

# **It Takes Two: A Dyadic Analysis of Civil War Duration and Outcome\***

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## **Abstract**

Theories of conflict emphasize dyadic interaction, yet existing empirical studies of civil war focus largely on state attributes and pay little attention to non-state antagonists. We recast civil war in a dyadic perspective, and consider how non-state actor attributes and their relationship to the state influence conflict dynamics. We argue that strong rebels, which pose a military challenge to the government, are likely to lead to short wars and concessions. Conflicts where rebels seem weak can become prolonged if rebels can operate in the periphery so as to defy a government victory yet are not strong enough to extract concessions. Conflicts should be shorter when potential insurgents can rely on alternative political means to violence. We examine these hypotheses in a dyadic analysis of civil war duration and outcomes, using new data on non-state actors and conflict attributes, finding support for many of our conjectures.

Keywords: civil war, conflict termination, conflict outcome, rebels, non-state actors

## Introduction

The problem of civil war has received considerable attention in conflict studies over the last decade. However, much of the literature has treated civil war in a non-strategic manner, focusing on national attributes or structural features of the nation-state as a whole. Comparative studies examining how aggregate national characteristics—such as the level of development, regime type, and ethnic constellations—may contribute to violence have taught us many interesting things about civil war. However, the failure to specify *who* fights in civil wars ultimately makes it difficult to come up with good answers as to *why* we see civil wars in some countries and not others. To understand why civil wars occur and how they unfold we need to understand the underlying strategic interactions leading up to the onset, duration, and eventual termination and outcome of a conflict. Stated differently, we need to account for why some groups use violent over non-violent means to pursue their demands, why states sometimes successfully reach settlements with rebel groups and sometimes not, and why some groups can sustain long conflicts against the government while others are quickly defeated.

General theories of conflict tend to be dyadic. Civil war interactions between a state and a rebel group have been analyzed from a bargaining perspective in ways similar to interstate conflict, where the onset, continuation, and final outcome of violence are a function of the relative capabilities of the two antagonists, their resolve, and their respective information about each other (see, e.g., Fearon 1995; Lake 2003; Most and Starr 1989).<sup>1</sup> Yet, even a cursory look at empirical studies of civil war reveals considerable mismatch between the dyadic nature of theories of conflict and the actual research designs used in testing hypotheses (see, e.g., Sambanis 2002 for a comprehensive review of this literature). For example, Fearon and Laitin (2003) advance an insurgency explanation of civil war, where they emphasize how violence becomes more likely

when the state is unable to deter or repress challengers due to its weakness or lack of capabilities. Yet, their indicators are invariably national-level characteristics of the country as a whole such as mountains, GDP per capita, and natural resources. These aggregate indicators are intended to proxy for dyadic constellations between states and rebels believed to make violence more likely, but do not take into account actual characteristics or interactions between the parties, and indeed, can be interpreted in various ways. Moreover, there is a strong tendency in empirical studies to focus exclusively on characteristics of governments — for instance, the size of standing armies and degree of institutional democracy — and neglect attributes of rebel groups in civil wars.

This discrepancy between theoretical propositions and empirical research makes the interpretation of several existing empirical findings highly ambiguous. For example, Fearon and Laitin (2003), interpret the negative relationship between GDP per capita and civil war to be due to the deterrent function of state strength, while Collier and Hoeffler (2004) interpret the same finding as evidence that higher opportunity costs make fighting less attractive to individuals. Similar controversies have emerged for other empirical findings such as the relationships between political regimes, natural resources, and civil conflict.

We believe that the aggregate cross-country approach to studying civil war may be rapidly approaching a state of diminishing marginal returns. A promising alternative is to disaggregate the study of war below the level of entire countries and consider the underlying interactions and mechanisms underpinning theories of conflict. In this paper, we move beyond the country characteristics approach to civil war, and recast civil conflicts in a more clearly dyadic perspective. We argue that the outcome and duration of civil wars is a function of the balance of military capabilities between states and rebels as well as incentives to find peaceful settlements.

