Libya and Syria have demonstrated how claims for new regime can lead to intense conflicts, resulting in international refugee crises. Although these recent civil wars have attracted the interest of scholars and practitioners of international politics, numerous past civil conflicts also involved regime or political institutions as the issues at stake, rather than self-determinations, in bargaining in civil wars. As Schelling (1966) mentions, the regime as one of bargaining subjects in negotiation in warfare (p.217)—regardless of whether it is an international or an intrastate war, at central or sub-national level—has been the central issue at stake in many political conflicts. For instance, in the case of the Zapatista movement in Mexico in 1994, the revolt was a response to the authoritarian sub-national regime[1], insisting on autonomy[2] on the basis of indigenous ethnic identity and Mexican national citizenship.[3] In the case of the Nepal insurgencies in the 2000s, it was against the monarchy.[4] In Iran in 2000s, the Baluchistan-based Sunni insurgent group Jundallah was seen by the leader Khamenei as an insurgent that was pursuing regime change.[5] What explains the variations in conflict terminations in civil wars when the subject of bargaining is regime type or political institution?

This dissertation project investigates the process through which political incompatibility in civil wars are resolved, with a particular focus on the subject of bargaining and issues at stake.

[1] see Fox (1994)
[2] see Stephen (1995); Collins (2010)
[3] see Stahler-Sholk (2007)
[4] see Mishra (2004); Murshed and Gates (2005); Destradi (2010)
[5] see Milani (2009)

The subject of bargaining is particularly focused on since an investigation of what the conflict is about for parties involved is the first step towards investigating causes of dissolution of political incompatibility in civil wars. According to Axelrod (1967), conflict is "a property of the preferences of the participants and the structure of situation in which they find themselves" (p. 87). Conflicting situations arise because something is perceived as incompatible for those who are fighting. If this is the case, when parties do not perceive something as incompatible, in other words, when they see the situation is compatible, perceived conflict is dissolved. Identifying with what conflict parties feel as a conflict is a fundamental start point for investigating causes of conflict terminations. In this sense, causal mechanisms for civil war terminations might depend on the subject of bargaining and how parties assess such subject. Therefore, this dissertation project focuses on revealing mechanisms for conflict terminations, where conflict parties are bargaining over political systems.

Outcomes of Conflict Resolutions and Phases of Conflicts

As is often stated in the prior literature, the end of war is not usually a precise moment in time, but a process in itself;[6] to understand this process of how civil wars over state power are resolved, this dissertation focuses on various outcomes as measures of conflict terminations. Chapter 2 discusses issues at stake as political institutions, and explains conflict termination as a political power sharing agreement as a potential outcome.[7] However, having a negotiated settlement does not mean a war ending, as shown in previous studies.[8] The analysis of power sharing in transition involves what Roeder and Rothchild (2005) define as the initiation phase and the consolidation phase. Peace building requires patience[9], and in order to understand a war ending as a process it is necessary to analyze how the introduced power sharing affects both underlying obstacles and peace following the signing of peace accords. In the case of Rwanda, a coalition government was formed in 1992[10], However, disagreement over the nomination of representatives to transitional institutions led to delays in the implementation of a power sharing deal, and genocide broke out in April 1994.[11] Therefore, Chapter 3 and Chapter 5 turn the focus of analysis from the determinants of power-sharing to the duration of power-sharing agreements and levels of peace accord implementation as potential outcomes of dissolution of political

[6] see Ramsbotham et al. (2011)

[7] Power sharing as a conflict resolution tool has been analyzed well previously including studies by Lijphart (1977); Sisk (1996); Hartzell and Hoddie (2003); Roeder and Rothchild (2005). In this dissertation, I discuss power sharing in the context of non-secessionist type of conflicts.

[8] see Licklider (1995); Toft (2009) for vulnerabilities of negotiated settlement.

[9] see Paris (1997)

[10] see Uvin (1999)

[11] see UCDP Peace Agreement Dataset Version 2.0 (Högbladh, 2011).

incompatibility. Finally, Chapter 4 takes into account status quo change in government compositions. It is not uncommon that while there are remaining active rebel groups in a state, rebel groups are accommodated in government through power-sharing deals. For instance, the Arusha Peace Accord in 2000 between Burundi's president Buyoya and several factions led to a cabinet reshuffle while two main rebel groups were still active. Since the remaining rebels' perceived incompatibilities might change when the status quo of the subject of bargaining changes, the chapter investigates distances in ideal policy positions as potential outcomes of settlement, and shows how estimated changes in policy position explain the process towards settlement. When the subject of bargaining is regime type or political change, although levels of democratization are also potential outcomes of conflict resolution in long-term perspective, this dissertation project maintains its primary focus on a negotiation strategy and the bargaining behavior of government in response to groups against the regime, since there are many studies that have focused on democratization levels as potential outcomes.[12] In conflict research, while the dimension of time taken in negotiation is an important analytical tool, there are also other key properties to understand. This dissertation project also incorporates other such components in each analysis.

Multiple Conflict Parties in Civil Wars

The first analytical component is an identification of parties involved. Parties involved in civil conflicts have been increasingly diverse. Although the main structure of civil conflicts is a government versus a rebel group, in most conflicts, the structure is not so simple. From perspectives of rebel groups, group ideology can beyond ethnic ideology since conflict parties are most likely to be bargaining over political policies of the government, rather than a particular territory, in those types of conflicts. As Figure 1.1 shows, since 1970, most ongoing civil wars against a regime involve more than one rebel group in a state. Understanding the bargaining process in the context of multiple rebel groups is crucial[13]. Thus, Chapters 3 reflects policy bargaining with more than one rebel group—moderate and extreme groups—in explaining strategic inducement of particular power sharing arrangements. Chapter 4 further brings insight into differences in ideology among rebel groups by identifying areas of topics that a splinter rebel group put much emphasis on in the speeches it makes compared to that of an original rebel group.

When the subject of bargaining in a civil war is regime type, in terms of domestic politics, not only leaders of rebel groups but also citizens and other decision-makers in the government

[12] see Hegre et al. (2001); Wantchekon and Neeman (2002); Cederman et al. (2010a)
[13] see Walter (2009b); Cunningham (2011) for multi-party bargaining in self-determination movements.

than the state leader have interests in outcomes of conflicts. This is because, compared to a secessionist conflict, in a civil war over a government, a change in a political institution at the central government level leads to a change in status quo of positions of political parties themselves as well as changes in policies that the government enacts. This point is further discussed in Chapter 5, in which the theory assumes there are influential autonomous decision-makers in governments. Then, the chapter investigates how those decision-makers cause involuntary defections in the process of peace accord implementation.

As mentioned, regime type has also been a subject of bargaining in international wars.[14]. A number of scholars of international relations see political systems as one of the causes of international wars. For instance, Russett (1994) argues democratically organized political systems make peaceful relations with other democracies but not with other kinds of political systems (p. 11). One of the implications of democratic peace theory is that other countries' political systems can be a matter to a state. When the subject of bargaining is political systems in a civil war, even if external countries were not involved in the conflict in terms of the cause of the conflict, they would be interested in the outcome of the civil conflict. A change in a political system in a state can lead to a change in external relations of the state such as trade relations with other states, which ultimately affect domestic economy or politics of those states. Considering consequences of outcomes of civil wars, in some cases, external countries are directly involved in civil wars by sending troops or financial aids. Current Syrian conflict illustrates that international parties are also involved in civil conflicts and influence courses of conflicts. For instance, Russia supports the Assad regime while the United States launched missile strikes against the regime when the Syrian regime launched alleged chemical weapon attacks. Depending on the subject of bargaining in civil wars, external parties decide which side to support. Thus, Chapter 2 introduces external supporters as parties who also have interests in outcomes of civil conflict, and analyze how they affect—not only the negotiation process—but also potential outcomes of negotiation. In this chapter, I elaborate more on how external parties assess thread posted by rebel groups in a civil war.

However, not all external parties are involved in civil wars as parties who support one side. For instance, especially after a government and rebel groups signed a peace agreement, it is not rare that external organizations play a role of neutral third-party guarantors. Sometimes independent inspections for violations of weapon disposal plans can be carried out by those organizations. In other cases, third-parties appease recurrence of attacks during post-conflict

[14]see Schelling (1966)

phase. Chapter 5 also focuses on the influence of external participants only in a more neutral context, as an enforcer of peace accords. Specifically, the chapter investigates how UN missions affect the implementation of comprehensive peace agreements in civil wars.

Preferences and Strategies

The next analytical tool that each chapter particularly pays attention is what Frieden (1999) terms as a separation of preferences from strategies. In analyzing political incompatibilities in civil wars, it is important to consider that just because the subject of bargaining is a regime type or political institution, this does not necessarily reflect underlying preferences; actions are a reflection of strategic setting and preferences.[15] As further elaborated upon in Chapter 4, distinguishing between the positions held by parties and underlying interests is a central idea in conflict resolution.[16] Since conflict stems from parties' perceptions, rather than from 'objects'[17]—i.e., regime type or political institutions in intervening countries—understanding preference itself is as important as understanding strategies, actions, and outcomes. Frieden (1999) argues that scholars of international politics specify preferences by assumption, by observations, and by deduction. Chapter 2 discusses democratic interveners' preferences over conflict outcomes as an assumption derived from anecdotal evidence as well as from previous studies, and then explains how it affects conflict outcomes. Assessment of how interveners see the bargaining object involves an analysis of what their aims or interests are in the setting. On the other hand, Chapter 4 empirically estimates preferences themselves rather than assuming parties' preferences, and elaborates on a way to separate strategies and preferences by observations and deductions. Specifically, the chapter empirically estimates perceived incompatibilities in conflict parties as a reflection of committed bargaining positions, and the study separates the bargaining position from the estimated compatible needs. The chapter uses speeches as observations, and then deduces preferences by taking into account rational choice settings, or spatial bargaining. Chapter 3 discusses two-dimensional preferences—national and sub-national—in terms of moderate and extreme groups' ideologies, analyzing how policy autonomy is introduced as part of strategic concessions in civil wars against the regime, and how such arrangements affect the duration of peace.

Conflict Trends

Investigation of this particular conflict not only contributes to the extant literature, but is

[15] see Morrow (1994); Frieden (1999); Bueno de Mesquita (2013)
[16] see Fisher et al. (1987); Ramsbotham et al. (2011); Wallensteen (2015)
[17] see Axelrod (1967); Hirshleifer (1995); Gleditsch (2002a)

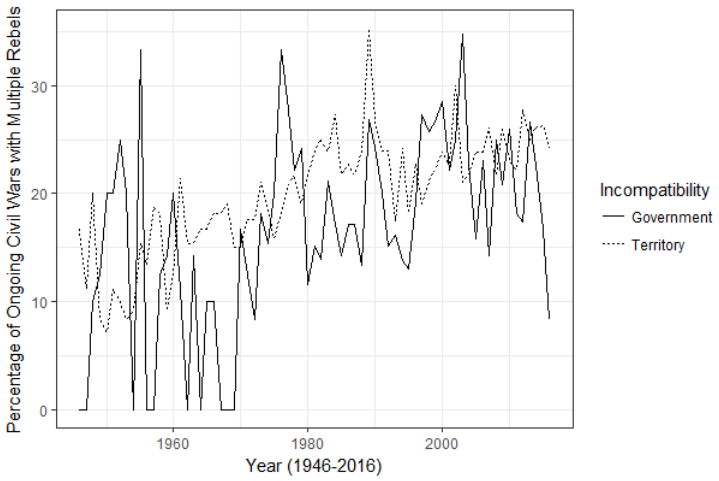


Figure 1.1: The figure shows how often civil wars involve more than one rebel groups. $percentage_t = \{(\sum_{n=1}^{i} cw_{it} - \sum_{n=1}^{i} solocw_{it}) / \sum_{n=1}^{i} cw_i\}^*100$, i=country, $cw_{it} = 1$ if civil war(s) is ongoing in i at t, otherwise 0. $solocw_{it} = 1$ if i is fighting with only one group. The information on conflicts was taken from UCDP Armed Conflict Dataset version 17.2 Gleditsch et al. (2002); Allansson et al. (2017)

also important in terms of addressing the need for solutions. In fact, if we only look at the case of intense conflicts—which records give as at least 1,000 battle-related deaths in a given year—we will notice that after 1980, most of them are due to governmental incompatibility (Figure 1.2). The need for conflict resolutions for this particular type of conflict has also been demonstrated by the two most recent governmental conflicts, as earlier mentioned; the Libyan and Syrian conflicts. These conflicts have resulted in the refugee crises in Europe and Middle East, especially in neighbouring countries. When the subject of bargaining involves political regime or institutions, consequences of bargaining outcomes effect not only groups who actively participated in the armed conflict but also non-participating citizens as consequences of the shift in the political status quo. Since the political situation of conflict states can also affect decisions of repatriation, understanding the process towards termination of this type of conflict would also be required in terms of practical peace building processes.

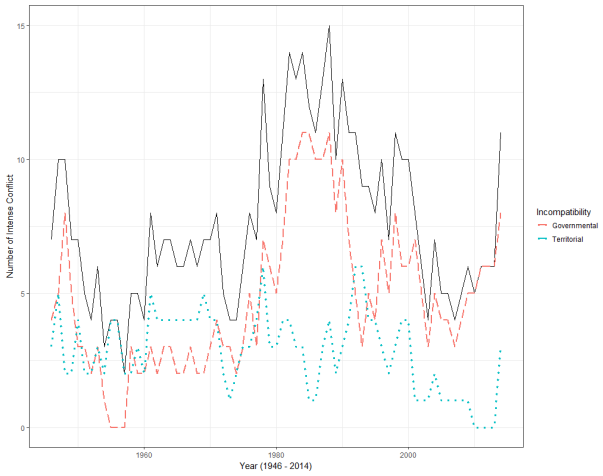


Figure 1.2: The number of ongoing intense armed conflict from 1946 to 2014 (Uppsala Conflict Data Program Armed Gleditsch et al. (2002)).

2 External Supporters and Negotiated Settlement: Political Bargaining in Solving Governmental Incompatibility

Abstract

External supporters have heterogeneous preferences over civil war outcomes depending on the issues at stake. In this article, the bargaining model and empirical study show that such preferences of external supporters need to be considered not only when analyzing the causes of support but also when analyzing how they affect a conflict. By adding an external supporter to a traditional conflict bargaining model as a strategic actor who receives a payoff from the political division, this article investigates how the preferences of external supporters influence the likelihood of a peace agreement in civil wars over a government. I demonstrate that a peace agreement is more likely to happen when the external supporters of the government side are not satisfied with the current political status quo of the supported state. The empirical analysis of political civil wars from 1976 to 2009 supports the implications of the bargaining model.

2.1 Introduction

Theories of international relations have suggested that conflict parties sign a peace agreement when they reach an agreement on the issues at stake and commitment problems are solved. Focusing on the issues at stake is particularly important in the case of governmental incompatibility[18] where rebel groups aim to replace the central government, or to change the political system, rather than gain their own territory. This is because a peace agreement for this type of conflict involves some form of political status quo change. If the political status quo changes, such as a change toward democratization or authoritarianism, in addition to the conflict parties themselves, some external actors would have interests in relation to such a change. To examine such interests of external actors, the existing literature on civil war has investigated why external actors support or intervene in civil conflicts (Heraclides, 1990; Saideman, 1997; Lemke and

[18]The UCDP/PRIO Armed Conflict Data project (Gleditsch et al., 2002) defines governmental incompatibility as incompatibility concerning the type of political system, the replacement of central government or the change of its composition. The Mozambican Civil War (1977–1992) is one example of this type of conflict. During the conflict, Mozambican National Resistance demanded an agreement on political reform, especially constitutional reform (Walter and Snyder, 1999).

Regan, 2004; Findley and Teo, 2006; Salehyan et al., 2011; Maoz and San-Akca, 2012). Then, a question arises: how do external supporters affect conflict parties in the process of reaching an agreement to resolve governmental incompatibility? What are the underlying mechanisms through which external supporters influence a peace agreement?

Many studies have explored how such external actors affect civil war outcomes or conflict durations (Elbadawi, 2000; Balch-Lindsay and Enterline, 2000; Regan, 2002; Bueno de Mesquita and Downs, 2006; Balch-Lindsay et al., 2008; Cunningham, 2010; Aydin and Regan, 2012; Sawyer et al., 2015). However, except for some works (Bueno de Mesquita and Downs, 2006; Cunningham, 2010; Akcinaroglu, 2012; Aydin and Regan, 2012), while the literature refers to the important assumption that supporters or interveners have aims or preferences, when it comes to testing their effects on conflict duration, these preferences and the question of how these preferences affects conflict duration have been treated separately by assuming homogeneous preferences. Indeed, variations in conflict duration can be successfully explained by treating motivations separately or by comparing cases where there exist external supporters with cases where there exist no such supporters. However, variations in conflict outcomes when there are external supporters cannot be explained without taking into account the aims and preferences of such supporters. If external actors have heterogeneous preferences over conflict outcomes, and if such preferences affect the amount of support they provide, then the preferences of supporters could matter in terms of the likelihood of peace agreements when they involve political status quo change.

Therefore, this article will relax an assumption often found in the literatures on civil war and international relations when examining the impact of external actors. I assume external actors have heterogeneous preferences over conflict outcomes, and based on these preferences, they receive utility from conflict outcomes. By adding an external supporter to Fearon's (1995) bargaining model as a strategic actor who receives a payoff from the political division of the supported state, I explore how the preference of an external actor affects the bargaining process in conflicts where parties are fighting over the central political power.

I will argue that a key mechanism for a peaceful settlement is whether parties can consent to the new political division. This is because solving the core issue—changing the political status quo—is essential for reaching a settlement since a rebel group demands such reform as its core claim. Importantly, the amounts of support from the external supporter, which is derived by its preference over the political division, can change the amount of demand or concession from conflict parties, which is a key component of conflict termination bargaining.

The bargaining model in this article shows that, when the preference of an external supporter for the government side is different from that of its supported government, the likelihood of a peace agreement increases.

The first hypothesis that follows from this is that a democratic supporter increases the likelihood of conflict parties signing a peace agreement. A democratic supporter has an incentive to provide the minimum amount of support and to change the current political system of the supported country. In the case of governmental incompatibility, regime type can derive the preference of a supporter. In addition to this direct implication of the model, the article derives a second hypothesis by swapping the sides of actors in the bargaining model. I argue that a peace agreement is less likely when the regime type of the target state and that of its rebel group's supporter are different. The empirical analysis supports these two hypotheses.

In the following section, I review the literature on interventions. Next, I introduce a theoretical framework of a bargaining mechanism with an external player by using Fearon's (1995) bargaining model, from which I derive the two hypotheses. In the empirical analysis section, I introduce the research design and discuss empirical results. This article defines "support" as both military and financial assistance. I do not distinguish between different types of supports. Rather, the study takes into account the primary attribute of supporters—regime type—to allow empirical tests to capture the effect of their preferences. After the empirical section, I provide two case examples that illustrate my general findings. Finally, I refer to the implications of this analysis for further research.

2.2 Third Party and Civil War

Regarding the question—how external actors influence the civil war duration—many studies examine the effect of external actors as conflict parties' decision calculus such as balance of capability (Licklider, 1993; Elbadawi, 2000; Regan, 2002), probability of winning (Balch-Lindsay and Enterline, 2000), cost of war (Balch-Lindsay et al., 2008) or war-making ability (Sawyer et al., 2015). For instance, Licklider (1993) argues that if weapons are given to the weaker side, a negotiated settlement may be more likely, while Balch-Lindsay et al. (2008) argue third-party support for the government decreases the likelihood of negotiated settlement by assuming the government is stronger than the opposition.

Although they provide significant explanations for how these external actors affect civil war duration or termination, these studies have assumed homogeneous preferences for their empirical analyses. In this sense, there is a gap between the assumptions of the theoretical arguments and

empirical analyses in the literature. For instance, Regan (2002) argues that interveners' interests must manipulate the costs of continued fighting and convince parties to reach a settlement. Given the preferences of external actors, these actors manipulate costs and, then, affect the settlement. Therefore, if they have preferences over conflict outcomes, the preferences would affect the conflict outcomes. This is because preferences of supporters derive the amount of support that affects the costs of war of conflict parties. However, rather than preferences, previous research has focused on variations in resources from supporters such as the number of troops (Regan, 2002) and type of supports (Sawyer et al., 2015) by assuming homogeneous preferences. This approach differs from the literature explaining various reasons why external actors support rebel groups (Heraclides, 1990; Saideman, 1997; Lemke and Regan, 2004; Findley and Teo, 2006; Salehyan et al., 2011; Maoz and San-Akca, 2012), literature that explains aims of US interventions (Hendrickson, 1994; Kanter and Brooks, 1994; Peceny, 1995b; Hermann and Kegley, 1998) or or literature that reveals interests of democratic interveners (Pickering and Peceny, 2006; Bueno de Mesquita and Downs, 2006). Different actors have different interests and preferences over civil war outcomes.

On the other hand, some studies pay attention to external supporters' interests or preferences of external actors in analyzing civil war termination. Aydin and Regan (2012) argue that patterns in unilateral interventions are a function of states' preferences over civil war outcomes and show the effect of an intervener's interrelations on war duration. Cunningham (2010) focuses on interests of interventions and shows that intervention with an independent agenda makes wars substantially longer. In terms of expectations of intervention, Akcinaroglu (2012) shows that the expectations of rival intervention can substantially prolong civil wars.

Following a similar line of argument, this article focuses on the interests or preferences of actors in explaining their impact on war duration or termination can provide consistent arguments on how the effect of external actors depends on why they support or intervene.

2.3 Theoretical Argument

Whether the government side can accept the demand of the rebel group and can consent to change the current political system or political status quo are key hurdles for conflict parties to reach a peace agreement. In the case of governmental incompatibility, the government already possesses the object of bargaining, and any political concessions constitute a loss. This is because to solve its incompatibility, a negotiated settlement involves some political status quo change such as political power sharing. Several studies define the power sharing. For instance, Lijphart

(1977) explains power sharing by primarily focusing on the distribution of political power across competing groups. These institutions are commonly defined as including a grand coalition, the mutual veto, a proportional electoral system and proportionality in the distribution of administrative appointments, and either territorial or corporate autonomy. Other scholars also define power sharing concessions as offers of cabinet berths, ministerial portfolios, legislative seats, and bureaucratic positions to insurgent leaders or allowing insurgent groups to form political parties to participate in multiparty elections (Sisk, 1996; Hartzell and Hoddie, 2003; Mukherjee, 2006). It is common that these forms of power sharing are used in a peace agreement as political division among conflict parties.

The level of political reforms differs case by case. In some cases, a peace agreement ends up introducing a new election system, while other cases only renew the electoral commission. For instance, in a Ugandan Civil War, a government signed the Gulu Peace Accord with its opponent, Uganda People's Democratic Army, in 1988. The agreement referred to electoral reform by expanding the parliament and organizing a constituent assembly to discuss a new constitution. On the other hand, in a civil war in Burundi in 2000, nineteen conflict parties signed the Arusha Peace and Reconciliation Agreement. The agreement provided a range of procedures for senate and assembly, based on the ethnic balance, to prevent a single political or ethnic group from enjoying dominated political power.

As we can see from these cases, how internal political powers are divided is the main focus of peace negotiations in the case of governmental incompatibility. An external actor may have its own preference about how power should be divided. If that is the case, how does its preference affect the main focus of the negotiation? In the following section, I present a bargaining model to observe how the preference of the supporter affects bargaining over political division by adding a supporter as a strategic actor who receives utility from the bargaining outcome of conflict parties.

2.3.1 Model

This study uses the following model to show how external supporters' preferences affect the likelihood of peace agreement if an external supporter gets utility from bargaining object—political division—based on its preferences.

In a basic model of conflict bargaining (Fearon, 1995), there are two strategic actors: a government (G) and a rebel group (R). A government and a rebel group are fighting over political issues represented by the interval $X = [0, 1]$. Suppose that for government, 1 is ideal, while an

ideal point of the rebel group is 0. I add a supporter of the government as the third strategic actor (S). As I mentioned in the previous section, I assume S has a single-peaked political preference over X, the political division, which is represented by $x_s \in [0.5, 1]$. Importantly, I assume that the possible minimum value of x_s is 0.5. This is because a division $X < 0.5$ can imply the immediate leadership change such as a creation of an interim government governed by a leader of rebel group. This situation would not be desirable for the supporter as such a change can affect the current diplomatic relationship. In addition, if $x_s < 0.5$ is the case, the supporter would have supported for the opponent side in the first place. The supporter provides the support $\sigma \in [0, \infty]$, which leads to a reduction of the government's cost of war if the conflict continues.

2.3.2 Preferences

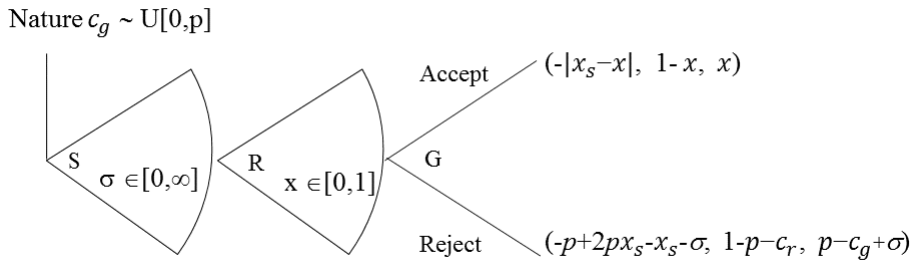
Suppose that the rebel group proposes the political division $x \in X$. If the government accepts the offer, the rebel group gains utility from the outcome $u_r(x) = 1 - x$, the government gains utility $u_g(x) = x$. The supporter's utility from the parties reaching a peace agreement is given by $u_{s_A}(x) = -|x_s - x|$, which implies that the utility declines constantly as the distance between the outcome and ideal point rises. The supporter does not need to pay the cost σ if the parties sign a peace agreement. This is because even if the supporter moves its troops, should the parties sign a peace agreement, then the supporter moves them back.

If the government rejects the demand from the rebel group, the parties continue fighting. G wins with probability $p \in [0, 1]$ while R's probability of winning is $1 - p$. Both parties pay positive costs of war $c_g \in [0, p]$ and $c_r \in [0, 1 - p]$, but the cost to the government is reduced by the support σ. I also assume that a government (G) has private information over the cost of war while the rebel group's cost of war is known. The rebel group's utility from war is $1 - p - c_r$ while its government is $p - c_g + \sigma$. Like the previous study that considers a mediator's preference in a bargaining model (Iwanami, 2014), the supporter's utility from war is obtained in the context of the probability of winning. S's utility from war is $u_{s_W} = -p + 2px_i - x_i - \sigma$.

2.3.3 Sequence of the game

The game starts with the situation where conflict parties are already fighting. The sequence of the game is as follows: first, nature draws the government's cost of war $c_g \in [0, p]$ from a uniform distribution. This variable is only observable for the government, but not for the rebel group and the supporter. S and R only know its probability distribution. Second, S decides

Figure 2.1: The sequence of the game



the amount of support $\sigma \in [0, \infty]$. Next, a rebel group proposes a division $x \in X$. Finally, a government decides whether to accept or reject. If the government rejects, the war continues. If the government accepts, then the conflict parties sign the peace agreement. I assume that the game is not iterated games and, therefore, at the end of the game, private information is revealed.

2.3.4 Equilibrium

The game can be solved through backwards induction by using the concept of perfect Bayesian equilibrium.

Proposition 1: The following strategy profiles constitute a perfect Bayesian equilibrium. A government accepts the proposed division iff $x \geq p - c_g + \sigma$. A rebel group proposes the optimal offer $x* = \frac{p+c_r+\sigma}{2}$. A supporter offers the optimal offer;

- (i) $\sigma = 0$ if $0.5 \leq x_s < \frac{p+c_r}{2}$, or if $\frac{p+c_r}{2} < x_s < 1 - \frac{c_r}{2p}$ with $0 \leq p < \frac{-c_r+2+\sqrt{c_r^2-8c_r+4}}{2}$
- (ii) $\sigma = \frac{c_r-2p+2px_s}{3}$ if $\frac{p-2c_r}{2(2-p)} \leq x_s \leq 1$ with $0 \leq p < \frac{-c_r+2+\sqrt{c_r^2-8c_r+4}}{2}$, or if $1-\frac{c_r}{2p} \leq x_s \leq 1$ with $\frac{-c_r+2+\sqrt{c_r^2-8c_r+4}}{2} \leq p \leq 1$.

The proof is in Appendix. Intuitively, the equilibrium implies that the greater amount of support σ does reduce the probability of the conflict parties signing a peace agreement. This is because the breakdown payoff of the government increases as the supporter provides more support. In addition, since σ can take an infinite number from the assumption, the conflict continuation can even be beneficial to the government. As the true cost of the war for the government is private information, even if the supporter does not intend to make it beneficial, there is a possibility that the conflict actor sees the continuing conflict as an attractive outside option. Then, the question becomes when is the supporter inclined to provide such an amount of

support? This question leads to conducting comparative statics with respect to the supporter's ideal point x_s in the next subsection.