We use new data on rebel organizations to analyze war duration and outcome to assess why *particular* rebel actors are defeated, emerge victorious, or are given concessions by the state in a negotiated settlement. Work on asymmetric warfare has focused on how particular strategies and conditions can allow weak parties to prevail against stronger opponents (e.g., Arreguin-Toft 2001, Mack 1975). However, data availability has prevented researchers from systematically considering civil conflicts, where one of the parties is not a state. Studies that have analyzed civil war duration and outcome also typically lump the opposition together as “rebels” and only include indicators of state strength and aggregate country-level variables (see DeRouen and Sobek 2004; Mason and Fett 1996; Mason, Weingarten, and Fett 1999). Although these studies have been quite useful, aggregating groups under the heading “rebels” and looking only at government or country-level characteristics obviously cannot account for variation in conflict duration and outcome across groups. For instance, in the conflict over the status of Mindanao — a majority Muslim region in the south of the Philippines — while the Moro National Liberation Front signed an autonomy agreement with the central government in 1996, the Moro Islamic Liberation Front and the more extreme Abu Sayyaf Group continued militant activities. Some studies have looked at violent conflict patterns using ethnic groups as the unit of analysis, typically based on the Minorities at Risk (MAR) data (see Ayres and Saidemann 2000; Gurr 2000; Toft 2003). However, not all civil wars are organized around ethnic lines. Moreover, these studies treat groups as unitary. However, violent organizations that claim to represent a group — such as the groups that continued fighting in Mindanao — often have a narrow base of supporters among the purported constituents, and different organizations that claim to represent the same group often spend as much time fighting one another as the government.

In this paper, we develop a theory that explicitly examines the relationship between the government and rebels by focusing on the ability of states to defeat rebels and the incentives that both sides have to negotiate peace. We develop propositions about how specific characteristics of state-insurgent dyads may affect these factors. We then examine our propositions in an analysis of conflict duration and outcome using new data on conflict attributes and characteristics of non-state actors in civil wars. Our study is the first dyadic approach to examining why some rebel groups survive and continue fighting while others are defeated quickly, why some rebels are able to defeat the government, and why states accommodate some rebels, but not others.<sup>2</sup> Our findings suggest that governments are more likely to win conflicts early on, but that their chances of prevailing militarily drop off precipitously over the course of the war. Strong rebels tend to fight short wars, and are more likely to gain concessions or win decisive victories. We also find that civil wars are longer when rebels are weaker than the government but control territory in the periphery, and when they do not have the option of using political means to advance their demands.

## **Explaining Conflict Duration and Outcomes**

We start from a simple conceptual model of interactions between a government and a potential insurgent group to explain conflict duration and termination (see, among others, Lichbach 1987; Moore 2000; Sandler, Tschirhart, and Cauley 1983; Werner and Yuen 2005 for similar representations). A potential rebel group has policy goals or grievances that they wish to be addressed, which in turn translate into some demand on the government.<sup>3</sup> Groups can pursue their aims through multiple avenues other than violence, including formal petitions and lobbying as well as irregular political activities such as demonstrations and strikes. Groups will be more inclined to rebel if non-violent means are costly and unlikely to be effective, and if they expect to be able to

mount a military challenge that affords some prospect of extracting concessions or defeating the government outright (see Moore 1998; Tilly 1978). For its part, a government can accommodate opposition demands and reach a compromise, or resort to violent repression to deter or defeat armed insurrection. Repression is obviously much more likely than accommodation if a government does not expect insurgents to be capable of mounting an effective challenge that would seriously threaten it, and accommodation would entail unpalatable political costs (see AUTHOR; Mason and Krane 1989). Thus, the combination of social discontent, lack of peaceful alternatives, unwillingness to accommodate the opposition, and failure to deter violence interact to result in the outbreak of civil conflicts.

Once conflict is underway, violence will continue until one side is defeated, or until actors agree to come to the bargaining table and find a negotiated settlement. Just as with conflict onset, during each stage in a civil war actors deliberately choose between violence and alternative strategies. Actors will opt for a negotiated settlement if all can agree that finding a political solution is more attractive than continued violence. Hence, both military and political factors will influence the duration and outcome of civil war. On the military side, we can distinguish between insurgent effectiveness in targeting the vital interests of the government and tactics that prevent the defeat of the insurgency, i.e., the rebels' offensive and defensive capabilities. We discuss these military and political factors below.

#### *Power to target vs. power to resist*

The decision to resort to violence will hinge on an actor's vulnerability to attacks from the other party to the conflict. In our view, this is not likely to be symmetric for the government and rebel side in civil wars. Rebel groups typically start off weak relative to the state, and launch a rebel-

lion with the expectation that they will be able to mobilize a sufficient military threat to achieve their objectives. If rebels are not defeated at the beginning of the conflict but able to survive the initial period of vulnerability, the prospects for a government victory become increasingly poor. Rebels that succeed in mobilizing large forces and are strong in the sense of being able to effectively target the government militarily can potentially undermine the state by either winning directly, or by creating threats to unseat the government from challengers questioning its competence (AUTHOR). Hence, governments have incentives to accommodate relatively stronger rebels who are able to force concessions. In addition, rebels that are able to mobilize rapidly and gain a significant offensive advantage are more likely to win decisive victories.