2.3.5 Comparative statics

In this section, I conduct comparative statics analysis to investigate how the preference of supporter -a parameter x_s- affects the likelihood of a peace agreement.

Proposition 2: The likelihood of conflict parties signing a peace agreement decreases as x_s increases and moves closer to the government's ideal point given the static p and c_r.

From the best response of G, $x \geq p - c_g + \sigma \Rightarrow c_g^* \geq p - x + \sigma$. From the best response of R, $x^* = \frac{p+c_r+\sigma}{2}$. These yield $c_g^* \geq \frac{p-c_r+\sigma}{2}$. As σ increases, the cut-point c_g^* goes up and indicates that the G's bargaining position gests tougher. The observable implication of the model is that, the supporter whose preference over the political division is not matched with that of the supported incumbent government, increases the likelihood of peace agreement compared with the supporter whose preference is perfectly matched with that of the supported government. In the following section, in order to test this implication, I investigate the supporter that is assumed to have a certain preference regarding the political division.

2.3.6 Democratic supporters

As discussed above, the important implication of the model is that the supporter's preference needs to be considered when analyzing the impact of supporters on conflict termination. Such preferences depend on the issues at stake in the conflict. In the case of governmental incompatibility, the conflict parties are fighting over the central political power. Rebel groups may demand a total change of the political status quo, or aim to change elements of the current political system, such as the electoral system. Therefore, in considering the preference of an external supporter, we need to consider how that supporter sees the rebel groups' aims and demands. In other words, thinking about how an external supporter for the government side sees the current political status quo of the supported state, helps us understand how the external supporter is likely to affect the conflict outcome and ultimately, the likelihood of a peace agreement.

The theory of democratic interveners and civil war outcomes begins with the discussion of how democratic interveners assess the political threat posed by rebel groups. If democratic interveners view the threat to the supported state as a threat to themselves, they would prefer preserving the political power of the supported government and not changing the status quo. When the supported state is a democratic regime, allowing it to accept a political status quo

change in accordance with the demands of rebel groups, can cause problems of bargaining reputation. Such behavior of democratic interveners can be interpreted as a sign of non-resolve by both international and domestic audiences, especially by international rivals who are seeking opportunities to increase the influence and power of autocratic regimes. Knowing the consequences, democratic supporters view the political threat as a challenge to the democratic regime itself.

On the other hand, if democratic interveners do not perceive the political threat as a threat to themselves, they may see the demands of rebel groups as an opportunity to pursue their interests. Bueno de Mesquita and Downs (2006) argue that an intervening democratic state is most interested in revising the policies that precipitated its intervention in the first place. If democratic interveners have such interests, then, from their perspectives, they would seek conditions under which a policy is likely to change in the target state. Regarding the policy change, Smith (2016) shows that when leader turnover occurs in nondemocratic systems, the likelihood of policy realignment increases. In addition, McGillivray and Smith (2004) found that when leaders are beholden only to a small group of supporters, leadership change has a strong impact on trading relations. Given a fact that a state that suffers this particular type of civil war—namely, governmental incompatibility—, is usually not a matured democratic country, knowing that changing the political power distribution of the target state or replacing the leader would lead to a policy change, democratic interveners would prefer a peace agreement with a guarantee of political reform to status quo.

Some earlier studies also support this view of democratic supporters' preferences over civil war outcomes. Peceny (1995a) argues that democracies often intervene in other countries to export their interests and increase their long-term security. In addition, numerous studies of US interventions explain the aims of US presidents as liberalizing the political institutions of target states (Hendrickson, 1994; Kanter and Brooks, 1994; Peceny, 1995b; Hermann and Kegley, 1998; Pickering and Peceny, 2006). According to Hermann and Kegley (1998), 39 out of 64 U.S. interventions between 1945 and 1992 focused on "government reform" as a primary goal. In fact, a state that suffers this particular type of civil war is usually not a matured democratic country. Therefore, a democratic supporter may consider this as an intervention opportunity to liberalize the political institutions of the country.

Under this condition, the democratic supporter has the incentive to provide the minimum amount of support based on the logic presented in the model. For instance, from 1981 to 1992, the U.S. provided military assistance to the government of El Salvador. Officially, the

U.S. military presence was limited to an advisory capacity. Instead of providing direct support—troops—on the battlefield, the U.S. military assisted by improving the Salvadoran armed forces (Rosello, 1993). According to Rosello (1993), the U.S. military advisory led the Salvadoran armed forces (ESAF) to the institutional conversion—a professional military—and the ESAF's professionalization resulted in the creation of a climate in which the political left could voice opposition without fear of reprisal. In this case, not only the limited amount of support prevented the government from ending the conflict with high casualties but also the support itself changed the political condition of rebel group and ultimately resulted in signing the Chapultepec Peace Accords in 1992.

As another representative of such a democratic supporter, France has been and continues to be a frequent military intervener and has actively committed troops to preserve or restore peace in such countries as Lebanon, Chad, Angola, and Laos (Bueno de Mesquita and Downs, 2006). During the First Ivorian Civil War in 2002, French troops assembled to help the government forces. However, the support from France did not include fighting troops but instead logistical. In addition, the French foreign ministry itself showed its willingness to host a peace talk for the government and the rebel group. In another case of French intervention, in 1992, given support from France, the government of Chad tried to change its political systems and even held a legitimate multi-party election. Although Chad quickly returned to authoritarianism, France persuaded it to make concessions in the first place.

However, we cannot refute the argument that democratic interveners succeed in promoting democratic reform only in the short term, and that this often leads to unstable political systems (Gleditsch et al., 2007). Bueno de Mesquita and Downs (2006) argue that while leaders of intervening democratic states frequently assert democratization as one of their main goals, this goal is rarely achieved. However, my argument that a democratic supporter has an incentive to encourage a government to sign a peace agreement that includes changing the political status quo is not incompatible with these arguments in the sense that democratic interveners promote political reform that can make parties sign a peace agreement even if the actual democratization might not be successful. Thus, my first hypothesis is:

Hypothesis 1: *If a democratic supporter supports a government, the likelihood of a peace agreement that guarantees political reforms increases.*

2.3.7 Target regime and supporters of rebel group

As the second observable implication of the model, we can see that the likelihood of a peace agreement is affected by the political ideological difference between the target state and the rebel group's supporter. This implication can be clearer if we swap the government side and the rebel group side in the model. In the bargaining model, I have assumed that G as a government—a target country of intervention—and R as a rebel group. Now, consider the situation in which we swap actors: G is a rebel group and R is a government. Suppose that there is a supporter for the rebel group side and the supporter decides the amount of support σ at first. In this case, from the bargaining model, we can see that when the supporter of the rebel group has an ideal point over political division that is close to 0.5 or close to its target state (the government), the likelihood of a peace agreement increases. In other words, political ideological difference between the supporter of the rebel group and the target state can influence the chances of the conflict parties signing a peace agreement.

This implication is related to the literature on rivalry intervention. As many studies show, the rivalry relation is an import factor that encourages a state to support a rebel group in the first place (Salehyan et al., 2011; Maoz and San-Akca, 2012). In addition, as mentioned in the literature review, previous study shows that the expectation of such rivalry intervention prolongs conflict (Akcinaroglu, 2012). If we consider the bargaining model, not solely as political bargaining, but as bargaining over comprehensive issues, the implication of the model also supports these previous studies' results. On the other hand, if we stick to cases in which parties are bargaining over political issues, the implication would be that the political ideological-difference would reduce the chances of a peace agreement. This is because, in the case of governmental incompatibility, the rebel group is aiming to change the regime, or the current political system of the state, and reaching a peace agreement would imply changing the political status quo. When the regime type of the rebel group's supporter is different from its target state, the supporter can make the political division between the rebel group and the government more desirable for her by providing a large amount of support. Given such a large amount of support, the cost for the rebel group decreases as does the likelihood of a peace agreement. From these expectations, comes the second hypothesis:

Hypothesis 2: *As the difference between the regime type of the rebel group's supporter and that of target state becomes larger, the likelihood of peace agreement that guarantees political reforms decreases.*

2.4 Research Design

To test the argument about the influence of the external supporter's preference on the probability that conflict parties sign a peace agreement in political civil conflicts, I conduct analyses on data for conflict-years (1976 - 2009) using the UCDP Conflict Termination Dataset (Kreutz, 2010). In this dataset, armed conflict is defined as a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths. If the conflict did not reach the required total of 25 battle-related deaths, the conflict is coded as inactive. In this research, observations are limited to intrastate armed conflicts. In addition, as this research focuses on governmental incompatibility, I only use cases of political civil conflicts. Importantly, the research focuses on the comparison within the cases in which there is at least one external supporter and sees how the effect of such supporter depends on its preference. Therefore, my observations only include cases where there is at least one external support on the government side.

My unit of analysis is conflict-year. I use conflict-year instead of dyad-year to capture the complexity of interventions and negotiations. It is not rare that peace negotiations can be carried out in the context of multiple rebel groups. This means that using dyad-year as the unit of analysis may not reflect the interdependence of bargaining in the same country, which shrinks standard errors. On the other hand, by controlling for the number of rebel groups and their capabilities, the conflict-year unit of analysis, can reflect the bargaining interaction between the government and the rebel group. As a robustness check, I also conducted a dyadic analysis, and the main results were almost the same.

2.4.1 Dependent variable

Given my main interest in the likelihood of a peace agreement, I use `Political Reform Agreement` as a dependent variable for models 1, 2, and 3 (Table 2.1). `Political Reform Agreement` is coded as 1 if a government and a rebel group sign a formal peace agreement, which includes provisions for political reforms in a given year; otherwise it is 0. If the theoretical arguments discussed above are correct, what we should observe as an outcome is a peace agreement that introduces changes to the political status quo. By "provisions for political reforms" I mean an agreement that guarantees a transformation of rebel groups into a political party, the integration of rebels into government, a power sharing government, the integration of rebels into civil services, electoral reform, or an integration of rebels into an interim government. The

data on divisions is taken from the UCDP Peace Agreement Dataset. The `Political Reform Agreement` variable takes the value 1 in 33 observations out of 307 in model 1, while it takes the value 1 in 19 observations out of 153 in models 2 and 3.

As an alternative test, I use a count variable, `Political Reform Divisions`, as a dependent variable for models 4, 5, and 6 in Appendix. This variable counts how many political reform divisions out of the six divisions mentioned above are included in a peace agreement. Because the distribution of this variable is positively skewed, I use negative binomial regression where I use this dependent variable (see Appendix).

2.4.2 Explanatory variable

External support indicators are taken from the UCDP External Support Dataset (Högbladh et al., 2011). In this dataset, external support means both (1) secondary warring support and (2) secondary non-warring support. According to the dataset, secondary warring support is defined as support for a primary conflict party that consists of sending troops to assist in an ongoing conflict and the supporter sending troops is always a state that shares the position in the incompatibility with one of the primary parties. Secondary non-warring support is defined as support that is given to assist an ongoing conflict, which support can take a variety of forms, including the provision of a sanctuary, financial assistance, logistics, and military support of troops. Normal interactions between states are not considered to be secondary non-warring support.

I use both secondary warring and non-warring support to generate my explanatory variables. I do not include type of support in my logit model since theoretically, my argument assumes, the amount of support is a post-treatment variable, which must not be included in the logit model. The bargaining model implies that the amount or type of support that the supporter provides is determined by the supporter's decision, which is based on preference, probability of victory, and the rebel group's cost of war. Therefore, I use both types of support as evidence of the presence of support.

For the following explanatory variables - `Aggregate democratic supporter`, `Gsupporter polity (mean)`, `Rsupporter - Target state` - and for the following three control variables - `Rsupporter exists`, `Rsupporter polity (mean)`, `Log Aggregate Gsupporter GDP` -, I use a lagged version by measuring at time $t-1$ as measuring at time t can cause a reverse causality problem. If the conflict parties sign a peace agreement, external actors stop providing support. Consequently, there would be a negative relationship between the explanatory variables and the

dependent variable. Measuring at $t-1$ period is expected to help solve the problem.

`Aggregate democratic supporter`: This variable is used to test Hypothesis 1. As it is not rare that there is more than one external supporter for one side, I measure the aggregate polity score of supporters to capture the effect of preferences of the coalitions of supporters as well as the effect of the preference of unitary supporter. I assign a 1 to this variable if the supporter's mean polity score, which is taken from Polity IV Dataset, is greater than 0. This means, when there is only one supporter for the government side, the variable directly reflect the regime type of the supporter.

To reflect complex dynamics of interventions, I use additional variables for a different model. Aydin and Regan (2012) show a possibility that preferences of interveners and their impacts on conflicts might depend on all interveners including both the government and the rebel group sides. Indeed, in some cases, there are external state supporters for the rebel side and it might be the case that the aims of support changes depending on who is supporting the rebel group side. Therefore, I include an interaction term for `Gsupporter polity (mean)` and `Rsupporter polity (mean)` in models 2 and 5. `Gsupporter polity (mean)` is measured as the mean polity score of supporters of the government side while `Rsupporter polity (mean)` is measured as the mean polity score of supporters on the rebel group side. When these two variables are included, the sample of analysis only includes cases where there is at least one external state supporter for the rebel side to see how attributes of supporters on rebel sides affect preferences of supporters on the government side.

`Rsupporter - Target state`: This variable is used to test Hypothesis 2. The variable takes the absolute values of the difference between the polity score of the rebel group's supporter and its target state. When there are multiple supporters for the rebel group side, the variable takes the maximum value among the coalition of the supporters. When this variable is included, the sample of analysis excludes the cases if there are no external state supporters on the rebel side.

2.4.3 Control variables

`Rsupporter exists`: In models 1 and 4, I include the dummy variable that takes the value of 1 if there is at least one external supporter for the rebel group side. In the presented bargaining model, the rebel group decides the amount of demands based on its cost of war. Although the supporter for the rebel group side is not included in the model, the presence of the supporter is assumed to affect the cost of war for the rebel group.

`Log Aggregate Gsupporter GDP`: The bargaining model implies that the amount of support

σ will be the cost for the supporter if the government rejects the offer of the rebel group and the conflict continues. In terms of that point, the economically stronger supporter would see the cost as an affordable expenditure while the economically weaker supporter would see the cost as a heavy expenditure. In this way, the different levels of economic strength of supporters might affect the amount of support. If democratic supporters are also economically stronger than autocratic supporters, without controlling for the economic strength of supporters, there will be negative omitted variable bias. Therefore, the analysis includes the measurement of the economic strength of supporters. The variable takes the mean value of GDP scores of supporters of the government side. GDP per capita of supporters are taken from GDP and Population Data (Gleditsch, 2002b). As the distribution of the supporters' GDP is positively skewed, the model includes natural logarithm transformed version of this variable.

`Polity`: Many scholars have controlled for the level of democracy in civil war termination research. Especially in the case of governmental incompatibility, it is assumed that the more democratically developed country can solve the incompatibility through a negotiated settlement by preventing involuntary defection and enhancing enforcement mechanism. If actors anticipate that obstacles to enforcement would make a peace agreement unstable, they have no incentive to negotiate or to negotiate seriously (Fearon, 1998). In governmental conflict, a peace agreement requires an electoral reform or a new political and military committee to share the power with the rebel group. If a country already has a democratic electoral system, the reform is assumed to be relatively easier than in a country that has no democratic electoral system. A high level of democracy increases expectations of implementation and can enhance the enforcement mechanism. As a result, the conflict parties would be more likely to reach a negotiated settlement. Therefore, I use polity score from Polity IV Project (Marshall et al., 2016) and I also include a quadratic term to capture the possible curvilinear effect.

`Log GDP per capita`: Collier and Hoeffler (2004) found higher GDP associated with higher opportunities to gain resources for rebel groups. In addition, GDP can be an indicator of state capacity (Fearon and Laitin, 2003). Strong state capacity or high income enables a state to afford the cost of war. According to Fearon's bargaining model (1995), a smaller cost of war leads to a decreased bargaining range of the conflict parties. Though there is always a bargaining range regardless of the parties' costs of war as long as there is the objective probability of victory and both parties know it as common knowledge (Fearon, 1995), the decreasing bargaining range can lead to difficulties in finding an agreement point. Moreover, if parties have subjective probabilities of victory, whether there is still a bargaining range depends on parties' costs of

war. If the smaller cost of war is combined with the state's subjective probabilities, there is also a possibility that a bargaining range disappears. In this way, this variable is expected to have a negative impact on a likelihood of negotiated settlement. This variable is taken from GDP and Population Data (Gleditsch, 2002b). I use a log transformed version of this variable.

`Stronger Rebel, Parity`: In the literature of civil war, relative capability shows significant effects on civil war duration and outcomes (Cunningham et al., 2009; Aydin and Regan, 2012; Akcinaroglu, 2012; Hultquist, 2013). Some scholars argue that power parity increases the likelihood of a negotiated settlement (Bapat, 2005; Hultquist, 2013). In contrast, Cunningham et al. (2009) found that both negotiated settlement and victory are more likely when rebels are stronger. To control for those potential effects, the variables are taken from Non-State Actor Dataset (Cunningham et al., 2013). Because the unit of analysis is conflict-year, when observations include multiple rebel groups, the variable takes into account the strongest capability among those groups. This is to capture variations in relative capabilities of strongest groups across conflicts and their effects on outcomes.

`Number of rebel groups`: The variable counts the number of rebel groups in a given conflict in a given year. As the unit of analysis is conflict-year, to more precisely reflect the bargaining mechanism, I control for a number of factions. In addition, because fighting with many factions is more costly than fighting with only one rebel group, the number of factions is expected to have a positive impact on the likelihood of concessions.

`Log Population`: Many studies control for population (Fearon, 2004; Cunningham et al., 2009; Sawyer et al., 2015). Populous countries enable insurgent groups to mobilize (Fearon, 2004) and continue fighting. This variable is measured as the natural logarithm of the state's total population taken from GDP and Population Data (Gleditsch, 2002b).

`Intensity`: This variable records the level of intensity in the conflict per calendar year. It takes the value of 1 if the conflict leads to at least 1,000 battle-related deaths in a given year and 0 otherwise (25 to 999 battle deaths).

`Log Time`: Time variable accounts years for each unit until a conflict outcome occurs. I use the log of time. In choosing the best fitting model, I also estimated several models with quadratic, cubic time.

2.5 Results and Discussion

Table 2.1 presents the parameter estimates with standard errors clustered at the country level from the logit model, where the dependent variable is a dichotomous variable. First, I interpret

Table 2.1: Logit Analysis of Political Reform Agreement

	Political Reform Agreement					
	Model(1)		Model(2)		Model(3)	
Aggregate democratic supporter	1.995***	(0.707)				
Rsupporter - Target state					-1.689***	(0.558)
Rsupporter exists	0.361	(0.667)				
Gsupporter polity (mean)			0.203**	(0.086)		
Rsupporter polity (mean)			-0.077	(0.108)		
Log Aggregate Gsupporter GDP	-0.315	(0.396)	-0.430	(0.635)		
Polity	-0.034	(0.046)	-0.089	(0.085)	-0.033	(0.116)
Polity2	-0.021**	(0.001)	-0.032*	(0.018)	-0.053**	(0.023)
Log GDP per capita	-0.272	(0.285)	0.104	(0.318)	0.267	(0.315)
Number of rebel groups	0.873***	(0.256)	0.421	(0.532)	0.411	(0.494)
Stronger	2.941***	(0.635)	2.996***	(0.705)	2.862***	(0.768)
Parity	0.407	(0.705)	1.296*	(0.735)	1.770**	(0.731)
Intensity	-0.481	(0.800)	-0.278	(1.020)	0.324	(0.823)
Log Population	-0.670**	(0.265)	-0.377	(0.334)	-0.732**	(0.334)
Log Time	0.591	(0.392)	0.383	(0.604)	0.362	(0.554)
Gsupporter x Rsupporter polity (mean)			0.008	(0.014)		
Constant	5.340	(4.391)	2.842	(7.055)	4.456	(3.981)
N	307		153		153	
Log Likelihood	-76.429		-62.094		-32.702	
Akaike Inf. Crit.	178.859		148.188		85.405	

Note: Logit coefficients with standard errors (clustered by country) in brackets.
*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

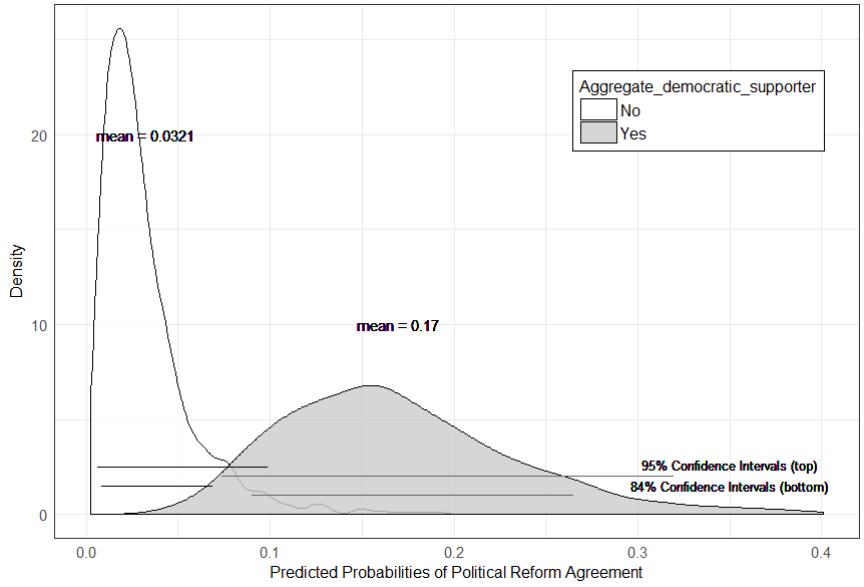
Table 2.2: The substantive impact of the presence of democratic supporter on peace agreement

	First Difference			
	Mean	SD	95% Confidence Interval	
Aggregate democratic supporter	0.140	0.06	0.047	0.284

these results in terms of Hypothesis 1. `Aggregate democratic supporter` that captures the presence of democratic supporters on the government side records statistically significant positive coefficients in model 1. To more precisely evaluate the effect, in Table 2.2, I calculated differences between two expected values when we change the value of `Aggregate democratic supporter` from 0 to 1 by using the model 1. The first difference shows that if the average regime score of the coalition of supporters is a democracy, compared to the coalitions of supporter whose average regime score is an autocracy, the expected value of the probability of political reform agreement increases by 0.14 percentage point. Even if we control for regime scores of supporters on the rebel group side, the relationship is still statistically significant as we can see positive and statistically significant coefficients of `Gsupporter polity (mean)` in model 2.

By using model 1, Figure 2.2 plots the impact of `Aggregate democratic supporter` on the likelihood of political reform agreement, which is obtained by simulating parameters 1000 times from a multivariate normal distribution and calculating the predicted probability. Figure 2.2 reports the mean and 95% highest density region. In calculating the predicted probability, other

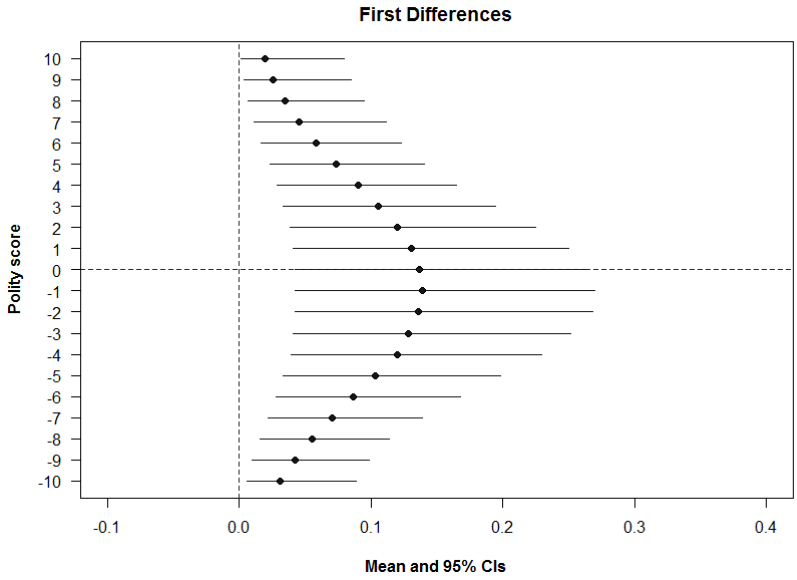
Figure 2.2: The effect of the presence of aggregate democratic supporter on the likelihood of political reform agreement with 95% highest density region.



variables' values are held at their mean values. On average, when there are no democratic supporters on the government side or when the coalition of external supporters for the government side is non-democratic, the predicted probability of political reform agreement is 0.03 while it is 0.17 when there is a democratic supporter or the coalition of supporters is democracy. These empirical results support Hypothesis 1.

As I discussed in the theoretical section, Hypothesis 1 is derived from an argument that a democratic supporter on the government side favours a change in the political status quo if it views the demands of rebel groups as an opportunity to pursue its interests. In deriving the hypothesis, I also referred to a condition under which the demands can be perceived as a threat to the democratic supporter itself. I argued that due to bargaining reputation, when democratic interveners support a democratic regime, they prefer preserving the status quo. Therefore, I explore whether the effect of a democratic supporter on the likelihood of peace agreement changes depending on the level of democracy of the supported state. Figure 2.3 presents how first differences, obtained from model 1, change depending on the value of the polity score of the supported state. The x-axis shows values of first differences, while the y-axis shows the polity score of the supported state. As we can see, the effect of a democratic supporter is higher when supported states are immature democracies or immature autocracies. Interestingly, the effect of a democratic supporter is closer to 0 when supported states are matured democratic states.

Figure 2.3: The figure shows how the effect of democratic supporter changes depending on polity scores of supported states. The points present means of first differences while horizontal lines present 95% confidence intervals.



The finding supports the conditional argument.

With respect to the second hypothesis, as the difference between the regime type of the rebel group's supporter and its target state becomes larger, the likelihood of peace agreement decreases, the negative coefficient in model 3 supports the hypothesis. Figure 2.4 shows how such negative effect changes depending on the different values of `Rsupporter-Target state`. The probability density distribution was obtained from 1000 simulations. Due to the small sample size and the even smaller number of observations for the higher values of `Rsupporter-Target state`, the figure reports wide credible intervals. Figure 2.5 shows how the predicted probabilities of political reform agreement change if we change the value of `Rsupporter-Target state` variable from minimum to maximum while holding values of all other variables at their mean values. The chance of conflict parties having a political reform agreement decreases 0.658 percentage point on average when the value of `Rsupporter-Target state` variable changes from minimum to maximum. These empirical results support Hypothesis 2.

Moving on to the analysis of control variables, `Log Population` is negatively correlated with the likelihood of a political reform agreement at the 95% level in models 1 and 3. The result supports the conventional bargaining mechanism that a small cost of war reduces a bargaining range of conflict parties (Fearon, 1995). Interestingly, the indicator of a supporter's economic strength is negatively correlated with the amount of political reform concessions at the 90% level

Figure 2.4: The impact of the relationship between rebel supporter and the target state on political reform agreement with 95% confidence intervals.

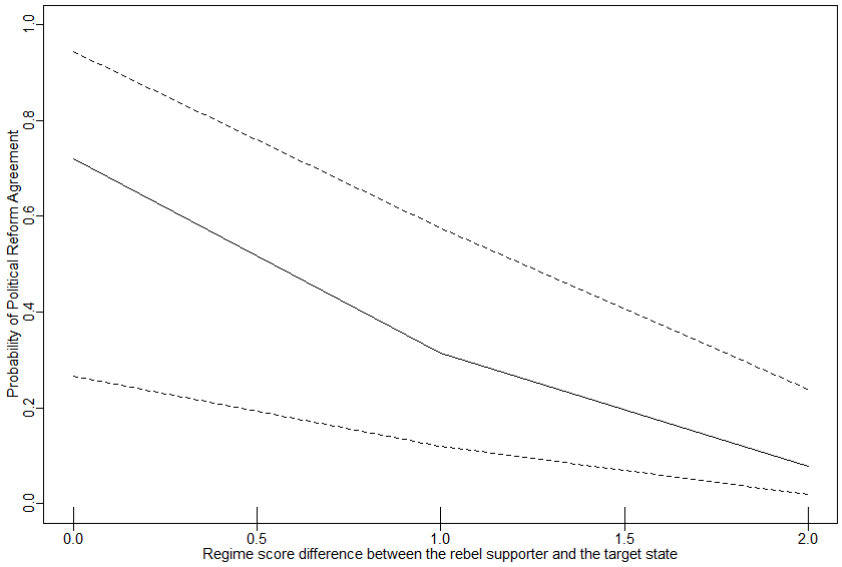
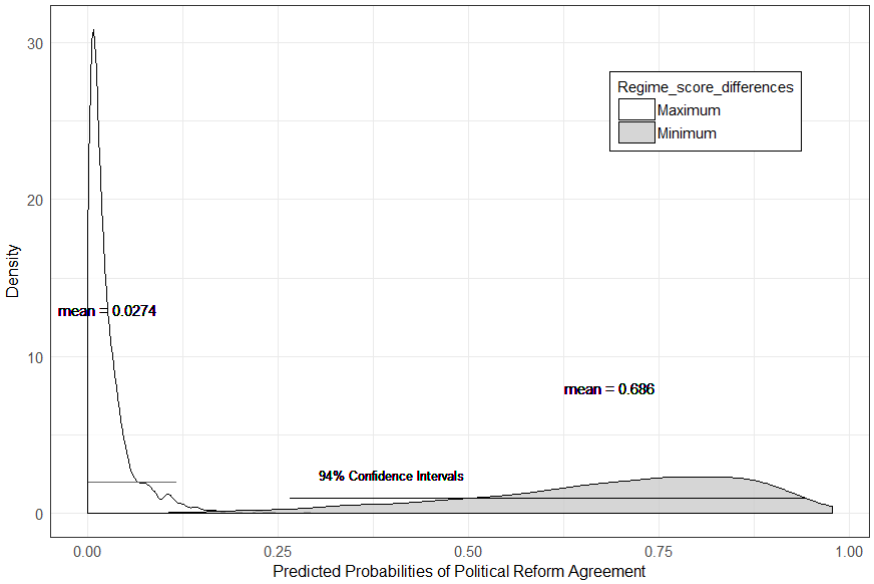


Figure 2.5: The effect of regime score differences between the rebel supporter and the target state on the likelihood of political reform agreement with 95% highest density region.



in model 4 (see Appendix). However, `Log GDP per capita` is not statistically significant in all models. The finding regarding supporters' economic strength is consistent with the bargaining model that explains that the amount of support is the cost for the supporter itself. In the theoretical model, the amount of support σ is included as $-u$ in the utility of supporter, implying the indicator of the economic strength of external supporter can directly affect the conflict outcome. Although this variable tends to be used as an instrumental variable in analyzing conflict termination and the effect of external supporter, we might need to reconsider this if the indicator has a direct effect on the conflict outcome. As it is a conflict party who decides the amount of concession and the party decides such the amount of concession based on the information of external supports or how much the supporter can afford such support, this variable can be also important in estimating the likelihood of peace agreement.