By extension, weak opposition groups that do not have much hope of successful military mobilization should be unlikely to rebel. At the outset, however, there is often considerable uncertainty as to how strong the rebels will become at some point in the future (Bapat 2005; Werner and Yuen 2005). Hence, rebels can overestimate their ability to attract popular support and remain weak. Although weak groups may be less likely to rebel, the relationship between militarily weak rebels and the likelihood of conflict termination is more ambiguous. The prospects for ending conflict ultimately depend on the rebels' willingness to lay down arms. Governments often have few incentives to provide any meaningful concessions to weak rebels – indeed, they may even face high costs for doing so that outweigh the benefits of ending low-level rebel violence. States are often unwilling to negotiate with groups deemed to be illegitimate and “extreme” (Bapat 2005). In addition, states may want to demonstrate their resolve to other potential challengers. Walter (2006) and Toft (2003), for example, argue that governments will be particularly unwilling to offer concessions when they wish to establish a reputation for resisting group



demands. For their part, rebels have few incentives to unilaterally disarm without credible guarantees that they will not become victims of government persecution (Walter 1997).

Even if governments have few incentives for offering settlements to militarily weak rebels, why could they not just defeat them outright? An important reason for why power asymmetries in favor of the government do not necessarily translate into shorter wars stems from differences in fighting conventional military operations versus counter-insurgency campaigns. Whereas a government is clearly defeated if out of power, rebels might lose a series of battles, yet withdraw into hiding where they eventually can regroup and continue fighting. Small insurgent groups operate clandestinely, lack clear military targets such as bases and expensive equipment, and can often blend into a host population. Defeating a small insurgency requires careful policing rather than decisive military battles. This suggests that the strength of the rebels relative to a government must be understood along two separate dimensions; namely, offensive strength, or the ability to inflict costs on a government in the center, and the ability to resist or evade government repression in the insurgent's "home" territory in the periphery and the underground.

These two dimensions of strength *are not* the same or necessarily co-varying. In particular, governments are often reasonably effective in their capital cities, yet not able to punish rebels outside of the center. In some cases, rebels may be able to gain territorial control over areas in the periphery of a state in regions that lack effective government control. For instance, the Colombian Fuerzas Armadas Revolucionarias de Colombia (or FARC) have not been able to capture significant cities. Yet, the government remains unable to completely root them out of their core territory. Colombia is not a particularly weak state, but lacks the ability to defeat the insurgents in remote rural regions.

Rebel groups have many tactical advantages in civil wars where central control over peripheral areas is weak. Territorial control can provide rebels considerable security from the reach of the government, even if they seem “weak” in a conventional military sense. However, unlike high offensive strength, the ability to resist is far less likely to translate into success at the negotiating table or concessions from a government. As such, we may see long conflicts where rebels are *too weak* to extract concessions or obtain negotiated settlements, yet *too secure* to easily be eradicated by governments. Governments have few incentives for offering agreements to such rebels, and rebels have few incentives to stop fighting without concessions and security guarantees. Variation in these two characteristics of rebel strength cannot be adequately proxied by the usual “state strength” measures such as GDP per capita, but should be identified separately.

### *Violence and the price of its alternatives*

The opposition’s incentives to use violence are not only based on an assessment of their military capabilities, but also of the attractiveness of violent means relative to its alternatives. Violence and non-violence are not mutually exclusive; rather, violence is one of a set of strategies that groups can use to advance their goals. Potential rebels can compete politically, organize strikes or protests, or commit civil disobedience. Once conflict breaks out most groups continue to use some mix of violent and non-violent strategies to advance their goals; and, indeed, many analyses suggests that non-violence often may be more effective (e.g., Chenoweth and Stepan 2008, Sharp 1973). The ability of states to deter violence, then, does not follow directly from the absolute costs of violence, but also the viability and costs of alternative political strategies. Rebels will be more likely to substitute non-violent political strategies for violent means if they anticipate being able to achieve their goals through non-violent means. A fundamental barrier to set-

lements is that governments may not permit peaceful avenues for groups to further their political demands, instead preferring to use repression alone. Paradoxically, the relative attractiveness of violence can actually increase with state repression if the relative costs of non-violent alternatives increase more (see Sandler et al 1983). Government coercion, especially if indiscriminate, often leads moderates to seek safety by joining militants (see Mason and Krane 1989).

This trade-off between repression and accommodation has been a central focus of studies on the relationship between democracy and violence (see, e.g., Hegre et al. 2001; Hibbs 1973; Muller and Weede 1990). Strong autocracies are sufficiently repressive to deter political dissent while democracies provide peaceful avenues for political influence and face constraints on the use of force. Anocracies, or semi-autocracies, are seen as conflict-prone due to the combination of insufficient repressiveness to deter insurrection and a lack of political openness, and many have argued that one should expect an inverted u-shaped relationship between measures of democracy and civil war. Yet, the inverted u-curve has been used to capture *both* the deterrent capacity of states *and* state accommodation, which we believe should be considered separately rather than proxied by democracy alone (e.g, through the Polity index). Moreover, the two are not as closely linked as often assumed by researchers.

Since the ability to repress can vary considerably within the territory of states, it does not follow that autocratic and highly repressive governments are necessarily effective in defeating groups in peripheral areas. Moreover, even “accommodative” democracies often impose limits on the groups that they will recognize. For example, even after the restoration of democratic institutions, Turkey has harshly repressed Kurdish political figures believed to be associated with the separatist Kurdish Worker’s Party (PKK). Even established democracies have banned organizations believed to be associated with “subversive” unconstitutional activities.<sup>4</sup> By contrast,

some undemocratic countries have provided opposition groups with room for promoting their aims by non-violent political means. South Africa, for example, lifted the ban on the African National Congress (ANC) several years before the introduction of competitive elections with universal suffrage. Just as we need to disaggregate dimensions of state and rebel strength, we should consider the ability to repress and the use of non-violent accommodation separately rather than proxy both by democracy.

### *Implications*

From the above discussion we derive several implications about the relationship between dyadic characteristics and the duration and outcome of civil war. In our theoretical argument, we focused on three factors that affect how long conflict lasts between the government and a non-state actor; the rebels' ability to target the government militarily, their capacity to resist attacks from the government, and the availability of non-violent strategies to press their demands. This analysis leads to three hypotheses about the *duration* of civil war. First, conflicts will be shorter when rebels have a greater ability to target the government through violence:

Hypothesis 1: Conflicts between governments and strong rebels will be shorter.

As we argued, however, it is important to disaggregate rebel "strength" into two dimensions, since even weak rebels that operate outside of the reach of the state can fight longer civil wars.

Hypothesis 2: Conflicts between governments and rebels that control territory in the periphery will be longer.

Military capability is not the only factor that affects the duration of conflict, since groups consider a variety of strategies for pursuing their goals. When groups have additional options beyond violence, they are likely to fight shorter wars.

Hypothesis 3: Conflicts will be shorter when the rebels have greater opportunities to substitute non-violent activities for violence.

Our theoretical argument also leads to four predictions about the *outcome* of these conflicts. First, because rebels tend to start off weak and gain in strength over time, we expect government victories to be less likely the longer a conflict lasts. If rebels survive their initial period of vulnerability, they are less likely to be defeated as time progresses.

Hypothesis 4: The longer conflicts last, the less likely they are to end in government victory.

Second, we predict that wars involving strong rebels will make a decisive military outcome more likely, *either for the rebels or for the government*. Clearly, rebels are more likely to prevail outright the stronger they are, but also, strong rebels fight conventional wars with decisive outcomes on the battlefield; their forces can be more easily targeted. Such conflicts will resemble international wars, with outcomes determined through conventional military tactics or

formal negotiations, rather than rooting out clandestine insurgents in the underground. Otherwise, conflicts are likely to linger and peter out due to low activity.

Hypothesis 5: Conflicts are more likely to end in a decisive outcome—government victory, rebel victory or negotiated agreement—when rebels are stronger than or equal to the government.

Third, we expect that insurgencies will last longer and be less likely to end in a decisive victory if the rebels are able to resist government attacks through robust defensive capabilities. Thus, seemingly weak rebels lead to wars that linger without a clear outcome; governments have little incentive to bargain with such groups, and decisive military victories are difficult to secure.

Hypothesis 6: Conflicts are more likely to end in a non-decisive outcome when rebels control territory in the periphery.

Finally, conflict is more likely to end in a negotiated settlement when the state allows the opposition to press their demands through nonviolent means. Rebels who can continue to push their demands through the political process will see less of a threat when settling than those who see violence as the only strategy available to them.

Hypothesis 7: Conflicts are more likely to end in negotiated settlement when rebels have access to non-violent means to push their demands.

We test these seven predictions below using new dyadic data on civil war.