Regarding the polity score, the results from Table 2.1 are consistent with previous literature, showing a negative effect of democracy on the likelihood of negotiated settlement (Cunningham et al., 2009; Hultquist, 2013). Similarly, estimated effects of rebels' capabilities are in line with the literature in which the statistically significant relationship between the stronger rebels and conflict termination are presented (Cunningham et al., 2009). A stronger rebel group is more likely to receive political concessions from a government. With respect to a number of rebel groups, its effect is positive and significant at the 99% in model 1. However, in models 2 and 3, the effect of `Number of rebel groups` is not statistically significant. This might be because, when external states are being involved in a conflict for both the government and the rebel sides, a number of rebels has less effect on the government in deciding the amount of concessions compared to cases where only the government side has external supporters. Indeed, when I include an interaction term for `Rsupporter exists` and `Number of rebel groups`, the result yields a negative coefficient for the interaction term though it is not statistically significant.

As robustness check, I have also controlled `Alliance tie` that captures the presence of allied external supporter for the government side. This is because it is possible to derive alternative hypothesis that the likelihood of peace agreement decreases if there is at least one allied external supporter for the government side as such supporter's preference can be matched with its government and can provide the greater amount of support. However, even if I control for `Alliance tie`, the relationships between explanatory variables and dependent variables were stable. In addition, there was no statistically significant relationship between `Alliance tie` and `Political Reform Agreement`. One can imply that in the case of governmental incompatibility in which the rebel group is aiming at changing the current regime or the political system, the

regime type derives the preference of the external supporter of the government side.

2.6 Case Examples

This section provides two short case examples that illustrate my general findings; (1) the Nepal insurgencies in the 2000s, and (2) the armed conflict between the government of Iran and a rebel group (Jundallah).

2.6.1 Insurgencies in Nepal

An example of Indian intervention in Nepal insurgencies in the 2000s illustrates that democratic interveners on the government side favoured the political status quo change and resulted in having a peace agreement that introduced the political reforms. The analysis begins with the India's preference over the civil war outcome.

According to Mishra (2004), historically, India had supported the monarchical regime and helped suppress anti-royal Nepali movements in 1962. India had also kept its influence in Nepal by signing a secret army supply agreement in 1965. However, in the late 1980s, Nepal adopted a hard-line policy against Indian influence in refusing to reach a renewal of trade agreement and in purchasing weapons from China. This resulted in India's economic embargo against Nepal in 1989 and a mass political movement against the monarchy in Nepal (Mishra, 2004). In addition to these political movements, in 1996 the Communist Party of Nepal (Maoist) (CPN-M) submitted demands to the Nepali government. Though India was officially supporting the monarchy, it described its policy as for the preservation of constitutional monarchy and multiparty democracy (Mishra, 2004). India's preference over the distribution of political power in Nepal was rational from India's perspective, considering the policy position of the Nepali government in the late 1980s. In the case of Indian intervention in Nepal, India was interested in changing the trade and military foreign policy of Nepal. To this end, India was not content with the existing distribution of political power, where the king had absolute power — but instead wished to change the political system. As a result, New Delhi informally facilitated a dialogue between the democratic parties and Maoist rebels, which led to the signing of the New Delhi Agreement in November 2005 and the Comprehensive Peace Agreement in 2006 (Destradi, 2010). The peace agreement guaranteed to form an interim legislature-parliament based on interim constitution, and to hold free elections to the constituent assembly.

2.6.2 Insurgencies in Iran

In contrast to the case of Nepal, the armed conflict between the Iran government and Jundallah, which started in 2003, illustrates that no democratic supporters on the government side and the alleged support on the rebel group side resulted in having no peace agreements. Through the conflict period, the government of Iran received external supports only from non-democratic countries such as Turkey. Regarding the Tehran's foreign policy at that time, Milani (2009) argue that Tehran viewed the United States as an existential threat to the competition in the Middle East. According to Milani (2009), Khamenei thought the U.S. was pursuing regime change in Tehran by funding his opponent group Jundallah, although such support had been denying by the U.S. From the Iranian government's perspective, the belief that, the U.S. is backing the rebel group and it may provide the large amount of support to make the political division favourable to it, made the Iranian government reluctant to start a negotiation with the rebel group in the first place.

2.7 Conclusion

This article provides theoretical explanations for how external supporters affect conflict parties reaching a peace agreement in a civil war over a government. By relaxing conventional assumptions and assuming that supporters have heterogeneous preferences over the conflict outcome and get utilities from the outcome, it has investigated how external supporter's preference over regime type can impact a peace agreement. When there is a democratically developed supporter whose ideal point over the political division is supposed to be different from its government and have the incentive to encourage the political reforms, conflict parties are more likely to sign a peace agreement. On the other hand, as the absolute distance between the regime score of the government and its rebel group's supporter increases, the likelihood of a peace agreement decreases. This empirical result supports the bargaining mechanism that the amount of support from the external supporter is derived by its preference over the political division and when the supporter's ideal point is located around the middle of the disputing political division, the likelihood of a peace agreement increases.

The results of this article provide three implications for civil war research. First, how external supporters affect civil wars depends on their preferences over conflict outcomes. This theoretical explanation can provide the reason why the effect of the same external supporter differs depending on different conflict issues. Re-considering the bargaining mechanism at the issue level helps us to understand the variations in the effect of external actors. Second, the

empirical results imply that in the case of governmental incompatibility, the preference of supporter can be derived by its regime. Investigating what shapes the preference of supporters over the political division might lead to understanding the course of the civil conflict. Finally, if external supporters' preferences matter, the external relations of the conflict parties must be considered along with internal aspects.

2.8 Acknowledgement

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2.9 Appendix

2.9.1 Proof of Proposition 1

G accepts the proposal of R x iff, $x \geq p - c_g + \sigma \Rightarrow c_g^* \geq p - x + \sigma$. As c_g is a private information, the prior of G's acceptance is $1 - P_r(c_g \leq c_g^*) = 1 - \frac{c_g^*}{p}$. Therefore, R offers $x^* \in$ argmax $u_r(x)$. $E_{u_r}(x) = (\frac{p-x+\sigma}{p})(1 - c_r - p) + (\frac{x-\sigma}{p})(1 - x)$. $\Rightarrow \frac{\delta u_r}{\delta x} = -2x + c_r + p + \sigma = 0$. The optimal offer is $x^* = \frac{p+c_r+\sigma}{2}$. Now, consider the supporter's optimal offer σ^*. The supporter offers $\sigma^* \in$ argmax $Eu_s(\sigma)$.

When (a)$x_s < x$: σ is, $E_{u_s}(\sigma) = (\frac{\frac{p-c_r+\sigma}{2}}{p})(-p + 2px_s - x_s - \sigma) + (\frac{\frac{c_r-\sigma}{2}}{p})(x_s - \frac{p+c_r+\sigma}{2})$. $\Rightarrow \frac{\delta u_s}{\delta \sigma} = -\frac{1}{2}\sigma - p + \frac{1}{2}c_r + px_s - x_s = 0$. $\Rightarrow \sigma = c_r - 2p - 2(1-p)x_s$. From the assumption $c_r \leq p$, the σ always takes negative value. However, from the assumption, $\sigma \geq 0$. Therefore, $\sigma^* = 0$ is the maximizer. From (a), if $x_s < \frac{p+c_r}{2}$, $\sigma* = 0$ is the optimal offer.

When (b)$x_s \geq x$: σ is, $E_{u_s}(\sigma) = (\frac{\frac{p-c_r+\sigma}{2}}{p})(-p + 2px_s - x_s - \sigma) + (\frac{\frac{c_r-\sigma}{2}}{p})(-x_s + \frac{p+c_r+\sigma}{2})$. $\Rightarrow \frac{\delta u_s}{\delta \sigma} = -\frac{3}{2}\sigma - p + \frac{1}{2}c_r + px_s = 0$. $\Rightarrow \sigma_b = \frac{c_r - 2p + 2px_s}{3}$. This indicates that if $x_s \geq 1 - \frac{c_r}{2p}$, $(3) > 0$. In this case, σ_b is the maximizer. The equation (b) and σ_b yield $x_s \geq \frac{4c_r+p}{2(3-p)}$. When $0 \leq p < \frac{-c_r+2+\sqrt{c_r^2-8c_r+4}}{2}$, as $1 - \frac{c_r}{2p} > \frac{4c_r+p}{2(3-p)}$, σ_b is the maximizer if $x_s \geq 1 - \frac{c_r}{2p}$. When $\frac{-c_r+2+\sqrt{c_r^2-8c_r+4}}{2} \leq p \leq 1$, as $1 - \frac{c_r}{2p} < \frac{4c_r+p}{2(3-p)}$, σ_b is the maximizer if $x_s \geq \frac{4c_r+p}{2(3-p)}$.

If $x_s < 1 - \frac{c_r}{2p}$, $\sigma_b < 0$. In this case, $\sigma = 0$ is the optimal offer. From (b) and this condition, if $\frac{p+c_r}{2} \leq 1 - \frac{c_r}{2p}$ with $0 \leq p < \frac{-c_r+2+\sqrt{c_r^2-8c_r+4}}{2}$, $\sigma = 0$ is the maximizer.

2.9.2 Proof of Proposition 2

From the best response of G, $x \geq p - c_g + \sigma \Rightarrow c_g^* \geq p - x + \sigma$. From the best response of R, $x^* = \frac{p+c_r+\sigma}{2}$. These yield $c_g^* \geq \frac{p-c_r+\sigma}{2}$. The likelihood that the government accepts the proposal and the conflict parties sign a peace agreement increases as the amount σ decreases. This is because if σ increases, the cut-point c_g^* goes up and indicates that the probability of being c_g as c_g such results in rejecting the offer becomes smaller. From Proposition 1(i) and 1(ii), we can see that as x_s takes the smaller value, it is more likely that the supporter offers the minimum amount of support $\sigma = 0$. In addition, from Proposition 1(ii), when x_s is close to 1, if the value x_s increases, the value of the optimal offer σ^* also increases. This results in moving c_g^* downwards and increases the probability of conflict continuation.

2.9.3 Descriptive Statistics

Table 2.3: Descriptive Statistics

Variable	Minimum	Maximum	Mean	SD
Sample for models 1 and 4				
Aggregate democratic supporter	0.000	1.000	0.652	0.477
Rsupporter exists	0.000	1.000	0.590	0.493
Log Aggregate Gsupporter GDP	6.213	10.750	9.201	1.008
Polity	-9.000	10.00	-1.384	6.035
Log GDP per capita	5.137	10.750	7.086	1.097
Number of rebel groups	1.000	5.000	1.43	0.730
Stronger Rebel	0.000	1.000	0.026	0.160
Parity	0.000	1.000	0.121	0.326
Log Population	6.366	13.990	9.850	1.186
Intensity	0.000	1.000	0.397	0.490
Log Time	0.000	3.526	1.777	0.874
Sample for models 2, 3, 5 and 6				
Rsupporter - Target state	0.000	18.000	6.386	5.363
Gsupporter polity (mean)	-10.000	10.000	1.816	6.878
Rsupporter polity (mean)	-9.000	10.000	-2.758	5.115
Polity	-9.000	9.00	-2.523	5.395
Log GDP per capita	5.137	10.490	6.719	1.002
Number of rebel groups	1.000	5.000	1.52	0.796
Stronger Rebel	0.000	1.000	0.039	0.195
Parity	0.000	1.000	0.183	0.388
Log Population	7.678	12.560	9.561	0.921
Intensity	0.000	1.000	0.556	0.499
Log Time	0.000	3.526	1.837	0.868

2.9.4 Robustness Check

Table 2.4: Negative Binomial Regression Analysis of Political Reform Divisions in Peace Agreement

	Political Reform Divisions					
	Model(4)		Model(5)		Model(6)	
Aggregate democratic supporter	2.045***	(0.717)				
Rsupporter - Target state					-1.689***	(0.558)
Rsupporter exists	0.631	(0.608)				
Gsupporter polity (mean)			0.203**	(0.086)		
Rsupporter polity (mean)			-0.077	(0.108)		
Log Aggregate Gsupporter GDP	-0.546*	(0.314)	-0.430	(0.635)		
Polity	-0.058	(0.049)	-0.089	(0.085)	-0.033	(0.116)
Polity2	-0.027**	(0.011)	-0.032*	(0.018)	-0.053**	(0.023)
Log GDP per capita	-0.362	(0.237)	0.104	(0.318)	0.267	(0.315)
Number of rebel groups	0.655***	(0.248)	0.421	(0.532)	0.411	(0.494)
Stronger	1.690***	(0.622)	2.996***	(0.705)	2.862***	(0.768)
Parity	0.268	(0.619)	1.296*	(0.735)	1.770**	(0.731)
Intensity	-1.019*	(0.607)	-0.278	(1.020)	0.324	(0.823)
Log Population	-0.576**	(0.227)	-0.377	(0.334)	-0.732**	(0.334)
Log Time	0.744***	(0.267)	0.383	(0.604)	0.362	(0.554)
Gsupporter x Rsupporter polity (mean)			0.008	(0.014)		
Constant	8.077**	(3.614)	2.842	(7.055)	4.456	(3.981)
N	307		153		153	
Log Likelihood	-141.086		-62.094		-32.702	
Akaike Inf. Crit.	310.171		148.188		85.405	

Note: Negative binomial regression coefficients with standard errors (clustered by country) in brackets. *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

3 Policy Autonomy and Peace Agreements: Multi-party Bargaining in Civil Wars

Abstract

Regardless of differences in causes of conflicts and motivations of individuals, ideology is formed at group level in civil conflict. To incorporate ideological policy positions, civil war termination processes involve policy bargaining between a government and rebel groups. This study examines why a particular type of power sharing is introduced as a strategic concession and how it affects the multi-party context in civil conflicts. The article presents a conflict bargaining model between a government, an ideologically moderate rebel group and an ideologically extreme rebel group. The model shows that a group ideology matters in changing the game zero-sum to non-zero sum in strategically granting autonomy in policy making. The empirical results show that local power-sharing increases the chance of peace survival in non-secessionist conflicts, since groups are pre-committed to their moderate positions on the sub-national issues at stake, solving security dilemmas.

3.1 Introduction

Why and how are political incompatibilities resolved once conflict starts? Political conflicts arise when actors are not satisfied with the status quo of the government. Dissatisfied groups challenge this and generate situations that are politically incompatible with the state. While dissatisfied individuals can challenge the incumbent in a democratic way such as through election votes or protests, in some cases, groups with dissatisfied members take up arms, resulting in a civil war. In some civil wars, the primary focus of discussion towards the settlement is to solve the politically incompatible situation. In such type of civil wars, democratization as a way to handle the participation of parties has been considered as a central element in the settlement (Wallensteen, 2015), and power sharing arrangements have been introduced in peace agreements.

In terms of whether power sharing arrangement itself leads to peace, previous studies have found both positive effect on peace duration (Hartzell and Hoddie, 2003, 2007; Mattes and Savun, 2009) and negative effects, due to difficulties that arise in the implementation phase (Binningsbø and Dupuy, 2009; DeRouen Jr. et al., 2009; Jarstad and Nilsson, 2008; Tull and Mehler, 2005). While there are disagreements in terms of whether power-sharing enhances peace in a negoti-

ated settlement, a number of scholars provide a view of the conditions for success (Cammett and Malesky, 2012; Lindvall, 2010; Spears, 2000). Sisk (1996) argues that although there are differences in theoretical components among consociationalism (Lijphart, 1977) and the integrative approach, both indicate some form of local level autonomy as components of conditions for successful power sharing. Political decentralization can change the game of winner-takes-all into one in which many groups can each control some part of the governing apparatus (Treisman, 2007). If power sharing is a way to encourage the participation of representatives of all significant communal groups in political decision-making by reflecting preferences of multiple political actors as far as possible (Lijphart, 1977, 2007), then solving politically incompatible situations in civil conflicts by introducing local level autonomy might lead longer peace. However, when it comes to about the effectiveness of political decentralization on peace, Lake and Rothchild (2005) argue that it is an offer of decentralization which enhances peace, rather than the decentralization itself. In explaining the effectiveness of particular power sharing arrangement on peace, to what extent do strategies of concession or preferences of conflict parties—why incompatibilities are solved—instrument autonomy arrangement—how incompatibilities are solved? Investigating why and how incompatibilities over government are resolved lead to bridging theories discussed in studies on conflicts and studies on comparative politics.

This paper unpacks why and how incompatibilities with governance are resolved by identifying the conditions under which particular political power sharing arrangements work, through a multi-party conflict bargaining model. Specifically, the theoretical model incorporates strategic differences between introducing autonomy in policymaking as a concession, and not allowing such an arrangement. Assumptions of the model derive conditions under which introducing autonomy in decision making at multiple levels in government becomes self-enforcing in the context of civil conflicts. The paper argues that group ideology matters in changing the zero-sum game to non-zero sum game in strategically granting autonomy in policy making. When a rebel group is ideologically moderate in terms of sub-national issues at stake as well as national issues, it does not violate the conditions of non-zero sum game. This implies that when the committed ideology of a moderate group can convince the government about its separation from an extreme ideology, a security dilemma can be overcome. A case analysis—the Zapatista Movement in Mexico—demonstrates how a rebel group positioned its moderate ideology while representing claims of other actors such as peasants and indigenous organizations. The empirical analysis shows that, in non-secessionist conflicts, having a provision for local level autonomy increases a chance of peace agreement survival. However, the effectiveness decreases over time. This implies

a possibility that, among conflict parties, the effectiveness of autonomy arrangement lies in its strategic concessions. At the same time, combined with theoretical claims, it implies that a strategic inducement of autonomy does not necessarily incompatible with a stable institutional arrangement, depending on the subject of bargaining and the committed ideological positions of rebel groups.

The paper proceeds as follows. Section 2 provides a review of how previous studies have discussed power sharing arrangements as conflict resolution. Then, section 3 provides a theory of political bargaining and autonomy in civil wars over government. This section also provides careful discussions in interpreting mechanisms of model in terms of conditions, specifically by differentiating model assumptions. Further, to validate model assumptions such as preferences, issue dimensions, and number of participants in a conflict, section 4 traces a case—the Zapatista Movement in Mexico. This is then followed by the empirical section where one testable hypothesis is tested. Finally, the paper ends with concluding remarks.

3.2 Power Sharing and Conflict Resolution

Scholars of international relations have studied power sharing mechanisms both empirically and theoretically. For instance, Mattes and Savun (2009) argue that third-party guarantees and power sharing provisions reduce the fear of conflict parties and solve commitment problems. In the studies of Hartzell and Hoddie (2003, 2007), power-sharing is theorized as a costly signal that builds trust and enhances the prospect of peace during all the processes of a negotiated settlement: the initiation of negotiation, signing of agreements and implementing the provision. On the other hand, DeRouen Jr. et al. (2009) provide an insight into a negative impact of power sharing on peace duration in terms of costly implementation. Because such provisions are difficult to implement and costlier to the government, the rebel group will be motivated to strike pre-emptively before the attack from the government (DeRouen Jr. et al., 2009). Indeed, comparative analyses show cases where a power sharing arrangement has been used as a strategy of conflict for parties to win the war. Binningsbø and Dupuy (2009) investigate details of the implementation phase of the Lome Peace Accord signed by the government of Sierra Leone and the Revolutionary United Front (RUF) in 1999, and argue that power sharing made it possible for the government to pursue its goal of ending the war. As these discussions imply, there are disagreements regarding how power sharing arrangements affect peace among those who accept the arrangement.

Power sharing has also been investigated in the context of comparative politics. Most of

the research that has explored the relationship between power sharing institutions and domestic peace has followed the lead of Lijphart (1977) and focused primarily on distribution of political power across competing groups. Such institutions are commonly defined as including a grand coalition; the mutual veto; a proportional electoral system and proportionality in the distribution of administrative appointments; and either territorial or corporate autonomy. Lijphart (2007) also defines power sharing as the participation of representatives of all significant communal groups in political decision-making, especially at the executive level. Other scholars of political institutions also explored power sharing. Tsebelis (2002) focuses on a particular power sharing aspect—veto players—and shows how they affect the policy stability. He argues that the policy stability is increasing in the number of partisan and institutional veto players, and the ideological distance between them. Regarding the effect of power sharing on policy stability, Lindvall (2010) shows that power sharing is compatible with high reform capacity if policy areas are all controlled by the central government and if the losers are confident that they will retain veto powers in the future. All of this literature can provide significant theoretical explanations for power sharing and political stability.

In terms of conditions for successful power sharing, Sisk (1996) reveals two different theoretical approaches among the literature on institutions; between theoretical components of consociationalism (Lijphart, 1977) and the integrative approach (Horowitz, 1985). Sisk (1996) implies that although there are some disagreements within these two schools, both indicate some form of local-level autonomy as components of conditions for successful power sharing. This aspect—distributive politics—has also been investigated in the literature on decentralization. The theoretical literature on decentralization provides insight into how divided power affects the conflict. For instance, Brancati (2006) shows that political decentralization decreases ethnic conflict and secessionism in countries while controlling for different aspects of countries' political and electoral systems. In addition, according to Treisman (2007), political decentralization can change the game of winner-takes-all into one in which many groups can each control some part of the governing apparatus.

If distributive politics has these mechanisms, then decentralized political power sharing might play an important role in the field of the power sharing peace agreement. If decentralized political power sharing enhances autonomy in policy making for conflict parties and enables reflection on ideal points of multiple parties as much as possible, having a decentralized political power sharing arrangement in a peace agreement might lead to comprehensive peace.

3.3 Model

Political conflicts originate with participants who are not satisfied with the status quo policy of the government. From a governmental perspective, at a given point in time, there is a status quo policy. As a result of enacted policy, there are satisfied groups and dissatisfied groups. In terms of individuals who challenge the status quo, the roots of dissatisfaction can be due to greed or grievances (Collier and Hoeffler, 2004), or horizontal inequalities (Cederman et al., 2011; Murshed and Gates, 2005; Østby, 2008; Stewart, 2001). The roots of dissatisfaction can then form an ideology at group level. Ideology might be politically-based (Foner, 1995), ethnic-based (Kalyvas, 2008; Kaufmann, 1996; Wucherpfennig et al., 2012), or ethno-political-based (Gurr, 1994, 2000). Sanín and Wood (2014)'s definition of ideology incorporates groups with both greed- and grievance-motivated members, as long as the goal of group is political, seeking to realize a goal on behalf of some group beyond its own members. In this sense, in political conflicts, parties are bargaining over the political policy and parties have political preferences, which can be represented by ideal points. Therefore, this model assumes policy bargaining. Although this paper focuses on policy bargaining, ideology at individual level does not always incorporate concepts of politics. For instance, Gerring (1997) points out three subjects of ideology: politics, power, and the world at-large (pp.968–969). If the assumption of policy bargaining is not held, then actors' preferred outcomes differ from outcomes presented in the following bargaining model because a change in policy due to a concession from government does not improve utilities of rebel groups. Rather, by assuming parties are bargaining over political policy, the paper retains a possible deviation from policy bargaining in interpreting model mechanisms and in deriving a hypothesis in the latter part.

The theory begins with identifications of assumptions for parties of conflicts, dimensions of policy, preferences, and utility. This game involves three players—a government (G), a moderate rebel group (M) and an extreme rebel group (E). As making concessions is a part of bargaining strategy of the government, and a government does not necessarily intend to make concessions to all rebel groups (Cunningham, 2011), it is reasonable to assume that there is more than one group. Although there would be more groups than two (E and M) in some cases, such situations can still be reflected in this setting, if one considers M as an aggregate of moderate groups and E as an aggregate of extreme groups. In terms of why moderate and extreme are assumed as different parties in the model, previous studies point out a government's strategic behavior in integrating moderates in bargaining. For instance, Bueno de Mesquita (2005) categorizes two rebel terrorist groups as moderate and extreme in explaining coalition and counterterrorism

strategies of the government. In the context of territorial decentralization in civil wars, Lake and Rothchild (2005) also argue that the offer of decentralization reveals information about moderate intentions, therefore, it mitigates conflicts. Introducing distinctions in ideological positions not only has implications for a government's strategy but also rebel groups' strategies. Sanín and Wood (2014) argue that some groups or members are normatively committed to an ideology, and such commitments need to be incorporated within an analysis of group behaviors. Although analyzing deviations from ideological positions is beyond the scope of this article, by exogenously determining committed ideological positions—moderate or extreme—, the model deduces implications for consequences of bargaining in terms of when committed ideological positions are as they are.

3.3.1 Policy dimension

In terms of dimensions of policy that actors are bargaining over, the theory assumes that the current policy can be divided into two dimensions: $i = \{1, 2\}$ —national ($i = 1$) and sub-national ($i = 2$). The division comes from insights into both in terms of how the root of dissatisfaction is solved. The intention behind the assumption is to reflect the trade-off that the government faces in choosing a policy as a solution to settle the conflict. By dividing types of issues, the mechanism reflects expected consequences of policy choices that ultimately affect the government's decision for policy choices in the first place. The second dimension can be defined as collections of issues that can be solved by allowing rebel groups to have autonomy in policy making. These aggregated issues can also be solved through a policy change at the national government level. Examples of issues from the second dimension are taxation, education, and administration. For instance, in 1994, the government of Angola and the National Union for the Total Independence of Angola (UNITA) signed the Lukasa Protocol, in which UNITA was promised to have autonomy in policy making in certain areas. The agreement promised the provincial authorities that they would have their own powers in the field of administration, finance, taxation, and economy, including the capacity to attract foreign investment. On the other hand, issues that constitute the first dimension can only be solved through a policy change at the national level. Since all parties in civil war seek power, but not all parties seek total power (Stedman, 1997), taking into account two-dimensions also enables an explanation of why some groups adopt a total-power-seeking strategy. For instance, the Forces for the Defence of Democracy (CNDD-FDD) in Burundi repeatedly demanded cabinet positions as well as the vice-president position through the late 1990s and the early 2000s. On the other hand, in

the Zapatista movement in Mexico in 1994, rebels did not demand the presidential position but requested autonomy (Collins, 2010). Having an extreme ideal point for the first dimension can be due to both a deeply rooted mistrust among conflict parties, or to greed-based dissatisfaction, or a combination of both. Although it would be equally important to analyze endogenous formation of ideology (Sanín and Wood, 2014), the model assumes exogenous preferences.

3.3.2 Preferences

An assumption is made that all parties are risk neutral and have single-peaked political preferences which can be represented by ideal points. The study denotes by $\hat{x}_{ji}$ ($j = \{g, m, e\}$) each actor's ideal point for each issue. To avoid complexity, the model assumes that G's ideal point is $\hat{x}_{gi} = 0$, M's is $\hat{x}_{mi} = 1$ and E's is $\hat{x}_{ei} = 2$ for both issues. This implies that E's ideal point is sufficiently high for both types of issue. The reason behind this assumption is that if M and E have similar ideal positions, they would have been united as one rebel group, or only one rebel group would have emerged in the first place. As the battle requires resources and a certain number of soldiers, they would have set their ideal points far enough from each other to attract citizens and potential soldiers who also would have had their own preferences.