## **Dyadic conflict characteristics and the duration of civil war**

If the dyadic emphasis is clear in theories of conflict, why have the characteristics of non-state actors not received more attention in existing studies of civil war? Dyadic analysis of conflicts between states and non-state actors is more complicated than for interstate conflicts for a number of reasons. Since the population of states is known in advance, one can easily create data on all pairings of states (or some subset of this, such as politically relevant dyads). Deriving a population of potential dyads is more complicated in the case of civil wars, since states may wage conflict with a large number of potentially important non-state actors. One possibility would be to identify peripheral groups that reasonably may turn to violence. This is difficult to do with existing data, however, although we believe that this eventually will be feasible using data on ethnic groups (see Cederman, Rød, and Weidmann 2008). Many studies have used the Minorities at Risk (MAR) data to consider how attributes of individual ethnic groups predict the onset of violent conflict (e.g., Gurr and Moore 1997). Although we think the intuition in these studies is correct, we believe that there are a number of limitations in the existing MAR data. Most notably, the MAR data, or any other data on ethnic groups, only allows us to examine *ethnic* conflicts, and emphasize the characteristics of groups as a whole rather than the specific organizations that may resort to violence.<sup>5</sup>

In this paper we sidestep the problem of classifying the population of potential rebels *ex ante*, and instead consider conflict dynamics among actual rebel groups by looking at conflict duration and outcome at the level of groups or individual organizations rather than at the level of the entire conflict. We use a number of new indicators of rebel characteristics which enable us to

ascertain whether particular rebel organizations were more or less successful in meeting their objectives. In the following section, we describe our data on non-state actors in civil wars.

### *The Expanded Non-State Actor Conflict Data*

Conflict data have traditionally provided relatively little information about particular conflicts beyond stating that violence takes place during some time period in a given state. Recently, there have been various efforts to improve conflict data by adding additional information on features such as geographic location (e.g., Buhaug and Gates 2002). We have expanded the existing Uppsala/PRIO Armed Conflict Data (ACD) with supplementary information about the non-state actors involved in intrastate conflicts (NSA). We provide a relatively brief overview of the new data and the specific indicators related to our expectations here, and refer to the extended documentation for a more complete description of the data (see AUTHOR).

The ACD data identify incidents of violence involving at least one state actor that generate at least 25 casualties in a given calendar year, over some incompatibility classified as control over the central government or territorial autonomy/secession (Eriksson and Wallensteen 2004; Gleditsch et al. 2002).<sup>6</sup> The Uppsala Conflict Data base, available online, adds additional information on rebel organizations active since 1989 (see Harbom 2003).<sup>7</sup> We have used this information to generate a population of government-insurgent dyads, while expanding the temporal domain back to 1945 and including new variables. For example, the ACD identifies the Mindanao conflict in the Philippines as containing, at various points, the Mindanao National Liberation Front (MNLF), the Mindanao Islamic Liberation Front (MILF) and the Abu Sayyaf Group. In our data, this conflict contains three separate dyads, allowing for a separate analysis of the interaction between the government and each insurgent group.



We restrict our data to the listed actors that were clearly active in fighting, and that have a sufficiently distinct leadership to be meaningfully treated as an independent actor. Moreover, characteristics of actors can sometimes change over the course of a conflict, for example due to groups splintering or the group leader being killed. We distinguish between different time periods where there is a shift in one of the relevant parameters indicating a new phase in the conflict. As a result, our data identifies cases where we have multiple government-rebel dyads within the same conflict, as well as over-time variation in actor attributes.

The NSA data includes information on attributes of rebel groups for 404 separate conflict dyads. These measures allow us to examine rebel group strength in terms of its ability to target government forces, the ability of rebel groups to resist repression, and the availability of non-violent alternatives.

We use several indicators to tap the ability of a rebel group to target the government with military force.<sup>8</sup> We use these indicators here to test Hypotheses 1 and 5. First, we classify whether the organization has a clear central command that controls rebel forces. We argue that strong central command provides the organizational structure necessary to mount an effective rebel strategy against the state whereas undirected fighters cannot plot a cohesive plan of attack (see Heger, Jung, and Wong 2008). Therefore, rebels that have greater control over their forces should be able to more effectively target a government than less centralized insurgencies. Strong central leadership also provides a clear bargaining partner, whereas fragmented groups that do not have a hierarchical command structure may lack coherence and often suffer from factional in-fighting. In the empirical analysis, we use a dichotomous indicator of whether the group has a clear leadership structure and if the leadership exercises a high degree of control over the organization.

Second, we examine the mobilization capacity of each group. Rebel groups that can mobilize or draft greater numbers of fighters should be better able to present a clear threat to governments and engage in direct attacks. We emphasize that this variable provides an estimate of an organization's *ability* to mobilize support, since we expect this to influence government responses, and not whether the organization actually mobilizes potential supporters. Many rebel groups keep potential troops in reserve, and have a much smaller number of actual troops than potential troops. In Chechnya, for example, the Chechen rebels only mobilized a few thousand troops at a time, but were able to easily replace troops killed in conflict. The potential to mobilize large numbers of fighters is potentially more important than the actual number of troops participating in an insurgency at any given time. We consider a dichotomous indicator based on whether the mobilization capacity is high relative to the government.

Third, we consider the ability of rebels to procure arms, relative to the government. Insurgents that have high capacity to procure arms should be better able to effectively target governments. Many rebel organizations are strongly hampered by their inability to secure weapons, such as the Bougainville Revolutionary Army in Papua New Guinea who has been forced to rely on weapons leftover on the island from World War II. By contrast, the fortunes of the Afghan Mujahedin changed dramatically when the US and Pakistan stepped up efforts to supply arms. We use a dichotomous indicator for organizations that have high arms procurement capacity.

Fourth, we include a variable for the fighting capacity of the rebels. By fighting capacity, we mean the ability of the rebels to effectively engage the army militarily and win major battles, posing a credible challenge to the state. In particular, groups that may have been underestimated at the outset of the conflict, but perform well at the battlefield, should be more likely to see short conflicts or be offered concessions. By contrast, groups with low fighting capacity should be less

likely to try to challenge the government in direct armed confrontation and instead opt for hit and run attacks typical of guerrilla warfare. We consider a dichotomous indicator of whether groups are deemed to have “high” fighting capacity relative to a government.

We believe that these indicators constitute conceptually different features of strength that are independent of one another, in the sense that an organization may be high on one component of military strength without necessarily being high on others. In addition to these measures of different components of rebel strength, we also provide a summary ordinal measure of the military strength of rebels relative to the government by rating the relative power of rebels to governments on a dyadic basis. We consider an indicator rating the relative strength of rebels as either “strong”, “at parity”, or “weak” in terms of their ability to fight conventional wars.

The NSA data also contain information allowing us to code the ability of rebels to resist. We argue that territorial control provides rebels the opportunity to organize outside the coercive reach of the state. We expect that conflicts where rebels have a territorial base should be systematically more persistent than conflicts where governments can more easily target and repress rebels. We note that the ability to control territory is often independent of rebel strength, since rebels may have an ethnic base, can easily control remote rural areas, and reflect limited state infrastructure in such areas. The NSA data includes two measures—one is a dichotomous variable indicating whether the rebels control any territory. The second is an ordinal measure indicating the degree of control, coded as low, moderate or high. Even among rebels that control territory, the degree of control varies substantially. In the DRC, for example, the Rally for Congolese Democracy controlled some territory in the Kivus, but that control was contested by rival militias. The Movement for the Liberation of the Congo, by contrast, exercised very effective control over large areas of territory in northern DRC. In the analysis here, we include a dichotomous measure

indicating whether the rebels control territory and exercise a moderate or high level of control over that territory to test Hypotheses 2 and 6.

Finally, our data includes information allowing us to code the ability to substitute nonviolent actions for violent activities. We have coded whether the rebels have an explicit or commonly acknowledged political wing, and whether the political wing is legal (i.e., accepted by the government) or banned. A legal political wing provides rebels the opportunity to pursue their demands through legal political means, and we expect conflicts where the non-state actors have legally recognized political wings to be systematically shorter in duration and be more likely to end in a settlement, even when we control for democracy. This variable will be used to test Hypotheses 3 and 7.

The upper part of Table 1 provides descriptive statistics of the various indicators from the NSA data included in the analysis in this study. Table 2 displays the Spearman rank correlations between our six indicators from the NSA data. As can be seen, the relationships suggest that these indicators reflect potentially different attributes of non-state actors, and are not simply different measures of the same underlying phenomenon. Although there is some positive association between the different indicators of military strength, there is little association between the indicators of military strength and territorial control in our data, and there is little evidence that the presence of a legal political wing is associated with any of the other indicators.<sup>9</sup>

Table 1: Descriptive statistics

Variable	Mean	St. dev.	Min	Max
Territorial control	0.354	0.478	0.000	1.000
Strong central command	0.232	0.422	0.000	1.000
High mobilization capacity	0.084	0.277	0.000	1.000
High arms procurement cap:	0.015	0.122	0.000	1.000
High fighting capacity	0.021	0.144	0.000	1.000
Legal political wing	0.085	0.279	0.000	1.000
War on core territory	0.915	0.279	0.000	1.000
Coup d'etat	0.026	0.158	0.000	1.000
ELF index	0.550	0.248	0.004	1.000
Ethnic conflict	0.302	0.459	0.000	1.000
Ln GDP per capita	7.549	1.004	5.639	10.413
Democracy	0.223	0.417	0.000	1.000
Two or more dyads	0.502	0.500	0.000	1.000
Ln population	9.868	1.309	5.342	13.831
Rebels stronger than gvt.	0.033	0.179	0.000	1.000
Rebels at partity with gvt	0.074	0.262	0.000	1.000