3.3.3 The sequence of game

There are two games: Γ^a and Γ^b. In the case of Γ^a, granting policy autonomy is not an option, while in Γ^b, G introduces policy autonomy for issue 2, while concessions of G for issue 1 are at the national level. In both games, the basic sequence is the same. G offers concessions to M first, then, M decides to reject or accept (subgame $\Gamma^k(w)$, where $k \in \{a, b\}$). If M decides to reject (subgame $\Gamma^k(w, R_m)$), the coalition of rebels wins with probability $p \in [0, 1]$ and G wins with probability $1-p$. If M decides to accept (subgame $\Gamma^k(w, A_m)$), if offering concessions to E is not incompatible with $w + z \in [0, 1]$, then G offers concessions to E (subgame $\Gamma^k(w, A_m, z)$), then E decides to reject or accept. If E rejects the offer (subgame $\Gamma^k(w, A_m, z, R_e)$), G beats E with probability $p_e \in [0, 1]$ and G loses with $1-p_e$. If E accepts the offer (subgame $\Gamma^k(w, A_m, z, A_e)$), the game ends. Assuming a compatible set of concessions as $w + z \in [0, 1]$ and having different options for concessions in games Γ^a and Γ^b implies that the amount of concessions E receives not only depends on the presence of M but also the decision of G regarding how to solve national and subnational issues.

In terms of differences in two games, in Γ^a, G decides the amount of policy concessions at the national level $w \in [0, 1]$ for both issues in subgame $\Gamma^a(w)$. If M accepts, if additional

national level concessions z exists such that $z + w \in [0, 1]$, G offers z for both issues in subgame $\Gamma^a(w, A_m, z)$. On the other hand, in Γ^b, G offers w in solving issue 1 and offers autonomy for issue 2 to M in subgame $\Gamma^b(w)$. If M accepts, if additional national level concessions z exists such that $z + w \in [0, 1]$, G offers z for issue 1 and allows E to have policy autonomy for issue 2 in subgame $\Gamma^b(w, A_m, z)$.

3.3.4 Payoffs

Players' utilities are determined by the following of three main rules: (1) players get disutility from the absolute distance between the original ideal point and the new policy position for both issues 1 and 2; (2) players pay costs for fighting $c_j \in [0, \infty)$ if they are directly involved in fighting; and (3) if at least one actor is fighting, parties get expected payoffs that are weighted by the probability of winning the war. Regarding rule (1), based on the logic that parties have independent decision-making powers when political power is decentralized (Brancati, 2006; Riker, 1964; Rodden, 2004), the game assumes that G, M and E can implement their own ideal policies for issue 2 should they accept offers from G in Γ^b. In Γ^b, for issue 1, when both M and E accept offers, the outcome policy is $w + z$ while it is w when only M accepts offers. In the case of game Γ^a, if both M and E accept, for issue 1 the outcome policy is $w + z$ and it is also $w + z$ for issue 2. When there is more than one issue, while some studies use the Euclidean distance assuming multi-dimensional space, the assumption is that parties get the sum of disutility from two different intervals in order to simplify calculations.

With respect to rules (2) and (3), in the case of the outcome of partial peace, where only M accepts, E and G suffer costs for fighting while M does not. The reason for assuming that M does not pay costs for fighting is that signing a peace agreement normally requires demobilization as part of the deal (Walter, 2009a). Instead, the assumption is that the probability of G winning in this case (p_e) greater than the probability of G winning the coalition of rebels ($1 - p$). Should G win with p_e, the policy G implements in Γ^a is w for each issue. In Γ^b, the policy outcome G implements is w for issue 1, while G implements 0 for issue 2, although only M can enjoy implementing 1. Should E win, then in both Γ^a and Γ^b, E implements policy 2 for each issue.

In the case of no settlement outcome, all players pay negative costs for fighting. In these cases, with probability p, the policy outcome position is $1 + r$ for each issue where r shows the relative capability of E to M ($r \in [0, 1]$). As the extreme rebel group gets stronger, r gets greater. This parameter implies that even if E is ideologically extreme, it does not necessarily mean that E is stronger than M whose ideology is moderate. On the other hand, with probability $1 - p$, G

Table 3.1: Payoffs

	Outcome	Government (G)	Moderate rebel (M)	Extreme rebel (E)
Γ^a	No settlement	$-2p(1+r)-c_g$	$2p(1-r)-2-c_m$	$2p(1+r)-4-c_e$
	Partial peace	$-2wp_e-4+4p_e-c_g$	$2wp_e-2$	$-4p_e+2wp_e-c_e$
	Comprehensive peace	$-2w-2z$	$-2\|1-(w+z)\|$	$-4+2w+2z$
Γ^b	No settlement	$-2p(1+r)-c_g$	$2p(1-r)-2-c_m$	$2p(1+r)-4-c_e$
	Partial peace	$-wp_e-4+4p_e-c_g$	$(1+w)p_e-2$	$-4p_e+wp_e-c_e$
	Comprehensive peace	$-w-z$	-$\|1-(w+z)\|$	$-2+w+z$

wins and the policy G implemented is still 0 for both issues 1 and 2. Players' payoffs are listed in Table 3.1.

3.3.5 Equilibrium and comparative statics

This section presents the implications of the model. Subgame perfect equilibrium is used as the solution concept.

Proposition 1: When $p \leq \frac{c_m+2}{2(1-r)}$, the government is more reluctant to make concessions at the first stage of the bargaining with M when policy autonomy is not allowed as a part of concessions.

Proof: Best response of E in subgame $\Gamma^a(w, A_m, z)$ is to accept z iff $z \geq 2-2p_e-(1-p_e)w-\frac{1}{2}c_e$. Since the cut-off point $z_a^* = 2-2p_e-(1-p_e)w-\frac{1}{2}c_e$ depends on w, check the best response of M in subgame $\Gamma^a(w)$. The best response is to accept w iff $-2|1-(w+z)| \geq 2p(1-r)-2-c_m$. Since $w+z \leq 1$, M accepts iff $-2(1-w-z) \geq 2p(1-r)-2-c_m$. Substituting z_a^* for z yields a cut-off point $w_a^* = \frac{1}{p_e}(p-pr-\frac{1}{2}c_m-2+2p_e+\frac{1}{2}c_e)$. Since $\frac{\partial u_g}{\partial w} < 0$ and $\frac{\partial u_g}{\partial z} < 0$, G's best response is to offer $z = z_a^*$ and $w = w_a^*$. These offers are incompatible if $w_a^* + z_a^* = p(1-r) - \frac{c_m}{2} > 1$. Solving the equation for p yields a condition $p \leq \frac{c_m+2}{2(1-r)}$.

Best response of E in subgame $\Gamma^b(w, A_m, z)$ is to accept z iff $-2+w+z \geq -4p_e+wp_e-c_e$. Solving the equation yields a cut-off point $z_b^* = -4p_e+wp_e-w+2-c_e$. Since z_b^* depends on w, check the best response of M in $\Gamma^b(w)$. The best response is to accept w iff $-|1-(w+z)| \geq 2p(1-r)-2-c_m$. Since $w+z \leq 1$, M accepts iff $-(1-w-z) \geq 2p(1-r)-2-c_m$. This yields a cut-off point $w_b^* = \frac{1}{p_e}(4p_e+c_e-3+2p(1-r)-c_m)$. As $\frac{\partial u_g}{\partial w} < 0$ and $\frac{\partial u_g}{\partial z} < 0$, G's best response is to offer $z = z_b^*$ and $w = w_b^*$. These offers are incompatible if $w_b^* + z_b^* = 2p(1-r)-1-c_m > 1$. Solving the equation for p yields a condition $p \leq \frac{2+c_m}{2(1-2r)}$.

When $p \leq \frac{c_m+2}{2(1-r)}$, the subgame perfect equilibrium in Γ^a is $\{w = w_a^* = \frac{1}{p_e}(p-pr-\frac{1}{2}c_m-2+2p_e+\frac{1}{2}c_e)$, M accept, $z = z_a^* = 2-2p_e-\frac{1-p_e}{p_e}(p-p_r-\frac{1}{2}c_m-2+2p_e+\frac{1}{2}c_e)-\frac{1}{2}c_e$, E accept$\}$. The subgame perfect equilibrium in Γ^b is $\{w = w_b^* = \frac{1}{p_e}(4p_e+c_e-3+2p(1-r)-c_m)$,

M accept, $z = z_b^* = 2 - 4p_e - \frac{1-p_e}{p_e}(2p - 2p_r - c_m - 3 + 4p_e + c_e) - \frac{1}{2}c_e$, E accept$\}$. This shows in Γ^a and Γ^b, outcome is comprehensive peace. Now, compare G's utility in Γ^a and Γ^b. Since $w > 0$ and $z > 0$, $u_g^a < u_g^b$.

These imply that when there is more than one rebel group but the probability that a coalition of rebel groups win is low, comprehensive peace is likely to happen. In this case, once a deal is made between a moderate rebel group and a government, it is required for a government to find additional agreement points with an extreme rebel group while not reneging on the previous deal. The logic is that if a government introduces an autonomy arrangement for a moderate rebel group in the first round, then a government has more flexibility in addressing subnational issues at the next round of concession with an extreme rebel group without compromising the existing agreement with the moderate.

The presented logic explains why political parties in the Chadian government in the 1990s shared a basic policy, which was to enhance security through decentralization (May and Massey, 2000). In the 1990s, there were more than five rebel groups in Chad.[19] According to May and Massey (2000), Chad's leading party was the Mouvement Patriotique du Salut (MPS) of President Idriss Deby. It has been said that the MPS favoured administrative decentralization and economic liberalization (Miles, 1995). Moreover, Miles (1995) explains that other political parties in the government—Union nationale pour le développement et le renouveau (UNDR), Union pour la démocratie et la République (UDR), Rassemblement national pour la démocratie et le progres (Viva-RNDP), Alliance nationale pour la de'mocratie et le développement (ANDD)—also favoured decentralization. Such a policy position of the government might have been due to the strategy of managing the situation, in which there existed several rebel groups, while minimizing the amount of concessions that the government had to make.

Lemma 1: When rebel groups' dissatisfactions are due to the central policy, rather than due to the sub-national policy, a comprehensive peace is less likely to be achieved.

The implication of Proposition 1 can be extended to the relationship between the roots of the dissatisfactions of rebel groups and the likelihood of settlement. Though Γ^a and Γ^b have assumed that the difference lies in the strategic concessions—whether or not granting autonomy

[19] According to UCDP Armed Conflict Dataset (Gleditsch et al., 2002), in the 1990s, there were nine rebel groups in Chad: Islamic Legion, MPS, MDD, Forces of Maldoum Baba Abbas, CNR, CSNPD, FNT, FARF and MDJT.

is allowed—, the difference can have another interpretation. Another interpretation is whether the subject of bargaining is a central based policy for both dimensions (Γ^a) or whether only one dimension is central based and the other dimension is sub-national based (Γ^b). In other words, in the context of civil wars, Γ^a can be interpreted as a conflict in which only national level concessions can solve issues, while Γ^b can be interpreted as a conflict in which one of the issues can be solved through a policy change at local level.

Lemma 2: When the probability of rebel coalitions of winning is high, Γ_b does not improve the risk of concession rejections by M, compared to Γ_a.

This is derived by comparing intervals of p in which any concessions $w \in [0,1]$ results in rejections by M. $\frac{c_m+2}{2(1-r)}(\Gamma_a) = \frac{c_m+2}{2(1-r)}(\Gamma_b)$ implies introducing autonomy as concessions does not improve the chances of accommodating ideologically moderates when coalitions of rebels' capabilities are high. This result is in line with a finding Jenne et al. (2007), who found that groups with greater power are more likely to make extreme claims.

Proposition 2: Promises of policy autonomy lead to Pareto Optimality after comprehensive peace is achieved, when both moderates and extremes are pre-committed to policy bargaining but not to partition bargaining.

The proposition can be established from the Pareto Optimality of the comprehensive peace equilibrium given $p \leq \frac{c_m+2}{2(1-r)}$, Γ_a $\{w = w_a^* = \frac{1}{p_e}(p - pr - \frac{1}{2}c_m - 2 + 2p_e + \frac{1}{2}c_e)$, M accept, $z = z_a^* = 2 - 2p_e - \frac{1-p_e}{p_e}(p - p_r - \frac{1}{2}c_m - 2 + 2p_e + \frac{1}{2}c_e) - \frac{1}{2}c_e$, E accept$\}$ and $\Gamma_b\{w = w_b^* = \frac{1}{p_e}(4p_e+c_e-3+2p(1-r)-c_m)$, M accept, $z = z_b^* = 2-4p_e-\frac{1-p_e}{p_e}(2p-2p_r-c_m-3+4p_e+c_e)-\frac{1}{2}c_e$, E accept$\}$. In this subgame perfect equilibrium, where both M and E accept offers from G, $\forall j(u_j^b > u_j^a)$. $\sum_{h\in j} u_h^b = 2p - 2pr - c_m - 4 + \frac{1}{2}c_e$ and $\sum_{h\in j} u_h^a = p - 8pr - c_m - 14 + c_e$. $\sum_{h\in j} u_h^b - \sum_{h\in j} u_h^a = 6pr + 10 + \frac{1}{2}c_e$. Since this is always positive, it is Pareto efficient.

What these analyses imply is that under these assumptions of bargaining, peace agreements with policy autonomy provisions are more likely to last longer than are no policy autonomy provisions. The logic is, when $p \leq \frac{c_m+2}{2(1-r)}$, all parties are better off signing an agreement in both Γ^a and Γ^b. If they were able to commit to signing an agreement, introducing autonomy in policy making is a Pareto Optimal agreement. However, caution is required in terms of its interpretation. First, the model has assumed that utilities come from distances between ideal

points, retaining its primary focus on policy bargaining. If it becomes a bargaining over the partition of territory, concessions for autonomy incur other costs to G than distances from ideal points, resulting in a realization of a different game. Therefore, the logic does not apply to secessionist type conflicts, such as Yugoslavia's civil wars, where the subject of bargaining was partition of territory.[20] Second, the paper started with discussions on power-sharing as a way to encourage the participation of representatives of communal groups in political decision-making, by reflecting preferences of multiple political parties as far as possible(Lijphart, 1977, 2007), and therefore, the theoretical model has assumed distributive politics in parties' payoffs in the subsection. The model has assumed that in Γ_b, autonomy in policy making allows E and M to enact their ideal policies for one dimension. In this sense, the setting reflects a situation where not total assimilation is required, maintaining community (Etzioni, 1992). On the other hand, if E and M themselves are not representatives of community, the interpretation can be different.

What these two main cautions in the interpretation imply is that the mechanisms of the model work under a policy bargaining but not a partition bargaining. In a partition bargaining, the fact that conflict parties themselves acknowledge state sovereignty implies assumptions in the model no longer hold. Thus, the model applies to cases of non-secessionist type of conflicts. One plausible application is that in the case of conflicts with incompatibilities over state policy, aspirations toward independence is low even when conflict parties' grievances are rooted at sub-national level, and where autonomy claiming groups tend to be communal based groups. If this is the case, this is not incompatible with one of the conditions under which granting autonomy works—distributive politics that change the game from zero-sum to non-zero sum—, which the model has assumed in utility calculations. Zero-sum to non-zero sum game can overcome the core security dilemma of self-enforcement (Weingast, 1997), and lead to a vertical division of power among multiple levels of government that have independent decision-making powers over at least one issue area (Brancati, 2006; Riker, 1964; Rodden, 2004). The mechanism is also not incompatible with arguments for good governance or democratic governance. For instance, Gerring et al. (2005) point out that reconciling the two goals of centralized authority and broad inclusion is the condition for the best democratic institutions. If acknowledging preservation of state sovereignty and broadening inclusion at the same time are elements of good governance, in civil conflicts, arrangements in settlement that encourage broad inclusion while parties are pre-committed to non-partition might lead to longer peace. From these discussions, one testable hypothesis is derived:

[20]Regarding discussions on partitions in ethnic conflicts, see Kaufmann (1996); Mearsheimer and Van Evera (1995).

***Hypothesis*:** *In civil wars over government, a peace agreement that includes a provision for autonomy lasts longer than an agreement without a provision for autonomy.*

Before moving on to the research design section where the hypothesis is empirically tested, a case study is conducted to validate assumptions of model and mechanisms. The main purpose of the case study is to assess an induction that in non-secessionist type of conflicts, the subject of bargaining is state policy rather than state sovereignty. In addition, the case traces the decision-making environment of rebel groups and a government to show to what extent theoretical models condition themselves; under which policy autonomy lasts; and to reflect the case of civil wars over government.

3.4 Case Study

To provide details of mechanisms presented in the theoretical section, this section conducts one case study—the Zapatista Movement in Mexico. The traced case reveals mechanisms of the theory in terms of snapshots of whether movement involved more than one actor; whether the autonomous claim was a communal based, two-dimensional ideal policy position (national and sub-national); and whether autonomy was agreed on.

3.4.1 Granted Autonomy and the Zapatista Movement in Mexico

In Chiapas on August 1994, the Ejército Zapatista de Liberación Nacional (Zapatista National Liberation Army—EZLN) called the National Democratic Convention (CND) (Stephen, 1995). According to Fox (1994), the Zapatista revolt was a response to the authoritarian sub-national regime. Since the 1930s, although Chiapas peasants had been the reliable supporters of the ruling party, the basic standard living including income and education was far behind the national average in the Chiapas region (Collier and Quaratiello, 2005). In terms of the participants of the revolt, Chiapas peasants were not the only actor source. Before the EZLN called for the CND in 1994, new indigenous organizations emerged between 1990 and 1992, and in October 1992, the mobilizations and marches united thousands of indigenous people from different parts of Mexico (Burguete Cal y Mayor, 2000). In January 1994, the majority of indigenous organizations joined the call of Zapatista rebels (Burguete Cal y Mayor, 2000). According to Stephen (1995), roughly 50 percent of the state declared autonomous multi-ethnic regions in 1994. In this sense, at that time, when the government negotiated with EZLN, it needed to take into account preferences

of the various parties that were represented by EZLN.

Regardless of such a nationwide autonomous declaration, interestingly, most of the literature views that the Zapatista did not take the position of secessionist. For instance, Stahler-Sholk (2007) argued that the Zapatistas distinguished themselves from secessionist movements, and demands were on the basis of indigenous ethnic identity and Mexican national citizenship. The declaration of autonomy was not intended to mean separation from the nation (Stephen, 1995) and although rebels were an army of indigenous people, demands for Indian rights, for self-determination and for autonomy were not on their program (Burguete Cal y Mayor, 2000). The Zapatistas did not have delusions of becoming president, insisting as they did on autonomy but not on an independent homeland (Collins, 2010).

When the government and EZLN signed the San Andres Accords in February 1996, accords promised the recognition of indigenous rights as well as a constitutional framework for autonomy.[21]

3.5 Empirical Analysis

3.5.1 Research design

To test the hypothesis and see the effect of decentralized power sharing by peace agreements on peace, I use information on peace agreements from the UCDP Peace Agreement Dataset (Harbom et al., 2006; Högbladh, 2011) and the Power Sharing Event Dataset (PSED) (Ottmann and Vüllers, 2014). The sample for analysis constitutes 56 peace agreements signed between 1989 and 2006. The sample was selected based on the following criteria: (1) only include the case of governmental incompatibility, and (2) only include final peace agreements. The second restriction is particularly important as this analysis focuses on the effect of political reform. In the case of peace process agreements, the main focus is a ceasefire, and it is not rare that the agreement does not provide any political divisions. The unit of analysis is peace agreement peace-months. Instead of using dyad peace-months, I use peace agreement level. This is because the non-dyad analysis does not undermine conflict dynamics in this particular sample. In terms of recurrence of conflict, there is only one case where these major multiple rebels, who signed the agreement, behaved differently. In 1991, three Cambodian factions, Khmer Rouge (KR), Khmer People's National Liberation Front (KPNLF), and FUNCIPEC, signed a Paris Peace

[21]Information on agreement was obtained from United Nations Peacemaker `https://peacemaker.un.org/mexico-commitmentsforchiapas96`

Agreement. In June 1992, although KR went back to fight, the other two groups remained in peace. This implies that using dyad data might cause problems by overestimating the effects for those that are multiple rebels. Regarding spells of data, instead of years, the study uses months. This is due to both the sample size and the vulnerability of post-conflict society. If we only look at cases where conflict recurred at some point within five years, we can see that in approximately 80% of these cases, conflict recurred within a year after parties signed a peace agreement (Figure 3.1 and Table 3.2). For these reasons, I use peace agreement peace-months as the unit of analysis. I set five years since the parties sign the peace agreement as the termination point. Peace failure is coded as 1 if the death tolls caused by battles between the rebel group and the government reached 25 in a given year. In order to identify the precise information on the date of recurrence of conflict, I use the UCDP Armed Conflict Dataset (Gleditsch et al., 2002), the UCDP Georeferenced Event Dataset (Sundberg and Melander, 2013) and the PSED Dataset (Ottmann and Vüllers, 2014). While there was a total 55 target peace agreements after the listwise deletion, the sample contains 34 right censored cases where peace did not fail at the termination point. The total number of observations is 1,961.

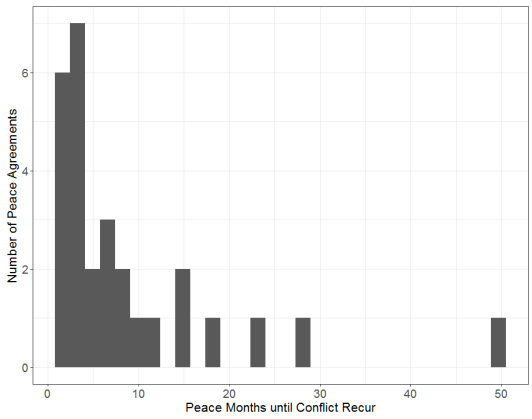

Figure 3.1: Distribution of peace months until the peace agreement fails for those conflicts recurring at some point within five years.

Did the conflict recur within a year?	Frequency	Percent
Yes	22	78.57
No	6	21.43
Total	28	100.00

Table 3.2: Frequency table of duration of peace where conflict recurred at some point within five years.

Independent Variables

Local Power Sharing: I operationalize the main explanatory variable as a local power sharing division in the peace agreement. I use the UCDP Peace Agreement Dataset (Harbom et al., 2006; Högbladh, 2011) that records information on types of power sharing. The variable takes the value of 1 if the agreement arranges exercises of power for local self-government or arranges regional power sharing, and the value of 0 otherwise.

Cabinet Power Sharing: I use cabinet power sharing as an indicator of central political power sharing. As I mentioned in the formal model section, the idea of decentralized power sharing is to give opportunities for each actor to pursue its ideal policy in a peaceful way. It is supposed to require less political concessions. On the other hand, power sharing in a body that is supposed to produce a united policy as a representative of central government requires more political concessions to make it function. In this sense, I use cabinet power sharing that requires more political concessions than local power sharing from both the government and the rebel group even after the peace agreement. I rely on information from the PSED Dataset (Ottmann and Vüllers, 2014). The variable takes the value of 1 if rebel representatives are promised at least one cabinet position, and 0 otherwise.

PKO: The third party is another important factor that influences peace durations. Walter (1997) argues that civil wars almost never end in a negotiated settlement in the absence of strong third-party security guarantees. Regarding the commitment problems, these and mistrust have been pointed out as obstacles to achieving an agreement and to implement it (Fortna, 2008; Kydd, 2006; Ruggeri et al., 2013; Walter, 1997). In addition, Hartzell et al. (2001) show that a third-party enforcer increases peace durations. From these expectations, I include a dummy variable that considers whether the peace agreement provided for the deployment of peacekeeping operations or not.

Elections: I also control for electoral reforms. Electoral reforms might affect the level of political decentralization as well as the duration of peace itself. In fact, it is also expected that the recurrence of conflict is related to the prospect of winning the election. If that is the case, whether electoral systems are improved or not would affect the likelihood of recurrence of conflict. As for the PKO variable, this is taken from the UCDP Peace Agreement Dataset (Harbom et al., 2006; Högbladh, 2011). The variable takes the value of 1 if the agreement provides the prospect for the electoral reform.

DDR: Although the provision for disarmament, demobilization and reintegration (DDR) has not often been used as a control variable in other studies in investigating the relationship between peace agreements and peace durations, there are many arguments among case studies in explaining how DDR affects the post-conflict society (Jennings, 2007; Muggah, 2005). In addition, Mattes and Savun (2009) define provisions that are designed to increase rebel groups' costs of fighting as cost-increasing provisions, and show the negative statistically-significant effect of such provisions on peace failure. Regarding this causal mechanism, "cost-increasing", I also expect the negative relationship between a provision for DDR and the recurrence of conflict

from my theoretical model. This is because provisions for disarmament increase the costs of rebel groups and decrease their utilities from reneging on peace agreements. The variable takes the value of 1 if the agreement provides the prospect for DDR. The data are taken from the UCDP Peace Agreement Dataset (Harbom et al., 2006; Högbladh, 2011).

Log GDP Per Capita, Log Population: These variables have been considered to affect conflict onset or mobilization of rebel groups in many studies (Fearon, 2004). Collier and Hoeffler (2004) found that higher GDP is associated with higher chances of gaining resources for rebel groups. In addition, the higher level of economic development or level of population can reduce the costs of war for the government. From these expectations, I include these variables from GDP and Population Data (Gleditsch, 2002b). Since distributions of these variables are positively skewed, log-transformed versions are used.

Parity, Stronger: Relative capabilities of rebel groups have been included in empirical models in conflict termination literature (Cunningham et al., 2009; Hultquist, 2013). From my theoretical model, I would also expect that the stronger rebel group is more likely to renege on the agreement as it has higher chances of winning the government if they go back to violence. The variables are taken from the Non-State Actor Dataset (Cunningham et al., 2013).

Log Death Tolls: Mattes and Savun (2009) argue that high casualty rates increase security concerns and reduce trust among conflict parties. I measure the sum of casualties caused by the conflicts. The data are taken from the UCDP Battle-Related Death Dataset (Themnér and Wallensteen, 2014). The variable is included in the empirical model as a natural logarithm version.

Table 3.3: Descriptive Statistics

Variable	Minimum	Maximum	Mean	SD
Local PS	0.000	1.000	0.251	0.434
Cabinet PS	0.000	1.000	0.331	0.471
PKO	0.000	1.000	0.223	0.416
Elections	0.000	1.000	0.520	0.500
DDR	0.000	1.000	0.695	0.461
Log GDP Per Capita	4.762	9.188	7.115	0.955
Log Population	6.440	11.530	9.291	1.163
Stronger	0.000	1.000	0.062	0.242
Parity	0.000	1.000	0.139	0.346
Log Death Tolls	0.000	10.480	5.973	2.568
Log time	0.000	4.111	2.993	1.016

3.5.2 Results and Discussions

The results of Proportional Hazards Cox models are reported in Table 3.4 (Model 1). As there is a possibility that the proportional hazards assumption might be violated, a test for the assumption for Model 1 was conducted. Table 3.5 shows the results of the test for the proportional hazards assumptions. As we can see, there is strong evidence of non-proportional hazards for Local power sharing and DDR. Plotting residuals obtained from Model 1 on y-axis and time on x-axis also provides evidence for violations of assumption for these two variables (Figure 3.2). The figure indicates that the effect of local power sharing is decreasing in time while the effect of DDR is increasing over time.

Table 3.4: **Cox Model of Peace Agreement**

	(1) PH Cox Model		(2) NPH Cox Model	
Local PS	-1.994**	(0.793)	0.762	(0.957)
Cabinet PS	0.993	(0.709)	1.118	(0.819)
PKO	0.448	(0.375)	0.484	(0.369)
Elections	-0.849*	(0.489)	-0.965	(0.642)
DDR	-1.335***	(0.413)	-2.681***	(0.707)
Log GDP per capita	0.562*	(0.329)	0.766**	(0.348)
Log population	-0.764***	(0.254)	-0.798***	(0.267)
Stronger	0.407	(0.739)	0.343	(0.819)
Parity	1.679***	(0.385)	1.676***	(0.368)
Log death tolls	0.437***	(0.105)	0.412***	(0.109)
Local PS$*ln(t)$			-2.382*	(1.323)
DDR$*ln(t)$			0.826***	(0.288)

Note: Coefficients on hazard rate with standard errors (clustered by country) in brackets.
$*p < 0.1$; $**p < 0.05$; $***p < 0.01$

As a solution for non-proportional hazards covariates, I include an interaction between time and these covariates in the Cox model (Model 2 in Table 3.4). Figure 3.3 plots survival probability curve for the peace agreement that was obtained from PH Cox model (1). The red curve

Table 3.5: **Tests of Proportional Hazards Assumption**

	Model (1)
Local PS	0.083
Cabinet PS	0.357
PKO	0.350
Elections	0.640
DDR	0.023
Log GDP per capita	0.362
Log population	0.642
Stronger	0.866
Parity	0.283
Log death tolls	0.511

Note: Reporting p-values

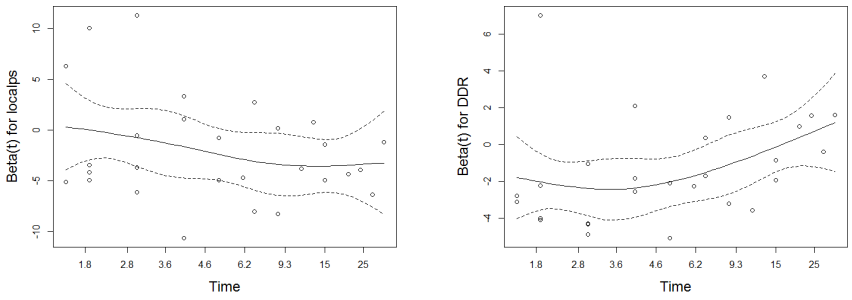

Figure 3.2: Plots of scaled Schoenfeld residuals against transformed time for each covariate in a model. Dotted lines represent ±2 standard error.

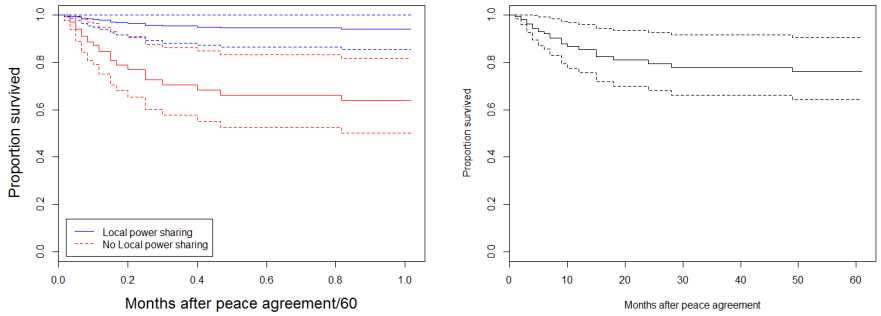

Figure 3.3: Survival probability plots for peace agreement. Survival curve was obtained from PH Cox Model (1). Left figure shows the change in survival probability for local power sharing variable while all other variables are held at their mean values. Right figure shows the survival probability given all variables are held at their mean values.

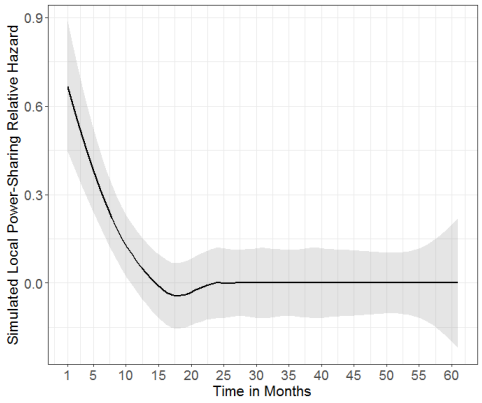

Figure 3.4: Simulated relative hazard of Local power sharing. The line indicates median relative hazard with 95% confidence interval. It was obtained from 1000 simulation.

on the left figure shows survival probability when there is no local power sharing while all other values are held at their mean values. The blue curve presents the case of local power sharing. As we can see, after one year, if there is an arrangement for political decentralization, the survival

probability is almost 100% while if there is no such arrangement, 20% of cases fail. In terms of the results of the NPH Cox model (Model 2), I interpret them in line with Licht (2011)'s recommendations. After simulating coefficients from Model (2) 1000 times, by combining non-time interacted and time interacted coefficients, I obtained simulated combined coefficients that show the coefficient of Local power sharing over time. Then, exponentiating the coefficient yields relative hazards over time with 95% confidence interval (Figure 3.4). From Figure 3.4, it turns out that the effect of local power sharing on peace duration decreases as time goes by and after one year, there is no significant difference in terms of hazards ratio. However, if we look at the plots on the right-hand side in Figure 3.3, it is possible to interpret that whether the peace agreement can survive around first two years is an important determinant for the prediction of recurrence of conflict. Therefore, from the results of these two models (Model 1 and Model 2), we can support the hypothesis that having an arrangement for local power sharing decreases the risk of recurrence of conflict.

Regarding the provision for the central political power sharing, we cannot reject the null hypothesis that there is no relationship between the central power sharing provision and duration of peace, even at 90% confidence level. In terms of control variables, having electoral reform or having prospects for DDR decreases the chance of recurrence of conflict as was expected (Model 2). Although the variable "Elections" has not been used in the literature on the peace agreement and durations, in the case of conflict where rebel groups are fighting to improve their political status quo, promising electoral reforms might enable a contribution to longer peace (Model 1). Regarding the attributes of the conflict itself, the conflict ending in higher numbers of casualties is associated with higher chances of recurrence of conflict (Models 1 and 2). This result is consistent with the previous study conducted by Mattes and Savun (2009). The population variable provides an interesting insight into a country's attributes. As I have introduced, the literature on civil war termination has used population as a parameter that prolongs conflicts. Fearon (2004) explains a mechanism of how populous states result in longer conflicts with respect to mobilization capacities of rebel groups. Indeed, in the previous empirical study of Cunningham et al. (2009), population shows a statistically significant positive effect on conflict duration. On the other hand, it seems that once conflict parties sign a peace agreement, populous countries are less likely to lead to a recurrence of conflict (Models 1 and 2).

3.6 Conclusion

Regardless of causes of causes of conflicts or motivations at individual levels, civil conflict termination process involves policy concessions and political negotiations. This article started with an expectation that some types of political power sharing might work better than others in terms of how the power sharing arrangement can represent preferences of parties. Particularly, the paper focused on policy autonomy as power sharing, which literature has identified as a key component of power sharing (Lijphart, 1977; Horowitz, 1985; Sisk, 1996). By incorporating strategic settings in granting autonomy, the theoretical model deduced conditions under which introducing autonomy in policymaking works. The model shows ideological position matters in solving security dilemmas of autonomy in civil wars. A case study illustrates how a separation of positioning in ideology might affect overcoming dilemmas.

Empirical results show that local power sharing increases a chance of agreement survival. On the other hand, it also shows its short-term effectiveness. The finding suggests the possibility that the effectiveness of local power sharing lies in its strategic concessions, rather than its effect on actual policymaking. Since the paper has focused on strategic aspects of policy autonomy, in terms of its actual effectiveness, further investigations are required, as demonstrated in the literature on comparative political studies.

Finally, this study provides an implication that a strategic inducement of decentralization does not necessarily become incompatible with a stable institutional arrangement. Investigating a turning point from a strategic arrangement to a self-enforcing mechanism might lead to revealing why the strategic inducement was fragile in the long process of civil war termination.

3.7 Acknowledgement

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4 Estimating Preferences of Conflict Parties in Civil Wars

Abstract

Though state-centric approaches of civil war studies have paid less attention to preferences of belligerents, analyzing preferences of conflict parties is fundamentally important in actor-based approaches. Few studies focus on empirically estimating preferences of non state actors in civil wars due to available observed information. As a result, while we know much about two main incompatibilities—governmental and territorial incompatibilities—in civil wars, we know less about details of hidden ideology and perceived incompatibilities among conflict parties in civil conflicts. This paper shows how bargaining positions of non state actors and hidden interests can be estimated from speeches they made. The study classifies words into topics/issues and utilizes Bayesian IRT to make three inferences: (1) latent ideological positions of belligerents, (2) committed ideological position and perceived incompatibilities caused by the committed position, and (3) compatible interests.

4.1 Introduction

In 2000, 19 factions signed the Arusha Peace Accord with Burundi's president Buyoya while two main Hutu rebel groups —CNDD-FDD (the Forces for the Defense of Democracy) and Palipehutu-FNL (National Liberation Forces)—refused to sign the agreement. Although the Arusha Peace Accord failed to stop the fighting due to these two veto players (Cunningham, 2006), the Accord brought several status quo changes for the government side. The cabinet was shuffled and the Tutsi president, Buyoya, handed over its leadership to a new Hutu president, Ndayizeye. Then, in 2003, CNDD-FDD signed a peace agreement with the new transitional government. If the rebel groups originally had grievances against the ethnic compositions in the government or the particular leader, what had made their confrontations with the new government continue after the government became a transitional government? Was the ethnic issue core interest of the rebel group or simply its position? If it was simply a bargaining position, then what was the group's core ideology?

Distinguishing between the positions held by the parties and their underlying interests are the classical ideas in conflict resolution (Fisher et al., 1987; Ramsbotham et al., 2011; Wallensteen,

2015). A conflict is defined in terms of the wants, needs, or obligations of the parties; a conflict is resolved when the mutually compatible set of actions is worked out (Nicholson, 1992). According to Axelrod (1967), conflict is "a property of the preferences of the participants and the structure of situation in which they find themselves" (p.87). Gleditsch (2002a) also explains conflict as some form of perceived incompatibility between parties. If a conflict is a situation where there are perceptions of incompatibilities, then understanding with what they feel incompatible is a key to defining the actual conflict. Estimating the latent ideological position of conflicting parties and inferring of compatible interests and perceived incompatible positions leads to understanding core needs among belligerents, which ultimately leads to conflict prevention, management, and resolution.

The importance of analyzing ideology or preferences in civil conflicts has recently started to receive attention. Sanín and Wood (2014) argue that some armed groups are normatively committed to an ideology, and such commitments need to be incorporated into an analysis of group behavior. Analyzing preferences is also a fundamental component of rational choice models (Morrow, 1994). Theoretical models provide predictions of what people are expected to do depending on their individual preferences (Bueno de Mesquita, 2013). If conflict parties' strategies, which lead to their actions, are driven by individual preferences and constraints they face, then estimating the preferences of conflict parties in conflicts might provide predictions of what belligerents in civil wars are expected to do. By mapping how close their single-peaked ideal points are and by identifying their policy bargaining positions, researchers would be able to predict when and with which factions a leader of a state is more likely to sign a peace agreement. In addition, revealing underlying preferences also helps to explain the dynamics of civil wars. Dynamic aspects of civil conflicts have been demonstrated by work on how rebel alliances explain conflict outcome (Akcinaroglu, 2012), how veto players affect civil war duration (Cunningham, 2006), how rebel groups strategically form alliances (Christia, 2012), or how a government strategically makes concessions towards some rebels (Cunningham, 2011). Because strategies are driven by preferences, analyzing underlying preferences would enable the analysis of the likely strategic alliance formation or veto in the process of civil wars with applications of those theories.

On the other hand, systematically measuring incompatibilities in civil conflict parties is problematic due to available observable information and its use. An observed actor's behavior incorporates both its underlying preferences and its strategic response to the setting (Frieden (1999): p.60). While in-depth case studies from observations can provide explanations for group

ideology, simply relying on observations accompanies subjectivity, while the literature defines conflict as parties' perceptions (Axelrod, 1967; Gleditsch, 2002a; Hirshleifer, 1995), implying a requirement for objectivity. Because official negotiation records are normally not accessible in conflict studies, in this paper I utilize speeches from news reports as observable information. To incorporate observations and deduction, I demonstrate how Item Response Theory (IRT), which has been used for roll call data analysis (Armstrong et al., 2014; Clinton et al., 2004; Clinton, 2012), can be combined with text data in inferring perceived incompatibilities among conflict parties. By using the method, this study makes three inferences: (1) latent ideological positions of belligerents, (2) committed ideological position and perceived incompatibilities caused by the committed position, and (3) compatible interests.

The article is organized as follows. Section 2 provides a review of the literature on civil conflicts that examines ideology or preferences of conflict parties. I also introduce how preferences of other political parties have been estimated in previous studies. In Sections 3 and 4, I discuss why and how IRT is applicable in analyzing perceived incompatibility from speeches with the logic of estimation method. Section 5 demonstrates the method by applying it to an armed conflict between the Burundian government and CNDD-FDD from 1989 to 2003. Section 6 concludes the paper.

4.2 Analyses of Preferences and Ideology

4.2.1 Empirical analyses of preferences in civil conflicts

While it is difficult to analyze ideology (Sanín and Wood, 2014), several studies attempt to measure ideology or incompatibility, which is a property of preferences. The UCDP/PRIO Armed Conflict Data project (Gleditsch et al., 2002; Themnér and Wallensteen, 2014) provides general information about incompatible positions in conflicts. The project classifies incompatibility into three categories: Territory, Government, and Territory and Government. Eriksson and Wallensteen (2004) also classify conflict as government or territory.

In terms of the ideology of rebel groups at individual levels, Ugarriza and Craig (2013) examined ideological differences between paramilitaries and guerrillas through surveys of ex-combatants in Colombia and showed how combatants' compliance levels can be affected by group-level ideologies. In addition, Oppenheim et al. (2015) operationalized ideological reasons for joining groups from ex-combatant surveys and used them as explanatory variables. Although the study's focus was not on the ideology itself, the work demonstrated how ideology can influence demobilization. In terms of group-level ideology, categories such as nationalist and

right or left have been used in the literature. For instance, Piazza (2009) classified "terrorist" into *Nationalist-Separatist*, *Leftist*, *Rightist*, and *Islamist* groups to identify the effect of ideology on casualties. As a similar classification, Polo and Gleditsch (2016) categorized ideology as *Nationalist-Separatist*, *Ethnoreligious*, and *Religious*. When the focus of research is about cross-country comparison, these classifications successfully explain variations in ideology across countries. If the focus of the study is on comparisons across time or within countries, then classifying ideology into established categories might fail to capture variations. On the other hand, capturing variations within countries and time is crucial due to the fact that conflict research is shifting towards the actor-based approach, as mentioned previously. After Cunningham et al. (2009) introduced the dyad approach, which takes into account differences among rebel groups, numerous studies have used the dyad or the dyad-year as the unit of analysis. Because few studies systematically analyze preferences of conflicting parties in civil wars, in the next subsection I review how other political parties' preferences have been estimated in the context of domestic politics.

4.2.2 Ideal point or preferences estimation

Scholars have studied various political parties' preferences by using observable information. Roll call data is one of the established observed data used to estimate ideal points of legislators, and numerous studies use such roll call data (Bailey, 2001; Clinton et al., 2004; Clinton, 2012; Poole, 2005). In terms of votes as observed information, UN voting data have been used for states' preferences (Bailey et al., 2015) or foreign policy position (Signorino and Ritter, 1999). In addition, Martin and Quinn (2002) used judicial vote records to estimate preferences of the Supreme Court of the United States.

Other than vote records, scholars also have used other observed information. For instance, Bonica (2014); Bonica and Woodruff (2015) use campaign finance records to estimate the ideal point distance for both legislators and the supreme court. As alternative observed information, speeches or debates of political parties also have been used (Baturo et al., 2017; Lauderdale and Herzog, 2016; Laver et al., 2003; Slapin and Proksch, 2008). Moreover, recent work by Barberá (2015) showed that the preferences of legislators and political parties can be estimated using conversations on Twitter.

4.3 Speeches as observed information

Frieden (1999) argued that scholars of international politics specify preferences by assumption,

by observations, and by deduction, and each method has advantages and disadvantages (pp.53–54). In relation to observations, Frieden (1999) pointed out cautions: "an actor's behavior incorporates both its underlying preferences and its strategic response to the setting it faces" (p.60). As this illustrates, relying solely on observations might not reflect true preferences, resulting in incorrectly estimating perceived incompatibilities, which this article aims to estimate. Therefore, after discussing potential observed information for the analysis in this section, the next section discusses how to incorporate observations and deduction.

Krehbiel and Peskowitz (2015) argue that although true ideal points are not directly observable, they must be inferred from observable objects. The challenge of estimating preferences of non state actors in civil conflicts is to consider what kind of data can be used as observable information. If there are data that record drafts of peace agreements or details of discussions of negotiations, we might be able to use such data as observed information to estimate preferences. This is because we would be able to identify issues or terms on which rebel groups did not agree with the government, as well as what had been agreed. However, peace negotiations usually are conducted behind closed doors and it is almost impossible to collect details of discussions, though it might be possible if the researcher can collect data from mediators or participants of peace negotiations directly. Instead, details of agreed peace agreements normally are available for researchers. Information as to what has been agreed upon is available. However, the terms of peace agreements only provide the outcome of joint decision-making. Therefore, researchers would face partial observability problems (Jeliazkov and Yang, 2014).

Due to the potential problems we face in dealing with peace agreement dataset, I discuss the application of alternative observed data used in the literature on preferences of the political party or legislators (Lauderdale and Herzog, 2016; Laver et al., 2003; Slapin and Proksch, 2008) or states (Baturo et al., 2017). This research assumes that speeches or conversations of political parties reflect their preferences. Slapin and Proksch (2008) proposed *Wordfish* which enables researchers to analyze ideological distances of political parties from texts if parties are referring to the same topic. Moreover, Lauderdale and Herzog (2016) proposed a two-stage implementation of the *Wordshoal* model, which enables researchers to estimate the debate-specific position of political parties and then estimate one latent position by using the estimated positions for each debate. In terms of state preferences, Baturo et al. (2017) illustrated how UN General Debate statements can be used to estimate single and multiple dimensions of government preferences by using a correspondence analysis.

To estimate preferences with the *Wordfish* model (Slapin and Proksch, 2008) or the *Word-*

shoal model (Lauderdale and Herzog, 2016), the first step would be to identify the same topics that political parties are referring to from a set of speeches. Lauderdale and Herzog (2016) classified a debate as a set of speeches with the same title. While some studies consider a set of speeches as the same topic, other studies assign topics at a sentence or word level. The Comparative Manifesto Project (CMP) (Budge et al., 2001) uses a quasi-sentence as the coding unit and assigns a category to each quasi-sentence. Quinn et al. (2010) examined the agenda in the U.S. using speeches from the congressional records and showed the daily speeches from Congress can cover multiple topics by using a topic model, where topics are composed of words. Grimmer (2010) also demonstrated how topics can be estimated by the expressed agenda model, where topics are estimated from words in texts.

In this study, in line with these topic models, I assume that a sentence can take multiple topics. Specifically, I assume that each word has one topic and a sentence can take multiple topics. The intuitive justification of the assumption is that a sentiment of speeches is affected by multidimensional spaces, in which each dimension constitutes a cluster of words. If this assumption is the case, then by looking at variations in sentiments of speeches and corresponding combinations of topics, we might be able to differentiate compatible topics from incompatible topics. This differentiation ultimately would help in inferring interests and positions of conflict parties. Under these assumptions and expectations, I apply Bayesian IRT to text data. The next section provides discussions on how IRT can be utilized for speeches with the logic of estimation method.

4.4 Application of Item Response Theory to Text Data

Many studies of preferences estimation use a spatial model of voting to explain political parties' utilities from voting (Armstrong et al., 2014; Carroll et al., 2013; Clinton et al., 2004; Martin and Quinn, 2002; Poole, 2005). The idea is that political parties have their own ideal point in a policy space and their utilities decrease in their distance between ideal points and outcomes. To apply the theory of spatial voting to the analysis of speeches, I transform text data to i by j binary matrix, where i denotes individuals, j denotes items, and the values 1 or 0 shows "yea" or "nay" expression for the item j. The following subsections introduce difficulties we face in deduction after transforming text data to roll call data structure and how it can be overcome with the logic of estimation method.

4.4.1 The logic of application and bargaining theory

The most challenging part of this study is to ensure that conflict parties meant to say yea/nay on the jth item, jth topic in this context, in constructing data. In relation to original IRT, in educational studies, matching responses itself is usually not a problem. Suppose items are questions in an exam. As long as there is numbering in the exam paper, it is clear that a student's answer to question one is an answer that is being written in the blank space for question one. However, this is not the case in this article, especially when the data are taken from speeches of conflict parties and under the assumption that sentences can take multiple topics. If only one topic is used as the item index while multiple topics are assigned to each sentence, then problems in deducing preferences emerge.

Suppose there are i individuals ($i \in \{1, ...I\}$) and there are K sentences ($k = \{1, ..., K\}$). Assume each word can be classified into one of Z topics ($z = \{1, ..., Z\}$). Compared with topic models, this study assumes that each word can only take one topic. Then, each sentence k has $|q_k|$ topics, where $q_k \subseteq z$. Each sentence has a yea/nay sentiment, which is denoted by $st_{ik} \in \{n, y\}$.

With regard to the actor i's utility from yea/nay outcome on the topic q, I apply the notation that has been used by many scholars (Armstrong et al., 2014; Clinton et al., 2004; Jackman, 2001). Denote $U_{iqy} = u_{iqy} + \epsilon_{iqy}$ and $U_{iqn} = u_{iqn} + \epsilon_{iqn}$ are actor i's utility from yea/nay outcome on the topic q.

First, suppose there is only one topic assigned to each sentence ($|q_k| = 1$). This case is equivalent to the normal setting of roll call analysis. From the utility maximization, if $U_{in} \prec U_{iy}$, then i takes the yea position (Clinton et al., 2004). This yields the following compatible rule in the context of text data: If ($|q_k| = 1$) and ($st_{ik} = y$), then for the person i $\forall q_k(U_{iq_kn} \prec U_{iq_ky})$. Similarly, if ($|q_k| = 1$) and ($st_{ik} = n$), then for the person i $\forall q_k(U_{iq_kn} \succ U_{iq_ky})$.

However, if ($|q_k| > 1$), then this is not the case. Assume i expresses the yea position in speeches for the topic q_k only if $\forall q_k(U_{iq_kn} \prec U_{iq_ky})$ is met. Suppose ($|q_k| = 2$) and ($st_{ik} = n$). To simplify, suppose a sentence k takes the topic 1 and the topic 2. Define p as the probability, that the person i's preference over the sentence k's disaggregated topic r_k ($(r_k \in q_k) \wedge (|r_k| = 1)$) is ($U_{ir_kn} \succ U_{ir_ky}$), given the negative sentiment for the sentence k ($st_{ik} = n$). Person i's utility from the yea/nay outcome on the topic q_k can be interpreted as $((U_{i1n} \succ U_{i1y}) \wedge (U_{i2n} \succ U_{i2y})) \vee ((U_{i1n} \prec U_{i1y}) \wedge (U_{i2n} \succ U_{i2y})) \vee ((U_{i1n} \succ U_{i1y}) \wedge (U_{i2n} \prec U_{i2y}))$. This means if $P_{iq_kn} \perp P_{iq_ky}$, then $(P_{i1n} \times P_{i2n}) \vee (P_{i1y} \times P_{i2n}) \vee (P_{i1n} \times P_{i2y}) \Longrightarrow P_{i1n}P_{i2n} + P_{i1y}P_{i2n} + P_{i1n}P_{i2y}$. The probability that the person i's preference over the sentence k's disaggregated topic 1 is

$(U_{i1n} \succ U_{i1y})$ is $p = \frac{P_{i1n}}{P_{i1n}+P_{i1y}P_{i2n}}$. To intuitively understand what happens if the topics q_k increase, in the following I show the generalization of the pattern with the simplified notation —combinations of $\{n, y\}$ for the set of q_k:

If $q_k \subseteq z$, $st_{ik} = n$, and r_k $((r_k \in q_k) \wedge (|r_k| = 1))$, then the frequency of $(U_{ir_kn} \succ U_{ir_ky})$, given the all possible combinations of $\{n, y\}$ for the set of q_k, is $\frac{2^{|q_k|-1}}{2^{|q_k|}-1}$.

Suppose q_k is the set of possible interpretations in determining one topic for a sentence. As $|q_k|$ increases, uncertainty over inferring revealed preference increases (see proof in Appendix). So far, although the deduction is based on the extreme assumption that i expresses the yea position in speeches for the topic q_k iff $\forall q_k(U_{iq_kn} \prec U_{iq_ky})$ is met, even if this is not held, a similar conclusion is reached because observing $st_{ik} = y$ still accompanies uncertainty in revealing $(U_{ir_kn} \succ U_{ir_ky})$ $((r_k \in q_k) \wedge (|r_k| = 1))$. What these imply is that uncertainty over i's responses increases if a single topic is used as the item index in transforming text data to item response matrix. In actual negotiations, such uncertainty can be reduced by asking clarifying questions to get to the core problem or to ensure with what exactly an actor agrees/disagrees. Fisher et al. (1987) argue that behind opposed positions in negotiations, there are compatible interests as well as conflicting ones. To identify interests, they suggest asking questions to narrow down issues. Because clarification is not possible in this civil conflict context where speeches and the incident are past events, by creating quasi-choice, the study reflects their clarification ideas in negotiations. If taking the nay position is a behavior that comes from perceived conflicts, which scholars define as conflict (Axelrod, 1967; Gleditsch, 2002a; Hirshleifer, 1995), or from committed bargaining position (Schelling, 1980), then by pursuing why parties are expressing a disagreement position with the specific issue item—combinations of topics—, we might be able to solve the puzzle of positions and interests.

Therefore, in transforming text data to item response matrix, I allow the sentence to take multiple topics and reflect the multiple topics as combinations, sum of binomial coefficient up to a certain number x ($x \subseteq |z|$, $\sum_{n=1}^{x} \frac{z!}{n!(z-n)!}$), in the item index. Table 4.1 shows the details of the algorithm in creating a matrix. Appendix also provide example of Matrix $M_1(k, z)$ (Table 4.1). In the next section, I summarize steps for the analysis with an implemented example.

Algorithm:

0: Each sentence $k = \{1, ..., K\}$ constitutes a vector of string $W_k \neq \emptyset$

1: Require $\Gamma = \langle V_{req}, V_{ag}, V_{disag}, V_{den}, V_{pos}, V_{neg}, V_{cond} \rangle$
$\{V_{(\cdot)}$ is a vector of string (see Appendix)$\}$

2: Denote st as a vector for sentiment; $st = \{\}$
for k in $\{1, ..., K\}$:
if $(W_k \cap \Gamma[\neg(V_{pos}, V_{neg})]) \neq \emptyset$ then
$(W_k \cap (V_{req} \cup V_{ag})) \neq \emptyset \rightarrow st[k] = 2$;
$(((W_k \cap (V_{req} \cup V_{ag})) \neq \emptyset) \wedge ((W_k \cap V_{cond}) \neq \emptyset)) \rightarrow st[k] = 1$;
$(((W_k \cap (V_{disag} \cup V_{den})) \neq \emptyset) \vee ((W_k \cap V_{req} \cap V_{den}) \neq \emptyset)) \rightarrow st[k] = -2$;
$(W_k \cap V_{cond}) \neq \emptyset \rightarrow st_k[k] = -1$
else if $(W_k \cap \Gamma[V_{pos}, V_{neg}]) \neq \emptyset$ then
$(|W_k \cap V_{pos}| > |W_k \cap V_{neg}|) \rightarrow st[k] = 1$;
$(|W_k \cap V_{pos}| < |W_k \cap V_{neg}|) \rightarrow st[k] = -1$;
$(|W_k \cap V_{pos}| = |W_k \cap V_{neg}|) \rightarrow st[k] = 0$
else $st[k] = 0$

3: Create K by Z matrix $M_1(k, z)$
$\{$ Z are predetermined categories $(z = \{1, ..., Z\})$ from Tables 4.2 and 4.3 $\}$

4: Require $\Gamma^b = \langle T_1, ..., T_Z \rangle$
$\{T_{(\cdot)}$ is a vector of string, obtained from Tables 4.2 and 4.3$\}$

5: for k in $\{1, ..., K\}$:
for z in $\{1, ..., Z\}$:
$(W_k \cap T_{(z)}) \neq \emptyset \rightarrow M_1(k, z) = 1$; $(W_k \cap T_{(z)}) = \emptyset \rightarrow M_1(k, z) = 0$
if $\sum_{z=1}^{Z} M_1(k, z) \leq 3$ then $comb[k] = \sum_{p=1}^{len(z[M_1[k,]>0])} z[M_1[k,] > 0]$
else $comb[k] = {}^{z[M_1[k,]>0]}C_x$, where $x \subseteq Z$

6: Create K by $\sum_{n=1}^{x} \frac{z!}{n!(z-n)!}$ matrix $M_2(k, j)$
for k in $\{1, ..., K\}$:
for j in $\{1, ..., \sum_{n=1}^{x} \frac{z!}{n!(z-n)!}\}$:
if $colnames(M_2)[j] == comb[k]$ then $M_2(k, j) = st[k]$
else $M_2(k, j) =$NaN

7: Aggregate (sum) M_2 at actor–year level.

Table 4.1: Table presents algorithms to construct data from speeches.

4.5 A Real Case Example

The goal of this study is to estimate ideal points of conflicting parties and to distinguish compatible interests from perceived incompatible bargaining positions. To illustrate how bargaining positions and interests can be estimated by using the method explained in the previous section, the method was implemented to a conflict, specifically an armed conflict between the Burundian government and CNDD-FDD from 1989 to 2003. I use this particular dyadic conflict for two reasons.