Table 2: Correlation matrix (Spearman rank correlations)

	Ter. cont.	Cen. cont.	Mob. cap.	Arms. pr.	Fight. cap
Central control	0.181				
Mobilization capacity	0.074	0.155			
Arms procurement capacity	-0.040	0.126	0.081		
Fighting capacity	-0.060	0.209	0.086	0.501	
Legal political wing	-0.032	-0.041	-0.047	-0.010	-0.026

## Empirical analysis

### *Conflict duration*

Our theoretical arguments lead to predictions about two dependent variables: the duration and outcome of civil war. We will examine these two sets of predictions in turn. First, we turn to testing our propositions about conflict duration. Our hypotheses about duration pertain to how our covariates affect the likelihood that conflicts will continue, rather than end in *any* type of out-

come. Since the standard ACD dataset does not allow us to directly assess the precise start and end dates for a conflict between the government and a particular insurgent group,<sup>10</sup> we code the entry and exit dates for each insurgent group in a conflict. Our end dates reflect the end of violence, which may follow a formal settlement or simply an end to fighting, without any formal settlement of the incompatibility, which we term an indeterminate outcome.

The fact that conflicts often recur creates problems for assessing whether something should be considered a continuation of a previous conflict or a new conflict. Operationally, we consider two periods of violence over the same incompatibility to be the same conflict unless separated by a lull in fighting of at least two calendar years. Our data contains 404 separate conflict dyads in 273 distinct conflicts. About three quarters of the conflicts in our analysis have only one dyad. Many conflicts contain several dyads; for instance, Chad had no fewer than 13 distinct conflict dyads over the course of its civil war. Moreover, since our variables may change over the course of a conflict, one conflict dyad may have multiple distinct phases, and our hypotheses would imply different prospects for conflict termination when these attributes change.

Our hypotheses imply that the duration of conflict in a dyad depends on the rebels' strength to target, capacity to resist, and ability to substitute for non-violent dispute resolution mechanisms. However, there may be additional factors that influence with the length of conflict and could be correlated with our key covariates of interest. For additional controls, we draw on previous studies on conflict duration, although there are relatively few well-established findings and conventions in terms of model specification.<sup>11</sup> We draw heavily on recent works addressing civil war duration (see, in particular, the special issue on civil war duration edited by Hegre 2004).

A country's income or GDP per capita is an obvious control variable that has been included in many previous studies. GDP per capita has been suggested as a measure of state strength (Fearon and Laitin 2003) and could therefore be associated with our measures of relative military strength. Collier, Hoeffler, and Söderbom (2004) argue that conflicts should be shorter when the opportunity costs for engaging in conflict are higher, which is proxied by a society's GDP per capita. We include the natural log of GDP per capita, as well as the log of a country's population to test for the possible effects of country size on duration, both taken from Gleditsch (2002).

The type of conflict may also affect its duration. Coups or efforts to take over the government from individuals within the state should generally be short, as coup attempts either fail or succeed relatively quickly (see Buhaug and Gates 2002; Fearon 2004).<sup>12</sup> At the same time, the plotters of coups are highly unlikely either to control territory or to have a legal political wing, and so coups could be associated with these variables. We include a dichotomous indicator of whether a conflict is a coup attempt. Fearon (2004) also suggests that anti-colonial conflicts, fought in overseas territory, have tended to be shorter than other conflicts. We include a binary indicator of whether a conflict is fought on a country's core territory to identify conflicts waged in colonies, with the metropole as the government actor.

Many researchers argue that ethnic conflicts display different attributes than other conflicts (see, e.g., Sambanis 2001). Kaufman (1996), for example, argues that ethnic wars are likely to display an all or nothing character, and that conflicts between ethnic groups face no permanent solution short of territorial partition (for alternative views, see Sambanis 2000). In addition, ethnic groups seeking secession may also be more likely to have a territorial base and so to have the power to resist repression by the state. We include a dummy variable based on our classification

of whether the conflict pits ethnically distinct based groups against the state. We also include the national ethnic and linguistic fractionalization index (ELF), based on data from Fearon (2003), which measures the probability that two randomly selected individuals belong to different ethnic groups. This is a relevant control variable here as more ethnically diverse countries could be seen as more likely to have multiple groups of significant size and hence possibly associated with our main covariates of interest.

Since we split conflicts involving several parties into different dyads, the individual dyads may not be fully independent of one another, and duration may be influenced by the number of parties participating in a conflict.<sup>13</sup> Cunningham (2006) demonstrates that civil wars tend to be longer when they involve a greater number of veto players that can block the implementation of an agreement. To control for whether duration increases with more separate actors, we include a measure of whether other dyads are active in the same conflict. The lower part of Table 1 includes descriptive statistics for the control variables included in the analysis.