First, while Burundian civil wars have been well analyzed as conflicts rooted in deeply ethnically divided society, in terms of a battle against whom, it was not necessarily Hutu against Tutsi all the time. For instance, CNDD-FDD kidnapped some parliament members, who belonged to FRODEBU, a Hutu political party. Identifying with what areas of issues are related to the root cause, deeply ethnically divided society, and distinguishing them from hidden interests and needs of conflict parties will bring insight into areas where cooperation among belligerents might be possible. Second, the combination of these two parties might be an interesting case because CNDD-FDD split into two groups in 2002: one led by the original leader Jean-Bosco Ndayikengurukiye and one led by the new leader Pierre Nkurunziza. Comparing ideal point distances between these two groups and the government provides interesting inferences with regard to who turns ideologically extreme or moderate. To estimate ideal points of these parties, the first step is to identify speech documents. Due to the lack of official documents that record speeches of rebel groups, I use news as sources of information.[22]

4.5.1 Speech relevant texts

To identify speech-relevant documents from the massive amount of news, I collected texts from mentioned sources of news and reports that contain the name of target non-state actors. Nexis allows us to search news for a particular word. As a result of the search, there are 693 English news reports that contain the word "CNDD-FDD" between 1996 and 2003. After preparing news as text format, I extracted speech relevant sentences and metadata for each sentence that contain information on the name of the speaker, the party—government or rebel group—and dates. For the purpose of later analysis, I cleaned text by removing the name of the speaker and by extracting only the relevant part of the text. For instance, in the following sentence;

[22]Specifically, I used the following sources: *Agence France Presse* (in English), *AAP NEWSFEED* (in English), *BBC Monitoring Africa News* (in English), *Defence and Foreign Affairs Daily* (in English), *IHS Global Insight* (in English), *Inter Press Service* (in English), *XINHUA GENERAL NEWS SERVICE* (in English). For the justification of these sources, I refer to sources of Uppsala Conflict Data Program Georeferenced Event Dataset (GED). GED data are generated based on similar sources: *Reuters News, Agence France Presse* (in English), *Associated Press*, *Xinhua* (in English), and *BBC Monitoring*.

"Referring to talks between the government and the CNDD-FDD faction that have been going on in the Tanzanian commercial capital, Dar es Salaam, Ndabirabe told IRIN on Friday that there must be parity in power sharing should the two parties reach an agreement,"[23] is coded as "speech relevant". As the speech-relevant part is only the latter part of the sentence, "Ndabirabe told...," I removed the first part of sentences.

4.5.2 Sentiment classification

The next step is to conduct a sentiment analysis to ultimately create a quasi-roll call data. To utilize the underlying theory used in the analysis of roll call data, where parties' yea/nay positions are used, first, I classify each sentence's sentiment into one of the following sentiments: (a) strongly yea, (b) weakly yea, (c) mention, (d) weakly nay, and (e) strongly nay. If a sentence is considered to be an agree/request sentence, then it is classified as (a), while it is classified as (b) if the agree/request sentence contains conditional words (see Appendix). Similarly, if a sentence is considered to be a disagree/deny sentence or a request with denying words, then it is classified as (e), while it is classified as (d) if such sentence contains conditional words. For instance, if a sentence is a request for an intervention, then it is classified as (a), while it is considered (e) if a sentence is a request for no intervention. If a sentence does not include request, agree, disagree, or deny words that are listed in the Appendix, then a sentiment is determined based on the frequency of positive and negative words. I use a list of those words identified by Liu et al. (2005). If positive words are relatively more frequent than negative words in a sentence, then the sentiment is classified as (b) and (d) vice versa.[24] Finally, if the sentiment is not classified into (a), (b), (d), or (e), or the frequency of positive/negative words is the same, then the sentiment is coded as (c). (a) $\sim$ (e) are transformed into numeric values {-2,-1,0,1,2} because a sentence is aggregated at the actor–year level, as I explain in the next subsection.

4.5.3 Data construction

After conducting the sentiment analysis as mentioned, then, to identify what topics conflict parties are speaking of, first, I classify each word into one of pre-determined z categories ($z = \{1, ..., Z\}$). Tables 4.2 and 4.3 show the list of categories and words. Importantly, as this is not an unsupervised learning classification but a supervised classification, not all words have a

[23] "Burundi; Rebel Group's Proposals On Power-Sharing," Africa News, August 8, 2003.

[24] Words used in Tables 4.2 and 4.3 have been removed from the list of positive and negative words to avoid selection effects.

category listed in Tables 4.2 and 4.3. Some words such as "staff" and "rapid" have no categories. Topics selected in Tables 4.2 and 4.3 indicate issues that have been analyzed as grievances or factors that affect duration and causes of conflicts in literature. For instance, as arguments of grievances, "ethnic" has been given significant attention in the literature on civil war onset or civil war duration (Cederman and Girardin, 2007; Cederman et al., 2010b, 2013; Chiba and Gleditsch, 2017; Horowitz, 1985; Wucherpfennig et al., 2012). In terms of the justification of word "intervention," many studies explore how the presence of external participants affect civil war outcomes and duration (Balch-Lindsay and Enterline, 2000; Balch-Lindsay et al., 2008; Bueno de Mesquita and Downs, 2006; Cunningham, 2010; Elbadawi, 2000; Sawyer et al., 2015; Regan, 2002; Walter, 1997), or how external mediators affect courses of negotiation (Stedman, 1991; Touval and Zartman, 1985).

Because it might be the case that parties are concerned with the influence of external parties itself, rather than who the influencing external parties are, I include words such as mediation, PKO, and intervention in this category. Because these words are mentioned by parties along with other categories, including military, peace process, or international category, and because these combinations are reflected, it ultimately leads to making secondary interpretation possible. Regarding "neighbor," Salehyan and Gleditsch (2006) show the presence of refugees from neighboring countries as the predictor of violence, and Buhaug and Gates (2002) point out that a border of a neighboring country shapes the scope of the conflict. It might be the case that these topics (in Tables 4.2 and 4.3), which are well mentioned in the literature, are contributing determinants of conflicting parties' positions or underlying interests. To ensure that the classification of Tables 4.2 and 4.3 seems plausible when we look at the topics from the hierarchical perspective, I show the result of hierarchical clustering of topics in Figure 4.1.

Once words are classified into topics, each sentence has the set of topics $q_k \subseteq z$. Next, create K by $\sum_{n=1}^{x} \frac{z!}{n!(z-n)!}$ matrix $M(k, j)$, where values are computed in the way in Table 4.1. Finally, since the unit of observations was originally a sentence, I aggregate the matrix M at actor-year level. After the aggregation, as the matrix still had missing values for the expressed sentiment, especially for some topic combinations, the missing values were filled by the following steps. First, if j is a single topic where the value is missing, then the value 0 was assigned.[25] Second, if j is two combinations of topics where the value is missing, then fill it with the sum of the sentiment of the two single topics, which are components of combinations. Finally, if j is three combinations of topics where the value is missing, fill it with the sum of the sentiment

[25]At this point, the matrix is not yet a binary matrix due to the aggregation in the step (Table 4.1).

Table 4.2: Topic Lists and Examples of Words

Topic	words
Agreement	agreement, accord
Army	armed, army, gendarmerie
Arusha	arusha
Battle	assailant, attack, attacker, attacking, battle, battlefields, bullet, clashes, coup, crush, disputes, fight, fighters, fighting, hostile, hostilities, injured, violence
Camp	banishment, barracking, barrack, camp, canton, cantonment, displaced, exile, repatriate, repatriation
Ceasefire	ceasefire, cessation, demobilization, disarm, disarmament, disarmed, disarming, dismantle, dismantled, dismantling, rehabilitate, rehabilitated, rehabilitation, reintegration, suspend, suspended, suspension, unarmed
Civilian	citizen, civil, civilian, people, public, villager
Crime	assassination, blood, crime, criminal, extermination, gangs, genocidal, genocide, hostage, imprisoned, kidnap, kidnapping, massacre, murder, prison, prisoner, violation
Ethnic	apartheid, ethnic, ethnicization, ethnicit, ethnicity, hutu, minority, monoethnic, refugee, tutsi
Geography	area, capital, centers, city, district, forest, geographical, hill, horizon, lake, land, local, localities, located, location, mountain, outskirts, province, provincial, rural, soil, suburbs, territory, town, village, villagization, zones
Institution	bureau, coalition, composition, constitute, election, establishment, governance, instituted, institutions, multiparty, post, structure, system
International	amara, belgium, brussels, china, clinton, disapora, dutchwoman, european, foreign, foreigners, french, global, IMC, international, johannesburg, oau, ogata sadako, paris, security council, united nation, western, WFP
Intervention	facilitated, facilitating, facilitation, facilitator, intervene, intervention, JCC, mediating, mediation, mediator, mission, monitor, monitoring, observe, observer, peacekeepers, peacekeeping, sanctioned, sanctions
Jurisdiction	arbitration, arrest, assembly, bill, case, charged, charging, charter, constitution, constitutional, conviction, court, illegal, injustice, interrogation, investigate, investigation, investigator, judge, judicial, judiciary, justice, justification, law, legislative, legislature, legitimacy, legitimate, mandate, MPS, parliament, parliamentary, policy, protocol, proved, quorum, rule, ruling, senate, senator, sovereign, supreme, trial, tribunal

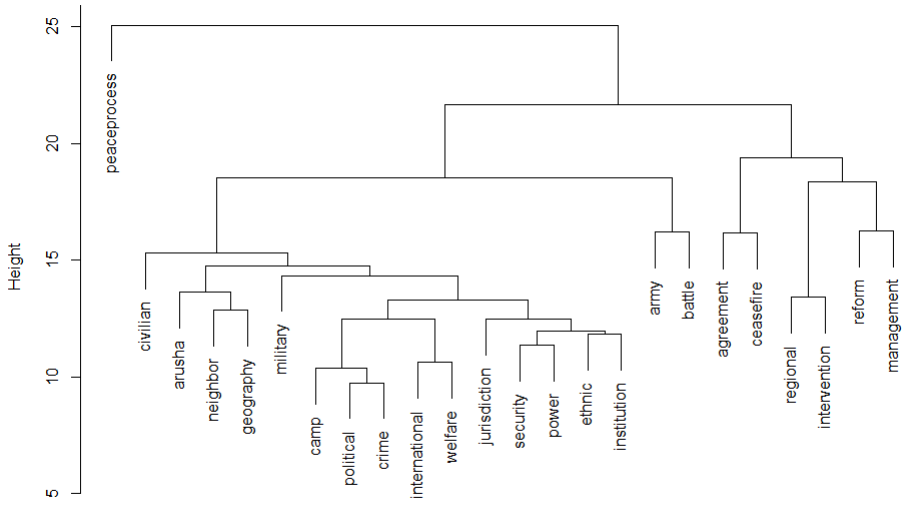

Figure 4.1: Hierarchical clustering of topics. The clustering was obtained using Ward's method, where the unit of analysis is the sentence.

Table 4.3: Topic Lists and Examples of Words (continued)

Topic	words
Management	administration, administrative, cabinet, chairman, commission, commissioner, committee, delegates, delegation, executive, governors, leader, leadership, minister, ministry, office, officer, politicians, presidency, presidential, regime, represent, representation, representative
Military	aircraft, alliance, allied, bombing, bombs, combat, combatants, combatting, commander, groupment, guerrillas, gunmen, guns, militarily, military, militia, mobilize, paramilitary, regrouping, regroupment, soldier, troops, weapons
Neighbor	border, bordering, congo, DRC, interahamwe, kabila, kagame, kavumu, kigali, kigoma, kinyinya, mkapa, mpanda, musenyi, museveni, neighboring, neighbors, nyerere, rwanda, rwandan, tanganyika, tanzania, tanzanian
Peace Process	agenda, collaboration, conference, cooperate, cooperation, dialogue, meeting, negotiate, negotiation, negotiator, reconciliation, renegotiate, resettlement, settle, summit, talk
Political	political, politically, politics
Power	ability, authority, capable, capacity, control, controlled, dominated, empower, power, powerful
Reform	allocate, allotment, assemble, change, changeover, combine, distribution, divide, division, granted, harmonize, include, inclusion, inclusive, incorporate, installation, integral, integrate, integration, interim, quotas, reform, reorganize, replace, replacement, share, sharing, temporarily, temporary, transfer, transform, transformation, transforming, transition, transitional
Regional	africa, africaine, african, africanism, agathon, berhanu, bomani, bongo, dinka, dlamini, dldoret, ethiopia, gabon, gabonese, kagoma, kampala, kanyonga, kenya, libreville, mali, mandela, mbeki, nairobi, nelson, nkosazana, pretoria, region, regional, regions, rubirizi, rukoko, subregion, tenga, uganda, ugandan, yoweri, zambia, zimbabwe, zuma
Security	guarantors, guard, guarded, insecurity, patrols, police, protect, protection, safe, safety, security
Welfare	business, children, coffee, commercial, crops, currency, diseases, donated, donations, donor, earnest, economic, economy, embargo, farmer, food, freedom, fund, health, humanitarian, humanity, infrastructure, legacy, logistics, market, medical, money, peasant, poor, poorest, poverty, price, products, rights, sales, sanitation, schools, social, socio, supplies, supply, typhoid, vaccination, wage, water

of combinations of two elements from three topics in question. Once the missing values are dealt with, to transform the matrix to binary matrix, the value 0 was assigned if the values are negative and the value 1 was assigned if the values are positive or zero.

4.5.4 Model

To summarize the model, $y_{vij} = 1$, if i expresses a yea position, 0, if i expresses a nay position, where $i = \{1, .., 12\}$, $j = \{1, ..., \sum_{n=1}^{x} \frac{z!}{n!(z-n)!}\}$, $z = 24$, $x = 3$. The probability of actor i expressing yea response for item j of the vth subset can be: $P(y_{vij} = 1|\theta_{vi}, \beta_{vj}, \alpha_{vj}) = \Phi(\beta_{vj}\theta_{vi} - \alpha_{vj})$. For prior distributions of model parameters, the study used $\theta_{vi} \sim N(0, 1)$ for theta, $\alpha_{vj} \sim N(0, 4)$ for item difficulty parameters, and $\beta_{vj} \sim N(0, 4)$ for item discrimination parameters. To implement the model, this study uses MCMCpack by Martin et al. (2011) and set the dimension as two ($v = 2$).

4.5.5 Results (estimated preferences) and discussions

The MCMC-based Bayesian IRT Model was implemented where 1,5000 iterations were obtained with 5,000 as burn-in. I used two single topics as the item constraints following Armstrong et al. (2014). The single topic "Army" is supposed to have a negative β on the first dimension while it is fixed as zero on the second dimension. As an item, which is supposed to have a negative β on the second dimension, the single topic "Welfare" was used. To visually interpret results, Figure 4.2 presents estimated two-dimensional locations of ideal points for CNDD-FDD, a splinter of CNDD-FDD, and the Burundian government with 90% highest posterior density regions. Similarly, Figure 4.3 shows the magnified version of Figure 4.2. To infer ideological differences from these figures, before moving on to the discussion, I also clarify what was driving the two dimensions in terms of the topics listed in Tables 4.2 and 4.3. Figure 4.4 presents the relationship between topics and the posterior means of discrimination parameters (β_{vj}) for each dimension obtained from the model. The red color shows the results where the posterior β_{1j} was used as the dependent variable while the blue color shows the results where the posterior β_{2j} mean was used as the dependent variable. The higher absolute values of β_{vj} mean higher contributions in differentiating ideological positions for each dimension. Independent variables correspond to topics listed in Tables 4.2 and 4.3. Importantly, combinations of topics, as well as the single topic, are used as the item index as mentioned in Table 4.1. By dissolving the combinations, a series of dummy variable of 24 topics are used as independent variables. Figure 4.4 shows three topics—peace process, management, and geography—positively contributed to

the first dimension at 95% confidence level. On the other hand, topics such as reform, neighbor, jurisdiction, intervention, ethnic, arusha, and agreement are positively correlated with the second dimension at 95% confidence level.

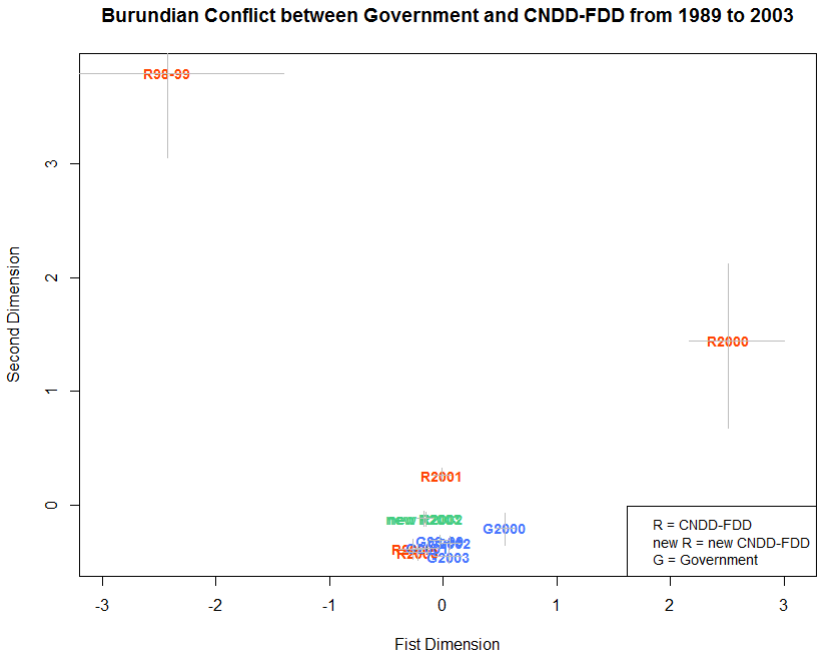

Figure 4.2: Multidimensional IRT ideal point estimates of the Burundian government, CNDD-FDD, and the new splinter group with 90% highest posterior density regions.

Now, I discuss ideological differences especially in terms of incompatible positions and compatible interest from these figures. Figures 4.2 and 4.3 imply that from 1989 to 2000, ideological differences between the government and CNDD-FDD were clear in both dimensions. In 2000, the first dimension of Figure 4.2 shows that the CNDD-FDD's ideological position shifted towards the opposite of what it used to be. Speaking of why this happened, one possible explanation is the status quo change in the peace process. During 1989 to 1999, negotiations or talks were carried out among other factions and the government by a former Tanzanian mediator Julius Nyerere. However, after his death, South African president Nelson Mandela replaced the role of mediator. Due to the status quo change, even if members of CNDD-FDD used the same language such as "negotiation" or "talk", what it meant might be perceived differently and might have affected sentiments of speeches: yea and nay expressions. Instead of this first dimension of ideology, the second dimension seems to provide explanations for the ideological differences between CNDD-FDD and the government in 2001, as we can see from Figure 4.3. This implies a turning point from "getting to table" to "getting to yes" (Fisher et al., 1987) as the rebel group

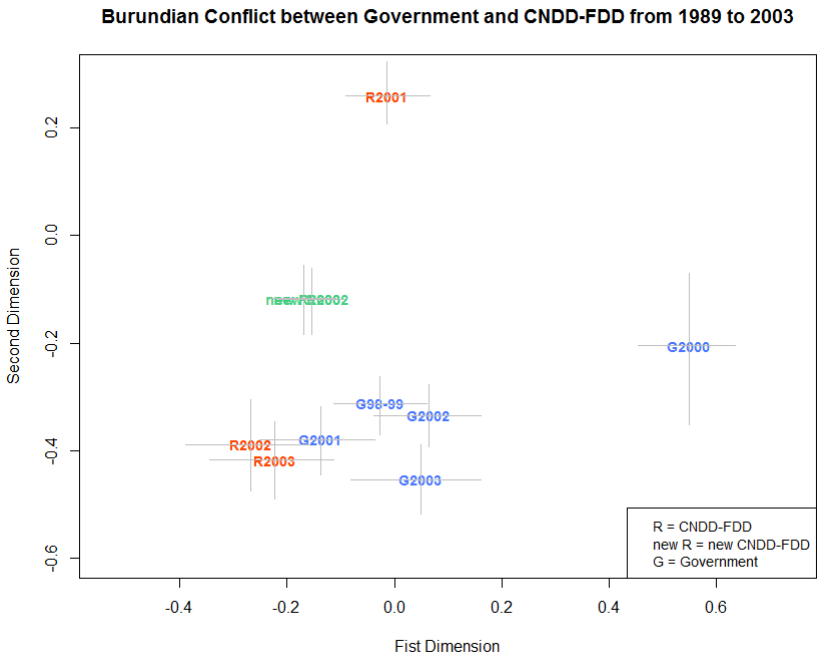

Figure 4.3: The magnified version of Figure 4.2, with particular focus on regions where most of the parties are located.

Table 4.4: Combinations of topics that scored the highest (top 5) and the lowest (last 5) difficulty parameters.

Top		Last	
ranking	topics	ranking	topics
1	army/crime/geography	1	camp/jurisdiction
2	army/civilian/geography	2	agreement/jurisdiction/welfare
3	army/battle/geography	3	political/power/jurisdiction
4	army/intervention/battle	4	ceasefire/camp/jurisdiction
5	army/intervention/ethnic	5	regional/ethnic/jurisdiction

and the government have the similar ideology in terms of the peace process. Indeed, in August 2000, the government signed the Arusha Peace Accord with other factions though CNDD-FDD did not sign; therefore, the government and CNDD-FDD started direct negotiations in 2001, which CNDD-FDD had been requesting.

After 2002, when CNDD-FDD split into two groups, the original group seems to have a similar ideology in terms of the second dimension. Figure 4.3 illustrates that while new CNDD-FDD was ideologically moderate on the first dimension compared with the original CNDD-FDD (2002-2003), it was more extreme from the second-dimensional perspective. Given that the original CNDD-FDD signed a peace agreement with the government before the splinter group, one possible inference is that for rebel groups and the government, the first dimension was relatively easy to compromise compared with the second dimension.

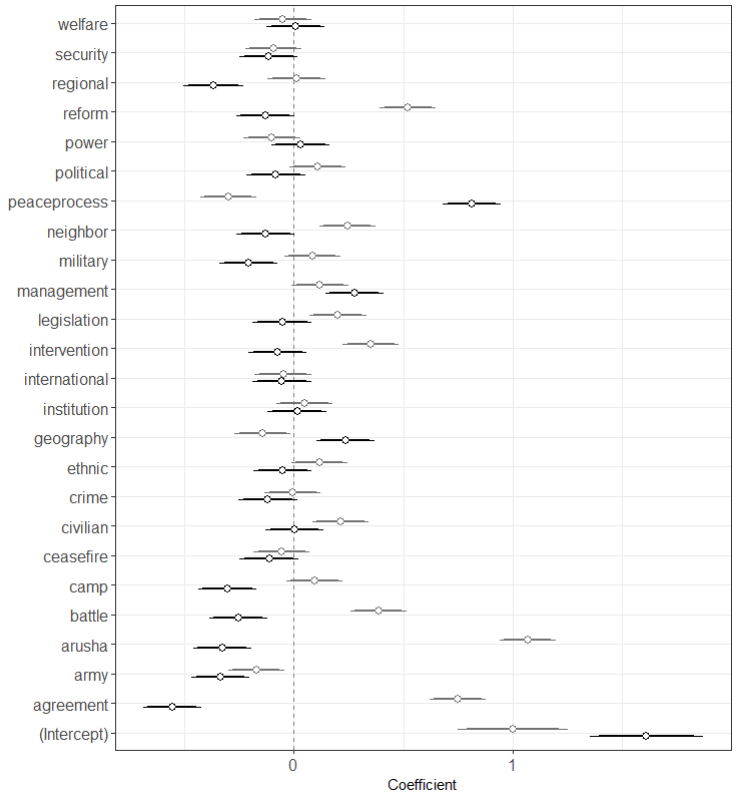

Figure 4.4: Coefficient plots for OLS: Dependent variable is posterior means of discrimination parameters (β_{vj}) of each dimension. Model 1 (black color) uses discrimination parameters of the first dimension, while Model 2 (gray color) uses that of the second dimension. The thick lines show 90% confidence intervals and the thin lines show 95% confidence intervals. N = 2,283, Residual Std. Errors are 0.812 for model 1 (First dimension) and 0.783 for model 2 (Second dimension).

Finally, I discuss inferences of incompatible positions and compatible interests, which have been seen through the entire conflict duration. To make this inference, I present results from the OLS estimator, where I use the posterior means of difficulty parameters (Figure 4.4) as the response variable. In the educational context of the IRT model, normally the higher difficulty parameters show the items that are more difficult to answer correctly. In this article, as the value 1 in the item matrix indicates the yea position of parties, the higher value of difficulty parameters can be interpreted as the indicator of incompatible positions, meaning a few parties expressed yea positions for the item. Therefore, negative and statistically significant coefficients for topics in Figure 4.4 show compatible interests of conflicting parties. In this particular conflict, topics such as jurisdiction, welfare, camp, regional, political and agreement were compatible interests. Interestingly, while "regional" is compatible, a topic related to neighbor seems to be perceived as incompatible by parties. To make inferences about these conflict parties' positions in terms of topic combinations, Table 4.4 presents combinations of topics that scored the highest (top

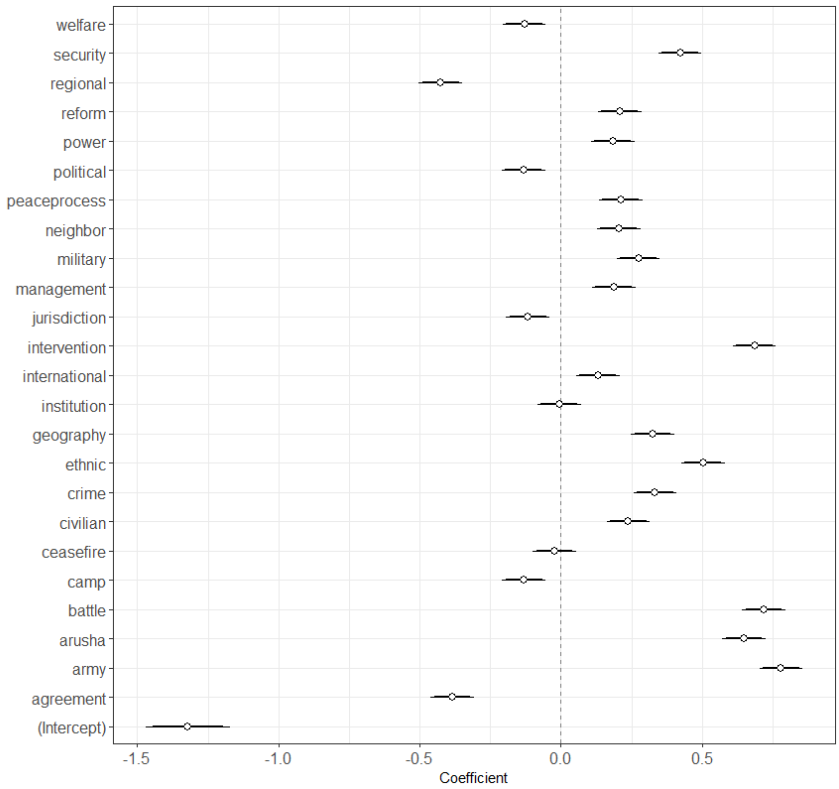

Figure 4.5: Coefficient plots for OLS: Dependent variable is posterior means of difficulty parameters. The thick lines show 90% confidence intervals and the thin lines show 95% confidence intervals. N = 2,283, Residual Std. Errors is 0.467.

5) and the lowest (last 5) difficulty parameters. As we can see, while power was incompatible (see Figure 4.5) in general, when it comes to about power related to political and jurisdiction, it was compatible. This is in line with Frieden's (1999) argument that power seeking is a strategy but not a preference. Conflict parties might claim power as their bargaining position, but preferences are hidden under what they want through the power. In this particular case, power related to jurisdiction was not a conflict of interests. This might be because courts are weak in most developing states and the role of judicial institutions had been downplayed at that time (Sisk, 1996). Both the government and the rebel side might have been recognizing needs for a neutral judicial process. On the other hand, combinations of army and ethnicity were incompatible. CNDD-FDD kept hard negotiation positions when it came to power sharing defense and security. In the end, they agreed on obtaining 40% of posts in the army staff and 35% in the police.[26]

[26] "Former Rebel Comes to Capital, Apologises for War", *Africa News*, December 8, 2003.

4.6 Conclusion

To understand why parties are unable to reach an agreement, differentiating bargaining positions, interests, and needs are fundamental components of conflict resolution. On the other hand, distinguishing strategies—bargaining positions—from interests—preferences—requires incorporating strategic settings in the analysis, as Frieden (1999) discussed. In this paper, under the assumption that parties strategically commit to bargaining positions (Schelling, 1980) not for all positions but for core interests, the empirical analysis incorporated a way to differentiate issues. To systematically analyze preferences of conflict parties, speeches from news reports were used and applied Bayesian IRT to estimate ideal points. From the estimated ideal point, the research has provided three inferences: (1) latent ideological positions of belligerents, (2) committed ideological position and perceived incompatibilities caused by the committed position, and (3) compatible interests. In this particular type of conflict—conflicts between CNDD-FDD and the Burundian government between 1989 and 2003—dividing power in the national army based on ethnicity created conflicting bargaining positions for both sides. On the other hand, both the government and rebel sides seem to have compatible interests in judicial power sharing.

Although this particular type of conflict had these perceived incompatibilities as well as compatible interests, this does not mean these are the same for other civil wars. A future application would be to see whether the similar patterns are observed across cases regarding preference orderings for issues, and then investigate whether the similarities also explain similarities in strategies of dynamic civil conflicts, such as alliance formation, splinter, or veto behavior.

In terms of methodology, the research concludes that IRT can be a useful application for the analysis of perceived incompatibility in conflicts. As estimated discrimination parameters and difficulty parameters along with item attributes have demonstrated, researchers can make inferences of bargaining positions from these parameters. However, further robustness checks for the research design itself is also required. First, although mistakes in news reports are considered in the error term in the model, it is not clear to what extent bias of news agency affected the estimation. In addition, concerning generalization of the method used in this study, showing the extent to which it violates local independence assumption would be required. Future research would also further develop discussions on how more detailed strategic settings involved can be incorporated in the estimation method.

4.7 Acknowledgement

The author would like to greatly thank Ismene Gizelis, Daina Chiba, Kristian Skrede Gleditsch, Dominik Duell, Atsushi Tago, Thomas Zeitzoff, Anna Getmansky, Royce Carroll, Nicole Rae Baerg, Joseph Grieco, Lorena Castilla Medina, Andrew Edward Tchie, Marina Petrova, Katariina Mustasilta, conference participants at EPSA 2017 and Asian Political Science Methodology Meeting 2018 for valuable comments and suggestions.

4.8 Appendix

4.8.1 Mathematical Appendix

Proof 1: The possible number of patterns of $\{n, y\}$ for the set of q_k is $\sum_{n=1}^{|q_k|} \binom{|q_k|}{n} = 2^{|q_k|}$. From the assumption $st_{ik} = n$, remove the case where $\forall q_k(U_{iq_kn} \prec U_{iq_ky})$. This leads to the denominator $2^{|q_k|} - 1$. Given a fixed $(U_{iq_kn} \succ U_{iq_ky})$ for m_k $((m_k \in q_k) \wedge (|m_k| = 1))$, the remaining patterns of $\{n, y\}$ is $\forall x_k$ $((x_k \in q_k) \wedge (x_k \neq m_k) \rightarrow \binom{2}{1}) \Rightarrow \binom{2}{1}^{|q_k|-1} = 2^{|q_k|-1}$, which is the numerator.

Proof 2: $f(|q_k|) = \frac{2^{|q_k|-1}}{2^{|q_k|}-1} = \frac{h(|q_k|)}{u(|q_k|)} \Rightarrow f'(|q_k|) = [\frac{h(|q_k|)}{u(|q_k|)}]' = \frac{h'(|q_k|)u(|q_k|)-h(|q_k|)u'(|q_k|)}{u(|q_k|)^2} \Rightarrow$
$f'(|q_k|) = \frac{h'(|q_k|)(2^{|q_k|}-1)-2^{|q_k|-1}u'(|q_k|)}{(2^{|q_k|}-1)^2} = \frac{ln(2)2^{|q_k|-1}[|q_k|-1]'(2^{|q_k|}-1)-2^{|q_k|-1}([2^{|q_k|}]')}{(2^{|q_k|}-1)^2} =$
$\frac{ln(2)2^{|q_k|-1}([|q_k|]')(2^{|q_k|}-1)-2^{|q_k|-1}(ln(2)2^{|q_k|})}{(2^{|q_k|}-1)^2} = \frac{ln(2)2^{|q_k|-1}(2^{|q_k|}-1)-ln(2)2^{2|q_k|-1}}{(2^{|q_k|}-1)^2} =$
$\frac{ln(2)2^{|q_k|-1}}{2^{|q_k|}-1} - \frac{ln(2)2^{|q_k|-1}2^{|q_k|}}{(2^{|q_k|}-1)^2} = -\frac{ln(2)2^{|q_k|-1}}{(2^{|q_k|}-1)^2}$. As $|q_k| > 0$, $\forall |q_k|$ $(\frac{\delta f(|q_k|)}{\delta |q_k|} \leq 0)$.

4.8.2 List of words for the sentiment analysis

Request
(1) request, suggest, demand, call, offer, ask, urge, propose, need, prefer, insist, accelerate, appeal, should, must, want, essential, require
(2) until, unless, so long as, as long as, if ⇒ These words are used to express demands, especially conditions for something.
Agree
accept, concede, admit, commit, vow, pledge, promise, authorise, adopt, authorize, please, hope, agree, allow, consent , accede, prove, acknowledge, welcome, reach, confirm, closure, respond, offer, give, approve, obey, conclude, sign, opt for
Disagree
disagree, decline, refuse, accuse, oppose, doubt, claim, criticise, cautious, reluctant, criticize, blame, condemn, conditions, reject, denounce
Deny
not, cannot, n't, no, never, little to do, nothing
Positive
List of positive words (Liu et al., 2005) + additional words (possible, compromise, strengthened, forward, solved, respected, effort, cease, ceased, help, wish)
Negative
List of negative words (Liu et al., 2005) + additional words (dismissed, perpetrated, perpetrators, non-involvement, forcing, odious, inconclusive, feared, repelled)
Weakly Agree
Agree words + conditional words (Demand (2) words)
Weakly Disagree
Disagree words + conditional words (Demand (2) words)

Table 4.5: Words that are used to identify sentiments for speeches.

4.8.3 Matrix Example

$Sentence$	$topic_1$	$topic_2$	...	$topic_Z$	$sentiment$
$Sentence_1$	0	1	...	1	-2
$Sentence_2$	1	0	...	0	2
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
$Sentence_k$	0	0	...	1	-2
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
$Sentence_K$	1	1	...	0	-1

5 UN Involvement and Civil War Peace Agreement Implementation

Wakako Maekawa, Barış Arı, Theodora-Ismene Gizelis

Abstract

Many studies argue that third party guarantors such as the UN increase the chances that belligerents will sign peace agreements, but it is unclear how third-party involvement affects the implementation of agreements. We unpack the relationship between UN involvement and peace agreement success by focusing on the conditions under which UN is more likely to be deployed. To do so we identify two types of commitment problems, namely involuntary defections, and voluntary defections. These emerge due to the characteristics of the peace process as well as new opportunities available to rebel groups. We also examine how UN involvement affects the implementation of peace agreements. We evaluate our claims using data from the Peace Accords Matrix Implementation Dataset from 1989 to 2010 and Personnel Commitments to United Nations Peacekeeping Operations. We find evidence that large UN missions are better placed to support the implementation and longevity of the peace process.

5.1 Introduction

When does UN make a difference in the implementation of peace agreements? In El Salvador the UN Observer Mission (ONUSAL) provided technical support to facilitate the implementation of the 1992 Chapultepec Peace Accords (Pugh, 2009). The Chapultepec Peace Accords included provisions for the decommissioning of FMLN and drastic reduction of military forces, including the full dismantling of special units. Yet, without the assistance and leadership of ONUSAL, implementing the agreement could have failed (de Soto and del Castillo, 1995; Montgomery, 1995; Stanley and Holiday, 1997). The UN missions in El Salvador were pioneering, successfully transforming a peacekeeping operation to a downsized mission—The UN Mission in El Salvador (MINUSAL) and UN Verification Office (ONUV) (Call, 2002). On the contrary, the United Nations Mission in the Sudan (UNMIS) was deployed under large number of total UN personnel in supporting the Naivasha Agreement, signed between the Sudan People's Liberation Movement

(SPLM) and the government of Sudan on January 9, 2005.[27] In this case, since SPLM was strong enough to induce concessions from the government on future referendum in the first place, prospects for shifts in power caused fears of reneging on terms. UN troops reduced the likelihood of potential attacks, and the implementation score of the peace agreement reached around 70 percentage point after 7 years.[28]

These cases highlight the different types of commitment problems that peace processes attempt to resolve, and how these problems impact the effectiveness of UN missions to implement comprehensive peace agreements (CAP). In El Salvador the fighting parties were open to the termination of the armed conflict and had no significant incentives to renege on the agreement, such as using the peace process to build more capacity in the future. El Salvador differs from many of the conflicts highlighted in the literature, where actors have incentives and willingness to create opportunities through the peace process to continue fighting.[29]

The extant literature argues that third-party interventions are effective when they address the commitment problems of implementing peace agreements (Walter, 1997). Although commitment problems provide a compelling explanation for armed conflict recurrence and intractability, the concept aggregates situations where actors have different incentives to implement the provisions of peace agreements (Powell, 2006). Thus, failures in implementation could often be beyond the control of signatories, especially in post-conflict societies where the level of mistrust is high (Fortna, 2008). By disaggregating commitment problems in terms of actors involved, we explore why third-parties are often required and how they influence the implementation of civil war peace agreements.

Using Putnam's (1988) theory on the ratification process of international agreements, we argue that in intrastate armed conflict there are two types of commitment problems defined as *involuntary and voluntary defection*. Voluntary defection is defined as reneging by a rational actor in the absence of enforceable contracts, while involuntary defection is conceptualized as the behavior of an agent unable to deliver on a promise because of failed ratification process (Putnam, 1988). The case of El Salvador falls under the category of involuntary defection and an observer UN mission was sufficient to mitigate its effects and support the implementation of the Chapultepec Peace Accords. On the contrary, South Sudan is a case of voluntary defection and fragmentation by rebels who are willing and able to renege on agreements. An observer

[27]For peace agreement information, see United Nations Peacemaker `https://peacemaker.un.org/`. Information on UN missions was obtained from Personnel Commitments to United Nations Peacekeeping Operations (Kathman, 2013).

[28]Information on implementation score was obtained from the Peace Accords Matrix Implementation Dataset (Joshi et al., 2015).

[29]For arguments on why actors renege on deals, see Fearon (2004); Powell (2006); Pugh (2009); Walter (1997)

mission without deployment of peacekeepers would have been unsuitable to such a situation. In fact, the United Nations Mission in Sudan (UNMIS) required substantial military capability and ability to enforce the mandate of the mission and mitigate the commitment problems created by voluntary defections.

Our study contributes to the conflict resolution research by unpacking triggers of cooperation failure and by analyzing the effectiveness of UN missions in peace agreement implementation as part of the peace processes. Thus, our analysis focuses on the selection process of UN missions based on the risk factors of possible defections. Moreover, this is one of the first large comparative studies focusing on UN involvement and peace agreement implementation. While previous qualitative studies provide insights into how UN influences peace agreement implementation (Paris, 2009; Stedman et al., 2002), there are very few quantitative studies that examine UN involvement and peace agreement implementations (see Joshi et al. (2017)). Contrary to Joshi et al. (2017) our empirical model includes the risk factors for involuntary and voluntary defections, that would have affected the decision to assign UN missions, since there is strong evidence that UN missions are not randomly assigned (Andersson, 2000; Fortna, 2004, 2008; Gilligan and Stedman, 2003; Gilligan and Sergenti, 2008; Ruggeri et al., 2016). In addition, our operationalization for UN troops, military observers, and police accounts for actual deployment of missions as well as sizes of missions deployed in a given year. Our empirical analysis also incorporates the presence of UN political missions, which is also relevant to accord implementation.

We evaluate our claims using data from the Peace Accords Matrix Implementation Dataset (Joshi et al., 2015) from 1989 to 2010 and Personnel Commitments to United Nations Peacekeeping Operations (Kathman, 2013). We find that higher numbers of UN personnel in a country increase the level of agreement implementation. In addition, we find that involuntary defections result in lower levels of implementation. Specifically, a country with polarized voting and electoral competition can lead to involuntary defections resulting to delayed implementation of peace agreements. Our findings also suggest that higher bureaucratic state capacity contributes to peace accord implementation.

5.2 Preliminaries

Most of research on peacekeeping missions focuses on where peacekeepers go and whether peacekeeping missions are effective in containing conflict (Doyle and Sambanis, 2006). There is significant evidence that UN selects which conflicts to intervene. In addition to the economic and

geopolitical interests of the Security Council P-5, previous studies showed that UN missions tend to go to severe conflicts and once in a country UN troops often deploy in locations where there is conflict (Andersson, 2000; Fortna, 2004, 2008; Gilligan and Stedman, 2003; Gilligan and Sergenti, 2008; Ruggeri et al., 2016). Comparative studies have shown positive effects of third-parties on containing conflict and saving civilian lives. For instance, peacekeeping increases the duration of peace (Fortna, 2004), a third-party enforcer decreases the likelihood of settlement failure (Hartzell et al., 2001; Hartzell and Hoddie, 2003), multilateral enforcement operations contribute to ending violence (Doyle and Sambanis, 2000). When it comes to interventions by the UN, missions tend to enhance cooperation at the local level (Ruggeri et al., 2013) and support post-conflict reconstruction (Gilligan and Sergenti, 2008). Furthermore, UN peacekeepers reduce both civilian casualties (Hultman et al., 2014) and the likelihood of local conflict (Ruggeri et al., 2017). Contrary to research indicating the UN reduces levels of conflict, Joshi et al. (2017) do not find any evidence that the deployment of UN forces improves the implementation levels of comprehensive peace agreements.

Most of the extant literature argues that UN interventions can make a difference because they mitigate the commitment problems emerging in conflict. Commitment problems provide an explanation for why civil wars may endure despite years of inconclusive and wasteful fighting (Fearon, 2004; Walter, 1997). Failure to implement and sustain a negotiated settlement can also lead to the recurrence of conflict (Coyne and Boettke, 2009). Commitment problems emerge as obstacles to a mutually preferable deal because one party may not trust the other one to keep its end of the bargain. Commitment problems may also cause bottlenecks in peace agreement implementation, such as what policy provision (e.g. security sector reform or rebel disarmament) to implement first. As Walter summarizes 'at their heart, commitment problems, are problems of treaty enforcement' (2009 p. 251).

Even though commitment problems provide a compelling explanation for civil war persistence, it is not immediately clear why parties may have future incentives to renege on a negotiated settlement. A possible explanation is that when rebel groups lay down their arms, governments have incentives to renege on the peace deal and impose their demands (Walter, 1997). In other words, commitment problems essentially boil down to future shifts in military capabilities (Powell, 2006). According to Walter (1997), this enforcement problem of peace agreement provisions on rebel disarmament can only be overcome by third-party guarantors. While Fearon (2004) questions Walter's assumption that rebel disarmament is necessary for civil conflict resolution, he also argues that governments under conditions of crisis are more

likely to offer concessions to rebel groups that are armed rather than unarmed ones. When the crisis is over, however, governments have incentives to renege on the agreement and re-negotiate it from a stronger position. Rebels calculate this future change in capabilities and conclude that the government cannot credibly commit to its end of the deal.

One way to mitigate commitment problems in the post-conflict reconstruction stage without third-party is via costly signaling (DeRouen Jr. et al., 2009; Hartzell et al., 2001; Hoddie and Hartzell, 2005; Kydd, 2000). Kydd (2000) argues that mistrust and fear cause the core security dilemma. Only costly signals can reassure the fighting parties, while there is low trust in institutional reforms (Coyne and Boettke, 2009). By applying the logic, Jarstad and Nilsson (2008) found that implementing costly provisions in peace agreements—such as military and territorial provisions—leads to longer duration of peace. Hoddie and Hartzell (2005) also argue that sharing or dividing military power provisions can be a credible signal of commitment to peace by signatories. Similarly, Joshi et al. (2017) suggest three types of built-in safeguards to mitigate commitment problems—transitional power sharing arrangements, dispute resolution mechanisms, and verification mechanisms. They found that higher implementation scores for these provisions lead to higher overall peace accord implementation rates.

Yet, reneging on agreed terms cannot always be attributed to voluntary defection by the signing parties.[30] The implementation of peace agreements requires the involvement of other actors beyond the signatories leading to different types of commitment problems. Failure to make such distinctions may relegate the notion of a commitment problem to a 'catchall label' with limited analytical value (Powell (2006), p. 180). One of the challenges that scholars face in evaluating the effectiveness of UN involvement in a conflict management is the non-random assignment of interventions. According to Downs and Stedman (2002), 'One should be cautious about interpreting data about trends in UN peacekeeping effectiveness as measured by mission accomplishment unless the nature of the mission is controlled for—something that is difficult to do and rarely attempted' (p. 53). To account for the nature of mission in terms of why parties require a certain mission in the first place, we use the logic of Putnam (1988) to identify two different expected defections—*voluntary and involuntary defections*—, and show how different types of UN involvement can mitigate different types of commitment problems.

5.3 Theory

Putnam (1988) distinguishes *involuntary defection* from *voluntary defection* to unpack the rat-

[30] Fortna (2008) discusses how accidents and unauthorized incidents can escalate a war.

ification failures of international agreements. We argue that the distinction between voluntary and involuntary defection is highly relevant in the context of civil war peace agreements. To provide a motivating comparison, the year 1974 witnessed the collapse of two separate peace deals to resolve violent civil strife: the Sunningdale Agreement in Northern Ireland and the peace accord between the Saddam government and the Kurdish autonomy movement in Iraq. The British government and the Ulster Unionist Party leadership, both signatories to the Sunningdale, failed to implement the power sharing agreement because of fierce opposition especially by hardline loyalists. As a result, the British government imposed direct rule from London. On the other hand, the Saddam government deliberately reneged on its earlier promise to grant extensive autonomy to the Kurdish minority, and the regrouped Iraqi military secured a decisive victory against the Kurdistan Democratic Party forces (McDowall, 2003). We posit that these two agreement failures follow separate paths that can be explained by distinguishing the risk of involuntary defection from voluntary defection. The severity of each type of defection risk influences the likelihood of a UN peacekeeping operation, as well as its effectiveness.

5.3.1 Involuntary defection as implementation failure

Although a civil war peace agreement is often between a government and a rebel group, implementation of the agreement requires the approval and compliance of other with-in party actors as well.[31] As Bueno de Mesquita et al. (2003) argues all regimes, even the most individualistic authoritarian ones, are formed through a coalition of actors. The influence and interests of each sub-party within the ruling coalition vary during a peace process. For example, Wood (2001) shows that the gradual expansion of the influence of "economic elites" whose interests increasingly differed from "regime elites" eventually led to negotiated settlements in El Salvador.

During peace agreement implementation, actors who play a minor role during negotiations may become instrumental at the implementation stage. In other words, the interlocutors who negotiate an agreement and those who carry out policies are not necessarily the same actors. As such, implementation requires executing policies that require approval from multiple players who have autonomous *de jure* or *de facto* authorization powers. Such actors may deliberately derail the implementation process or unintentionally fail to execute required policies leading to involuntary defections (Iida, 1996).[32] We argue that the risk of involuntary defection becomes

[31] Many scholars have already highlighted this property of civil war peace processes (e.g. Darby (2001); Höglund (2008)). Darby (2001) conceptualizes successful civil conflict resolution as a compromise between the moderates of belligerent parties, reached by overriding the resistance of the zealots within each party.

[32] Stedman (1997) argues that implementation of accords can be affected by spoilers who are both inside and outside of peace process.

severe under two conditions: (1) a country with strong polarized voting, and (2) when the state capacity is very limited.

First, countries with pre-existing ethnic or political alliances can produce different degrees of involuntary defections, since such alliances can affect voter choice. Thus, the lack of self-enforcing electoral mechanisms is particularly severe in countries with ethnic minorities or deep ideological cleavages. For instance, Sisk (1996) argues that electoral competition might be related to the survival of ethnic groups in some countries. If voting outcomes reflect polarized voting rather than performance-based voting, the likelihood of involuntary defection increases.[33] For instance, ethnic politics impacted the multiparty elections in Ivory Coast before the civil war (Bah, 2010; Toungara, 2001; Woods, 2003). Polarized voting can also occur without ethnic politics. Osei (2013) discusses that patronage can also be distributed to regions, religious communities, or social groups. For instance, Senegalese democracy has been supported by an Islam that acts as pluralist clientelism (Mbow, 2008). In Senegal, since the independence in 1960, The Socialist Party (PS) has been in power until The Senegalese Democratic Party (PDS) won in the 2000 election (Galvan, 2001). The clientelist relations affected implementation of public policy several times. For example, the 1964 National Domain law was unenforced due to concerns with clientelist relations with powerful landowners such as Wolof marabouts and Tukulor *toorobe* (Beck, 2008). The presence of local PS leaders also affected in the context of conflict between the government of Senegal and the Movement des Forces Démocratiques de la Casamance (MFDC). The 1991 ceasefire between the government and MFDC was sabotaged by local PS leaders regardless of efforts made by Marcel Bassène (Beck 2008).

If a conflict country is already an established democracy, these incentives to maintain the status quo do not always result in refusing to implement policy since self-enforcing mechanisms can work through electoral mechanisms. When citizens support peace deals, but elites fail to deliver on agreed policies, the public can choose not to re-elect the politicians as a punishment strategy. If the threat of electoral loss is credible and sufficient enough to exceed any utility obtained from delaying implementation, political elites most likely will have to deliver on the agreed policies. However, many civil wars occur in countries with weak institutions (Collier and Hoeffler, 2004), and the current political system itself is the root cause of civil war in some cases, thus, self-enforcing mechanisms are insufficient or non-existent.[34] As a result, domestic actors

[33]As commitment problems at signatories, previous studies focused on power sharing deals (Hoddie and Hartzell, 2003, 2005). In our study, focus of discussions in this section is on how defections by other actors than signatories can be mitigated through self-enforcing mechanisms.

[34]Sisk and Reynolds (1998) argue that multiparty elections fail to introduce democracy and exacerbate multi-ethnic tensions.

might not comply with the agreed policies even if they do not actively pursue a violation of the peace agreement.[35]

Second, some states might simply be too weak to function and implement the peace agreement, and thus are willing to request third-party involvement (DeRouen Jr. et al., 2010). Doyle and Sambanis (2000, 2006) argue that PKOs are crucial to increase the political space for peace-building. PKOs can temporarily substitute weak state institutions and increase local capabilities as part of a more permanent solution (Dorussen and Gizelis, 2013). For instance, in the case of El Salvador, ONUSAL provided training and assistance for building the Policía Nacional Civil (PNC) and assumed some of the instrumental roles of the malfunctioning Supreme Electoral Tribunal (TSE), including compiling documents for voter registration (de Soto and del Castillo, 1995; Montgomery, 1995; Stanley and Holiday, 1997). In the case of Mozambique, because there had been no history of competitive elections before the 1994 multiparty election, which was held after The General Peace Agreement in 1992, drafting and adopting an electoral law required time, resulting in the delay in implementation (Turner et al., 1998). To support the electoral process, The Electoral Division of the United Nations Operations in Mozambique (UNOMOZ) conducted process monitoring, including verification of the election administration (Turner et al., 1998)

Actors who support an agreement have incentives to accept UN missions when there is a high risk of involuntary defection. As UN involvement significantly influences how governmental policymaking is carried out, constraints emerge with respect to policy deviations depending on who among the actors have control. For instance, United Nations Political Office / Observer Mission in Bougainville (UNPOB/ UNOMB) oversighted weapon disposal plans in the Bougainville Peace Agreement, which was signed in 2001 between Papua New Guinea and the Bougainville Revolutionary Army (BRA). The weapon disposal plan involved three stages of implementation.[36] Each stage required constitutional amendments subject to approval by the national parliament. To minimize the danger of involuntary defection, before each constitutional amendment took legal effect, it required verification by UNOMB.[37] Similarly, in the case of El Salvador, UN involvement prevented deviations in demobilization policy. After parties signing a peace agreement in 1992, the Alianza Republicana Nacionalista (ARENA) passed a law that

[35]In terms of general self-enforcing electoral mechanisms, see Ferejohn (1986). In Ferejohn's (1986) model, where voters only evaluate performance, which Ferejohn defines as "a product of policy and exogenous performance" (p.12).

[36]Letter from the Secretary-General, 23 October 2001, `http://www.un.org/en/ga/search/view_doc.asp?symbol=S/2001/988`

[37]The agreement specifically states "The Bills to amend the National Constitution will provide for the constitutional amendments to take effect on verification by UNOMB that the weapons are in secure, double-locked containers under its supervision.", Letter from the Secretary-General, 23 October 2001, `http://www.un.org/en/ga/search/view_doc.asp?symbol=S/2001/988`

would have extended the National Guard and Treasury Police (Call, 2002). ONUSAL agreed on the FMLN's view that the law was a violation of agreed demobilization policy (Call, 2002). In both cases, a relatively small UN mission was sufficient to overcome the risk of involuntary defection.

5.3.2 Implementation failure due to voluntary defection

Not all implementation failures happen due to involuntary defection. As shown by Saddam's decision to renege on Kurdish autonomy, those who negotiated an agreement may deliberately abandon their commitments. Voluntary defections occur through combinations of two paths: (1) shifts in relative power, (2) perceived violations of contracts.

Powell (1999) shows that shifts in power make players unable to commit to promises. In negotiated settlement in civil wars, voluntary defections due to shifts in power are particularly relevant. Signing a peace agreement provides opportunity to access to new resources that would have not been possible to gain should an agreement is not signed. Rebel groups can be integrated into the central government, in which accesses to other political parties or accesses to financial channels are possible, or military systems such as national armies or security sectors, in which information of securities and capacities of fighting is available. As peace agreements try to solve underlying issues at stake or root causes of conflicts, peace agreements include such political and security reforms or power-sharing arrangements. Peace agreements present new opportunities for rebel groups since the costs for fighting decrease while probability of winning increases after parties signing an agreement.

Yet, most peace agreements include provisions for demobilization (Walter, 2009a). Once rebels are demobilized, rebel groups lose soldiers and weapons. For rebel groups to renege on the agreement, the window of opportunity is before the demobilization process. Therefore, demobilization and disarmament are sometimes deployed prior to the implementation of power-sharing deals. For instance, in the case of Good Friday Agreement, disputes regarding the decommission resulted in delays in disarmament. In fact, the delay in disarmament resulted in putting on hold the power-sharing government. Governments are hesitant to put power-sharing institutions into practice unless rebels are demobilized and disarmed. However, rebels are not inclined to demobilize and disarm unless there are guarantees to minimize the likelihood of a future attack.[38] This explains how perceived violations of contracts can result in cooperation failure. A delay in disarmament of rebel groups can be perceived by a government as violations

[38]Previous literature also points out such security dilemma (Fortna, 2008).

of the deal, then the government becomes hesitant to put power-sharing into practice. Such an action by the government is further perceived by rebel groups as a violation of the deal. As a result, both parties voluntary renege on deals. This is because, as Schultz (2010) points out, if an actor ever detects a deviation from an agreed policy in a given period, then in equilibrium, the other actor attacks in the same period.[39]

In these cases of voluntary defections, higher numbers of UN personnel signal greater capacity to deter potential attacks[40], providing protection even if demobilization and disarmament are delayed; thus, facilitating the introduction of power-sharing institutions. Further, their presence encourages the introduction of power-sharing provisions by enhancing overall peace agreement implementations (Hoddie and Hartzell, 2003; Joshi et al., 2017; Ruggeri et al., 2016). Conversely, when the government has high leverage due to superior military capacity, then it can deter potential rebel attacks without the need for the deployment of UN troops. Previous studies found that UN is more likely to intervene when the government army size is small (Gilligan and Stedman, 2003; Fortna, 2004). Instead of UN troops, strong government armies might signal their capacity to deter attacks from rebel groups after the signature of peace accord.

As discussed, the higher numbers of UN personnel contribute to lowering risks of both involuntary and voluntary defections. Large scale peace-building missions temporarily substitute weak state institutions. Further, even when conflict parties have willingness to renege on deals or turn into retaliation due to perceived violations of accords, large missions play the role of deterrence and appeasement by signaling the capacity to resolve potential and actual attacks. Therefore, we derive Hypothesis 1 regarding the UN mission and accord implementation. In addition, from discussions on defections, we derive Hypotheses 2a and 2b for involuntary defection, and Hypotheses 3a and 3b for voluntary defection:

Hypotheses 1: *Higher numbers of UN personnel lead to higher level of peace accord implementation.*

Hypotheses 2a: *Higher polarized voting leads to lower level of peace accord implementation.*

Hypotheses 2b: *Higher state capacity leads to higher level of peace accord implementation.*

Hypotheses 3a: *Prospects for shifts in relative power lead to lower level of peace accord implementation.*

Hypothesis 3b: *Higher government leverage leads to higher level of peace accord implementa-*

[39] In a formal model, Schultz (2010) treats two actors as states instead of a government and a rebel.

[40] As a part of deterrence theory, Huth (1988) shows having a higher military capability of defender leads to successful deterrence.

tion.

5.4 Research Design and Results

Our theory identified two different types of defections: voluntary and involuntary. We have hypothesized that the higher risk of involuntary defections—a country with polarized society and a state with low bureaucratic capacity—lead to implementation delays. This section evaluates our hypothesis by examining if pre-agreement risk factors for involuntary and voluntary defections delay implementation, and if controlling for such defections UN missions are effective in achieving overall implementation of peace accords.

Our outcome variable is comprehensive peace agreement implementation scores. The Peace Accord Matrix Implementation Dataset provides information on the implementation of each provision in an agreement for each year for the first ten years of the agreement (Joshi et al., 2015). The level of implementation has 4 ordinal categories (0 = no implementation, 1 = limited, 2 = medium, 3 = full).[41] Following (Joshi et al., 2017), we first take the sum of all provision scores and then divide this figure by the maximum score possible (3 × number of provisions) to calculate a yearly implementation rate. We turn this implementation rate into a percentage (ranging from 0 to 100) for easier interpretation. Peace agreements may have provisions regarding UN involvement, such as the deployment of UN peacekeeping. Such provisions were removed in calculating our implementation score.[42] In the empirical model, we include the lagged dependent variable to control for autocorrelation. In addition, since the implementation score is incremental[43], the model includes y_{it-1} to the right-hand side of the equation. In our sample, there are 30 unique comprehensive peace agreements, and the time unit is year. Although there are 34 unique CPAs in the original dataset, due to missing values for covariates, the sample was reduced to 30 cases. Total number of observations is 251 after the deletion for missing values.[44] In the following subsection, we introduce the operationalization of each indicator.

[41] Although each provision is coded in the ordinal scale, using the original scale as it is not an option in our analysis. This is because our purpose is not to investigate each provision but overall implementation levels. To capture levels of overall implementation score, adjustment for comparable scales are required.

[42] Specifically, we remove provisions for UN peacekeeping and UN transitional authority. Information on these provisions is available in the original dataset (Joshi et al., 2015).

[43] In a study of budgetary processes, Whitten and Williams (2011) also include the lagged dependent variable due to its incremental nature.

[44] Those countries include: Angola, Bangladesh, Bosnia, Burundi, Cambodia, Ivory Coast, Congo-Brazzaville, Croatia, Djibouti, Guinea-Bissau, Guatemala, India, Indonesia, Liberia, Lebanon, Macedonia, Mozambique, Nepal, Philippines, Papua New Guinea, Rwanda, South Africa, El Salvador, Senegal, Sierra Leone, Sudan, Tajikistan, United Kingdom.

5.4.1 Operationalization

UN missions: Our main explanatory variable is the total number of UN personnel. We use data on UN Personnel Commitments to United Nations Peacekeeping Operations (Kathman, 2013). We use the log-transformed version of this variable. Although Hultman et al. (2014) looked at the effectiveness of UN missions to protect civilians by disaggregating missions into troops, observers, and police, our analysis focuses on the total number of UN personnel because missions have multiple purposes in the implementation stage. It is not rare that UN deployment has multiple missions regardless of the sizes. As mentioned in the introduction, the UN missions in El Salvador transformed a peacekeeping operation to a downsized mission (Call, 2002). On the other hand, downsizing the mission did not lead to a reduction of the mandated aims of the mission. For instance, the Security Council Resolution 693 (1991) established ONUSAL as an integrated peacekeeping operation, and it was followed by the Security Council Resolution 729 (1992), where the verification mandate had been strengthened in Human Rights division, which ultimately led to the additional mandate in military and police division.[45] This example illustrates that smaller missions do not necessarily lead to fewer mission mandates. Using the size of the mission in our analysis does not undermine our ability to compare the objectives of each mission in the context of peace accord implementation. In addition, because our samples include both cases where UN missions have been deployed and cases where no UN missions have been deployed, disaggregating missions by troops, military observers, and police cause multi-collinearity problems. Thus, we use the total number of UN personnel as the main explanatory variable.

As another indicator of UN missions, we include a dummy variable that takes the value 1 if there were interventions by UN political missions. Information on UN political missions was collected from the United Nations website.[46] Political missions include observer mission (e.g. United Nations Observer Mission in Bougainville (UNOMB)), United Nations Political Office (e.g. United Nations Political Office for Somalia (UNPOS)), and peacebuilding mission (e.g. United Nations Peacebuilding Support Office in Guinea-Bissau (UNOGBIS)). Therefore, in our definition, UN political missions exist without peacekeepers. For instance, in the case of Peace Agreement between the Government of Guinea-Bissau and the Self-proclaimed Military Junta, which was signed in 1998, although there were no UN peacekeepers, UNOGBIS was established to facilitate a general election and to restore stability. This distinguishes what we measure as UN personnel, from what we measure as UN political missions. While the latter includes elements

[45] see `https://peacekeeping.un.org/en/mission/past/onusalbackgr2.html`

[46] `http://www.un.org/en/sc/repertoire/subsidiary_organs/special_political_complete.shtml`

of a peacebuilding mission, such as providing technical support for constitutional reform, the former does not. We combined the information with provisions of peace agreements from PAM Dataset.

There are 12 cases out of 34 total comprehensive peace agreements where UN political missions were deployed. Although the presence of UN political mission is positively correlated with the total number of UN personnel, as mentioned, UN political missions also capture additional information that the total number of UN personnel does not capture. For instance, there are 40 observations with 6 unique CPAs, where only UN political missions were deployed. Moreover, there are 41 observations with 13 unique CPAs, where troops, military observers, and police missions were deployed without the establishment of UN political missions. Therefore, we estimate three models: Model 1 with the total number of UN personnel without political missions, Model 2 with UN political mission dummy variable without the total number of UN personnel, and Model 3 with both indicators. Although our main interest focuses on Model 3, which captures effects of peacebuilding missions as well as troops, military observers, and police missions, as one might suspect the multicollinearity problems, we also report individual effects from Model 1 and Model 2.

Involuntary defections: To measure the risk factors for involuntary defections, we use two indicators: (1) polarized voting, and (2) state capacity. For (1) polarized voting, two indicators are used in the model: the electoral component index from V-Dem Dataset version 7, and whether political power is distributed by social groups (Coppedge et al., 2017; Pemstein et al., 2018). The smaller values for this variable indicate that political power is not equally distributed across social groups. In other words, having higher values for this variable indicates a social structure where political power distribution is associated with social groups. For instance, in our sample for peace agreement implementation, countries that have the top five smallest values of this variable are South Africa, Sudan, Angola, Cambodia, and Guatemala, while the top five highest values of this variable correspond to potentially highly polarized countries such as Ivory Coast, Senegal, India, Papua New Guinea, and Sierra Leone. The complete information on the corresponding countries for this indicator is included in the Appendix. The variable is an interval scale.

In terms of an indicator for (2) state capacity, the literature on civil conflicts uses a wide range of measurements to capture state capacity. In relation to UN missions, Doyle and Sambanis (2000) use GDP per capita, energy consumption, and natural resource dependence as

indicators for local state capacity. Fearon and Laitin (2003) also use GDP per capita as state capacity in explaining civil war onset. Hendrix (2010) argues that GDP per capita is highly correlated with the rational legality of the state which captures bureaucratic and administrative capacity. Since we are interested in deviations from the agreed policies in CAP captured by the implementation rate of CAP, we use GDP per capita data to capture the bureaucratic and administrative capacity of the state. We use the data by Haber and Menaldo (2011).[47] These involuntary defection indicators are fixed at one year before the signing of the CAP in the model, since political institutions could change during the process of implementing the CAP.

Voluntary defections: To test two hypotheses related to voluntary defections, first, we operationalize prospects for shifts in relative power as an interaction between pre-accord territorial control status and post-accord power-sharing arrangements. The pre-accord territorial control is measured using the Non-State Actor Dataset (Cunningham et al., 2013). For any rebel groups that become inactive in a given year, we use the information from the last active year to extract the information. We provide detailed explanation of the measure in the Appendix. Regarding the power-sharing arrangement provisions, we take information from the PAM Dataset. In our measurement, the variable takes the value 1 if the accord included provisions for territorial or transitional power-sharing government arrangements. Next, to test the hypothesis related to government leverage, we follow the procedure by Ruggeri et al. (2013). Specifically, it is the ratio of government and rebel forces—government forces over the sum of government forces and forces of rebel groups. We use the Correlates of War Project National Material Capabilities (NMC) Data Version 5.0 to collect information on government military personnel. Since rebel groups can become inactive in a given year, we use the information of the last active year. Each rebel group's forces estimate was obtained from the Non-State Actor Dataset (Cunningham et al., 2013). This approach allows us to capture status quo information during conflicts. Since our models control for battle-related deaths in a given year, our model still can account for whether the conflict was active or inactive. The information on battle-related deaths comes from the UCDP Battle-related Deaths Dataset version 17.2 (Allansson et al., 2017).

In addition, we control for population size from Haber and Menaldo (2011) as a proxy for the onset of civil war (Collier and Hoeffler, 2002, 2004). Hultman et al. (2014) also found that larger populations are associated with higher levels of violence. Although we focus on the implementation of CAP, even if all warring parties are included in CAP, it is likely that other rebel groups

[47]For the case Good Friday Peace Agreement, instead of the United Kingdom's GDP per capita, we use Ireland's GDP per capita to adjust the level of outlier.

might emerge during the process of implementation. Although we are unable to measure the presence of such newly emerging factions, our models include time variant battle-related deaths variable at the country level, which is an indicator that captures whether the peace process is spoiled with violence. In addition, because our model includes time variant battle-related deaths at country levels, the death toll indicator will be able to capture whether peace accord implementations are spoiled by violence. As additional control variables, we use the log of time from the onset of the conflict to control the effect of the duration of war on UN intervention (see Gilligan and Stedman (2003)). Finally, number of rebel groups are also included as a control variable.[48] Descriptive statistics of all covariates are in Appendix.

5.4.2 Results and discussions

Table 5.1 presents results for pooled OLS for comprehensive peace agreement implementation scores. To account for cross-sectional heteroskedasticity and correlation, we estimated a robust covariance matrix of parameters according to the method by Beck and Katz (1995). Although we have employed different methods for robustness checks that account for further potential bias, since our main results are consistent across different models, we present the pooled OLS as the main model due to simplicity in interpretation. Model 1 includes total UN personnel as the main explanatory variable. Then, Model 2 replaces total UN personnel with UN political mission dummy variable. Finally, Model 3 includes both total UN personnel and UN political mission variables.

Looking at Tables 5.1 shows that, as anticipated the lagged implementation score has a positive effect on the implementation score across all models. This is consistent with the process of peace accord implementation that tends to be incremental. Regarding the total number of UN personnel, the coefficients in models 1 and 3 are positive and statistically significant at 99% confidence level. To illustrate the effects of UN personnel on implementation score, we plot changes in expected value of implementation scores (%) with respect to different values of UN total personnel. The values were obtained from 1000 simulation from the Model 3. The values of other variables are held at their mean values. The findings support Hypothesis 1 that higher numbers of UN personnel lead to higher overall implementation scores. Our findings contradict the Joshi et al. (2017) study which shows a negative effect of UN peacekeeping

[48]For the case of India, because measuring the entire India's region with respect to the number of rebel groups resulted in including many irrelevant groups, we adjusted the number of rebel groups based on the location where the Bodo Peace Accor was signed. Appendix provides details.

on implementation rates. Regarding political mission dummy variable, it is not significant in Models 2 and 3. Because this variable was included to control for other effects of UN missions than our main total UN personnel indicators, and the simple dummy variable was used as the measurement for political missions, in the future analysis, further investigations are required to precisely evaluate the effect of political missions.

Table 5.1: **Linear Pooled OLS for Comprehensive Peace Agreement Implementation Scores**

	Implementation Score					
	Model(1)		Model(2)		Model(3)	
y_{t-1}	0.805***	(0.029)	0.787***	(0.003)	0.803***	(0.028)
ln UN total	0.362***	(0.104)			0.373***	(0.107)
UN political mission			0.672	(0.898)	0.938	(0.857)
ln battle deaths	-0.179	(0.174)	-0.186	(0.180)	-0.128	(0.174)
ln GDP p.c.	1.646***	(0.683)	1.523**	(0.649)	1.768***	(0.674)
ln population	-0.024	(0.397)	-0.294	(0.420)	-0.081	(0.420)
Electoral index	-5.313**	(2.630)	-5.020*	(2.642)	-5.347**	(2.611)
Social groups power	-1.433***	(0.569)	-1.464**	(0.596)	-1.472***	(0.563)
Territorial control	4.011***	(1.067)	3.730***	(1.156)	3.789***	(1.137)
ln conflict duration year	-1.773***	(0.385)	-1.491***	(0.438)	-1.631***	(0.409)
Leverage	5.528**	(2.343)	4.135*	(2.492)	5.568**	(2.400)
Number of rebel groups	-2.292***	(0.452)	-2.100***	(0.487)	-2.225***	(0.479)
Power-sharing provisions	5.841***	(1.267)	5.661***	(1.313)	5.331***	(1.408)
Territorial control*PS provision	-4.041**	(1.432)	-2.708*	(1.505)	-3.761**	(1.567)
Constant	7.824	(8.394)	14.78*	(7.898)	7.504	(8.316)
Observations	51		251		251	
R^2	0.930		0.927		0.930	
Adjusted R^2	0.926		0.923		0.926	

*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

Next, we discuss results for the involuntary defection indicators. The results support Hypothesis 2a that higher polarized voting leads to lower rate of overall implementation score. When a country's political power is distributed across social groups, compared to a country with monopolized political power, the level of overall peace accord implementation is low (social group power, negative and significant at least 95% confidence level in all models). In addition, higher levels of electoral democracy lead to lower levels of implementation scores (electoral index, negative and significant at 95% confidence level in Models 1 and 3). The finding reflects cases such as Ivory Coast where ethnic voting impacted the multiparty elections (Bah, 2010; Toungara, 2001; Woods, 2003). Thus, our findings suggest that group dynamics leading to involuntary defections will impact both the likelihood of war and the implementation of an accord.

Regarding the impact of state capacity on implementation (Hypothesis 2b), all models show that GDP per capita has positive effects on accord implementation (significant at least 95%

confidence level). The finding is in line with the previous findings by DeRouen Jr. et al. (2010), who report a positive effect of high state capacity on accord implementation. Because GDP per capita captures bureaucratic capacity according to Hendrix (2010), in future analysis, disaggregating bureaucratic capacity might help clarifying the relationship between bureaucratic capacity and accord implementation.

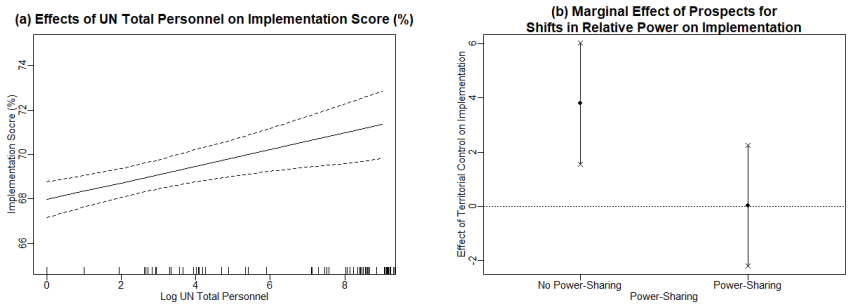

Figure 5.1: Plots for effects of UN total personnel on implementation score, obtained from Model 3 (Left pane). Coefficients were simulated from multivariate normal distribution with μ = point estimates, Σ = covariance matrix obtained by the method of Beck and Katz (1995). Right figure shows how marginal effect of pre-accord territorial control changes depending on prospects for power-sharing arrangements.

Now, we turn our discussion on to voluntary defection indicators. Higher leverage leads to higher overall implementation scores (Models 1 and 3, significant at 95% confidence level). Combined with finding about the UN total personnel, results generally support theories of deterrence that higher number of military troops can deter potential attacks, which can result in cooperation failure during peace accord implementation phases. Regarding prospects for shifts in relative power, we obtain statistical support for Hypothesis 3a. Figure 5.1 (b) shows how the marginal effect of pre-accord territorial control by rebel groups on CPA implementation changes depending on post-accord power-sharing arrangements. When there is no power-sharing arrangement, when rebel groups control for territory before the peace accord is signed, implementation score increases around four percentage points on average, compared to the case when there is no prior territorial control. On the other hand, such effect becomes not significant when there are post-accord power-sharing arrangements. These imply that while power-sharing arrangement itself has positive effect on overall implementation score, when it is combined with pre-accord history of territorial control by rebel groups, the positive effect decreases.

Control variables also provide inside into challenges of accord implementation in relation to conflict characteristics. With regard to the number of rebel groups, it is negatively associated with implementation score at 99% confidence level in all models. The results consistently show that the longer the conflict, the lower the levels of implementation score (significant at least 99%

interval levels in all models). This is in line with our theoretical expectations that mistrust can lead to cooperation failures even when the parties have agreed on the terms of the agreement. Longer conflicts fuel mistrust among actors, creating conditions where perceived violations of contracts can lead to voluntary defections, and ultimately failures to cooperate and implement the CAP.[49] This finding highlights the dilemmas of reaching a settlement. Negotiated settlements are more likely to occur when parties reach hurting stalemate (Zartman, 2008). On the other hand, long lasted conflicts often lead to more rigid sociopsychological structures and mental states that members of communities and elites use to frame interactions with opponents and filter information. Such hardening of perceptions and interpretation of experiences leads to further mistrust rendering the implementation of accords difficult (Bar-Tal, 2007). With respect to population, it is not significant in all models. This implies the size of population is more relevant when it comes to mobilization of civilians, but is less important when it comes to the implementation process of CAP. In addition, battle-related death is also not significant in all models.

We show robustness checks in the Appendix. In Appendix, first we employed a random effects model. Results obtained from random effects model was consistent with the main analysis. Further, to account for potential Nickell bias, as robustness checks, we use the System Generalized Method of Moments (GMM), proposed by Arellano and Bover (1995) and Blundell and Bond (1998). The positive and significant effect of total UN personnel on implementation scores remains robust to most of specifications and estimations. To check whether there is no serial correlation in the error term, we examined the second-order correlation in differences, and our model report p-value greater than 0.1 for autocorrelation test (Arellano and Bond, 1991), implying no second-order serial correlation. In addition, to ensure that the instruments are not correlated with the error term, we employed Hansen-Sargan test of over-identifying restrictions (Hansen, 1982; Sargan, 1958), where we obtained high p-value, supporting the instrumental validity. However, there is a concern for the number of instruments used for the system GMM. Because these robustness checks are in alignment with the results from pooled OLS with a heteroskedastic-consistent covariance matrix, this simple model is presented as the main table.

[49]For emotions in conflicts and sociopsychological structures, see Bar-Tal (2007) and Halperin (2008).

5.5 Conclusion

In this paper we investigate whether third-parties, specifically the UN, make a difference in the implementation of peace agreements. Using Putnam (1988) we develop a theoretical framework to unpack the commitment problems that emerge during peace accord implementation. We identify two separate processes: involuntary and voluntary defections. While most of the literature on civil wars predominantly focuses on voluntary defections where actors have an incentive to renege on agreements, our theory suggests that involuntary defections matter a lot in policy making through the implementation process. We particularly emphasize two processes where we can observe involuntary defections and deviation from agreed policies in CAP: (1) when a country is polarized, and (2) when the state capacity, measured by GDP per capita, is low. We also argue that UN missions can address such policy deviations through oversight mechanisms, as cases like the Bougainville Peace Agreement (UNPOB/UNOMB) or Chapultepec Peace Agreement (ONUSAL) illustrate.

Our empirical findings support our theoretical claims. First, overall UN missions increase the likelihood that peace accords will be implemented. This finding is contrary to insights by recent quantitative studies (Joshi et al., 2017). By unpacking the types of commitment problems emerging in the implementation phase of a peace agreement, our findings suggest that involuntary defections can be a much more serious challenge to the implementation of peace agreements. Although such pre-existing social structure might not be apparent before the administration of elections, looking into such a social structure might be able to provide expected consequences of elections and following potential deviations in implementation. Third, during the post conflict phase, policies to enhance the bureaucratic capacity of a state are important to establish self-enforcing peace. On the other hand, as it has seen in many civil conflicts, weak state capacity is the cause of conflict itself. It would be required to take into account the effectiveness of third-parties in terms of enhanced bureaucratic capacity.

5.6 Acknowledgement

We would like to greatly thank Todd Sandler for valuable comments and feedback. We also would like to thank for participants at the ISA 2018 Annual Conference, and participants at Political Violence and Policy: Eighth Conference 2018 and anonymous reviewers for their suggestions and comments.

5.7 Appendix

5.7.1 Measurement details

Regarding measurement for rebel characteristics, we used Non-State Actor Dataset (Cunningham et al., 2013). The original dataset contains information on duration of active years of each rebel group. Therefore, variable *Number of rebels* counts the number of active rebel groups in a given year in a country. As mentioned in the main text, we fixed this information at the last active year of conflict. For instance, if there were active rebel groups in a country before 1989, and there appeared new rebel groups after 1999, between 1990 and 1998, the information is fixed at the status quo of 1989. It only becomes non-static when there are changes in number of rebel groups in a given year, while conflicts are ongoing. In using this variable, since we are controlling for battle related deaths, which capture whether rebel groups stopped fighting, our model still account for dynamics of conflict. This allows us to capture the pre-comprehensive peace agreement status quo of rebel characteristics.

Regarding the case of India, according to the Non-State Actor Dataset, there were 9 active rebel groups when the Bodo Peace Accord was signed in 1993. However, Bodoland is located in the east part of India—the right hand side of Bangladesh—, and not all those rebel groups are located bear the region. To adjust the number of rebel groups, we used UCDP Georeferenced Event Dataset (GED) Global version 18.1 (Croicu and Sundberg, 2017; Sundberg and Melander, 2013) and identified median latitude and longitude of event locations for those rebel groups. Because only 5 out of 9 groups' events were conducted the east side of India, the number of rebel groups for India is adjusted as 5 instead of 9 in our dataset (Figure 5.2).

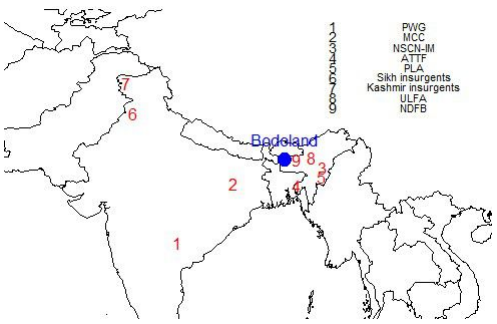

Figure 5.2: Median values of locations for 9 rebel groups who were active when Bodo Peace Accord was signed in 1993.

5.7.2 A list of countries and a variable, power distribution among social groups

The below was obtained from samples used for the empirical analysis, and the information is static at one year before the comprehensive peace accord was signed.

Country Name	Political power distribution among social groups
South Africa	0.151
Sudan	0.342
Angola	0.558
Cambodia	0.578
Guatemala	0.682
Philippines	0.979
Croatia	1.056
Tajikistan	1.158
Djibouti	1.299
Guinea-Bissau	1.312
Congo-Brazzaville	1.507
Rwanda	1.509
Liberia	1.556
Bosnia	1.599
Macedonia	1.848
Lebanon	2.090
El Salvador	2.093
United Kingdom	2.105
East Timor	2.289
Niger	2.319
Indonesia	2.325
Burundi	2.336
Mali	2.359
Mozambique	2.361
Nepal	2.384
Bangladesh	2.476
Sierra Leone	2.618
Papua New Guinea	2.871
India	2.977
Senegal	2.999
Ivory Coast	3.334

5.7.3 Descriptive statistics

Statistic	N	Mean	St. Dev.	Min	Max
Implementation score	279	65.968	21.594	1.961	95.833
UN total personnel	279	1,685.404	3,927.456	0.000	18,427.6
UN political mission	279	0.269	0.444	0	1
GDP p.c.	279	3,167.087	3,729.251	394.67	19,844.4
Electoral index	279	0.439	0.218	0.133	0.874
Population	279	55,509,137	169,090,364	610,875	898,400,000
Social groups power	279	1.749	0.853	0.151	3.334
Battle deaths	279	150.437	454.315	0	3,974
Conflict duration year	279	12.606	11.179	0	37
Territorial control	279	0.548	0.499	0	1
Number of rebel groups	279	1.667	0.993	1	5
Power-sharing provisions	279	0.599	0.491	0	1
Leverage	279	0.726	0.214	0.099	0.999

5.7.4 Random effects model for comprehensive peace agreement implementation scores

	Implementation Score					
	Model(1)		Model(2)		Model(3)	
y_{t-1}	0.728***	(0.023)	0.712***	(0.022)	0.725***	(0.023)
ln UN total	0.276**	(0.135)			0.286**	(0.136)
UN political mission			0.709	(1.251)	1.021	(1.263)
ln battle deaths	-0.249	(0.205)	-0.240	(0.213)	-0.203	(0.213)
ln GDP p.c.	1.982***	(0.728)	1.932***	(0.740)	2.119***	(0.751)
ln population	-0.118	(0.487)	-0.340	(0.485)	-0.178	(0.496)
Electoral index	-7.070**	(3.007)	-6.920**	(3.002)	-7.134**	(3.032)
Social groups power	-1.546**	(0.704)	-1.597**	(0.706)	-1.598**	(0.712)
ln conflict duration year	-2.188***	(0.630)	-1.947***	(0.656)	-2.045***	(0.663)
Number of rebels	-2.825***	(0.641)	-2.687***	(0.647)	-2.763***	(0.653)
Territorial control	4.297**	(1.711)	4.043**	(1.733)	4.064**	(1.751)
Leverage	7.330**	(2.977)	6.33**	(2.940)	7.433**	(3.000)
Power-sharing provisions	7.018***	(1.694)	6.824***	(1.810)	6.508***	(1.834)
Territorial control*PS provisions	-4.042*	(2.089)	-2.966	(2.076)	-3.779*	(2.131)
Constant	12.531	(9.006)	17.928**	(8.581)	12.288	(9.087)
Observations	251		251		251	
R^2	0.890		0.889		0.889	
$AdjR^2$	0.840		0.839		0.836	

*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

5.7.5 System GMM for comprehensive peace agreement implementation scores

To account for Nickell bias, as robustness checks, we use System Generalized Method of Moments (GMM), which was proposed by Arellano and Bover (1995) and Blundell and Bond (1998).

	Implementation Score					
	Model(1)		Model(2)		Model(3)	
y_{t-1}	0.883***	(0.034)	0.882***	(0.036)	0.890***	(0.033)
ln UN total	0.298**	(0.200)			0.300**	(0.117)
UN political mission			-0.210	(1.403)	-0.107	(1.326)
ln battle deaths	0.118	(0.172)	0.103	(0.188)	0.134	(0.184)
ln GDP p.c.	1.861***	(0.460)	1.931***	(0.510)	1.799***	(0.502)
ln population	-0.009	(0.205)	0.035	(0.225)	-0.016	(0.234)
Electoral index	-6.171***	(2.338)	-6.050**	(2.814)	-5.989***	(2.211)
Social groups power	-0.331	(0.609)	-0.277	(0.569)	-0.303	(0.587)
ln conflict duration year	0.969*	(0.538)	-0.980*	(0.549)	-0.943*	(0.567)
Number of rebel groups	-1.319**	(0.513)	-1.242**	(0.501)	-1.290***	(0.491)
Territorial control	1.596	(1.275)	1.467	(1.261)	1.573	(1.200)
Leverage	1.608	(2.704)	0.090	(2.814)	1.523	(2.580)
Power-sharing provision	3.166***	(1.147)	3.452***	(1.320)	3.099**	(1.246)
Territorial control*PS provision	-1.715	(1.306)	-0.824	(1.372)	-1.705	(1.313)
Observations	251		251		251	
AR(1)	p=0.026		p=0.031		p=0.026	
AR(2)	p=0.139		p=0.120		p=0.142	

*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

6 Conclusion

Conflict resolutions have various outcomes. What constitutes dissolution of conflict over government in civil wars depends on phases of process towards conflict terminations. An outcome of conflict resolutions at one point in time does not simultaneously facilitate any ensuing phases of conflict termination. On the other hand, depending on how it is solved, it affects the following phases, as well as other parties' perceptions of conflict in the same phase.

This dissertation has investigated how and why political incompatibilities are solved once a civil war starts against a regime, by measuring various outcomes as dissolutions of conflict. Comparing mechanisms explained in Chapter 2 and Chapter 3 yields an implication that a power-sharing arrangement is introduced as the first step towards democratization managing the immediate interests of conflict parties (Chapter 2), and increasing representations in the government (Chapter 3). However, in introducing power-sharing arrangements, there are variations in security dilemmas to be overcome within types of power-sharing deals. Especially, an arrangement for autonomy in policy making requires additional security dilemmas to be overcome. From a perspective of government, allowing autonomy at a local level can be pareto optimal if dilemmas are overcome, as those groups who are granted autonomy have better information on the preferences of communal groups. Yet, such an arrangement becomes worse if the prospect for not reneging on the deal is low. Chapter 3 finds that when rebel groups are able to pre-commit their moderate bargaining positions and when their demands are based on communal groups (e.g. Zapatista revolt), the power-sharing arrangement that allows autonomy in decision-making at a local level increases the duration of peace.

In some cases, the security dilemma itself is the perceived incompatibility during ongoing conflict, making a rebel group demand for military power-sharing as its committed bargaining position (Chapter 4). However, even if parties are reluctant to make concessions in issues related to security, such as power-sharing in the national army, a cooperation appears in areas of compatible interests, such as judicial power-sharing (e.g. Burundian conflicts). However, the security dilemma, which can be also rephrased as voluntary defections (Chapter 5), is not the only source of cooperation failure. There is another key trigger, especially during the post-conflict phase, where mistrust among conflict parties is high. As implementing policies agreed among conflict parties involves the decision-making of participants who have autonomous authorization powers, deviations from agreed policies are caused by involuntary defections as well as by conventional voluntary defections (Chapter 5). Chapter 5 illustrates that larger UN missions can enhance the level of peace accord implementation by mitigating cooperation failure due to

those types as defections.

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