We estimate the conditional effects of covariates on the hazard function, or likelihood of termination happening within a time interval, by the semi-parametric Cox (1972) proportional hazard model. In the Cox model, the hazard rate for an observation  $i$  at specific point in time  $t$  is given by  $h_i(t) = h_0(t) \exp(\mathbf{x}'_i \beta)$ , where  $h_0(t)$  indicates the baseline hazard of the event. The Cox model is also particularly well suited for handling time varying covariates, since the hazard rates are only calculated at failures. Unlike parametric models that assume a particular form of the hazard function and hence are sensitive to distributional assumptions, the Cox model does not require estimating the baseline hazard  $h_0(t)$ , since this term cancels out when we take the ratio of hazard rates in the event of a failure.



Tables 3 and 4 display the results from a Cox proportional hazard model for two variants of our general model. Table 3 reports the effects of disaggregated features of rebel capabilities, while Table 4 includes a composite indicator of rebel strength, with dummy variables indicating that the rebels were at parity with the government or stronger than the government (with weaker rebels as the comparison group). The coefficient estimates  $\beta$  indicate each covariate's impact on the baseline hazard. In our case, a positive coefficient indicates that a covariate *increases* the hazard of a conflict terminating in a given time interval, while negative coefficients indicate that the hazard rate of conflict termination *decreases*. The reported N of 2,426 reflects the row entries in the data matrix for our 404 conflict dyads, since some of the covariates are time-varying. Since the individual observations in the data matrix cannot be considered independent of one another, we report robust standard error estimates taking into account the nesting of observations in conflicts, based on the Lin and Wei (1989) generalization of the Sandwich estimator.<sup>14</sup>

Table 3: Cox proportional hazard estimates for Model 1

Variable	Coef	SE
Territorial control	<b>-0.361</b>	<b>0.170</b>
Strong central command	0.183	0.194
High mobilization capacity	<b>0.360</b>	<b>0.212</b>
High arms procurement capacity	<b>1.881</b>	<b>0.698</b>
High fighting capacity	0.293	0.416
Legal political wing	<b>0.551</b>	<b>0.228</b>
War on core territory	-0.138	0.296
Coup d'etat	<b>3.325</b>	<b>0.322</b>
ELF index	<b>0.734</b>	<b>0.322</b>
Ethnic conflict	0.168	0.195
Ln GDP per capita	<b>0.208</b>	<b>0.098</b>
Democracy	<b>-1.206</b>	<b>0.228</b>
Two or more dyads	<b>-0.385</b>	<b>0.132</b>
Ln population	<b>-0.165</b>	<b>0.059</b>

N = 2426

Wald chi2(14) = 266.10

Log pseudolikelihood = -1138.58

Note: Estimates in bold are statistically significant at 0.05 level in a one tailed test

As can be seen from Tables 3 and 4, we find strong evidence for our main expectations about the duration of civil war. We note that all of the indicators of strong non-state actors in Model 1 increase the hazard rate, or make it more likely that a conflict will end when rebels can pose a serious challenge to a government. Although the coefficient estimates for strong central control and high fighting capacity are not significant at conventional levels, we see these results as providing considerable evidence in support of Hypothesis 1, that insurgents with stronger military capabilities tend to be associated with shorter conflicts. In Model 2, we find a similar relationship for the combined measure of relative strength, suggesting that conflicts in dyads where the rebels are at parity with the government or stronger are less likely to persist than conflicts where rebels are weaker than the state. This result suggests that civil wars are much more

likely to get stuck in seemingly inefficient, protracted conflict where neither rebels nor governments have incentives to unilaterally lay down arms.

Table 4: Cox proportional hazard estimates for Model 2

Variable	Coef	SE
Territorial control	<b>-0.483</b>	<b>0.164</b>
Rebels stronger	<b>1.123</b>	<b>0.355</b>
Rebels at parity	<b>0.370</b>	<b>0.213</b>
Legal political wing	<b>0.563</b>	<b>0.237</b>
War on core territory	-0.279	0.291
Coup d'etat	<b>3.363</b>	<b>0.320</b>
ELF index	<b>0.733</b>	<b>0.326</b>
Ethnic conflict	0.190	0.198
Ln GDP per capita	<b>0.226</b>	<b>0.095</b>
Democracy	<b>-1.225</b>	<b>0.233</b>
Two or more dyads	<b>-0.400</b>	<b>0.132</b>
Ln population	<b>-0.142</b>	<b>0.061</b>

N = 2113

Wald chi2(12) = 241.33

Log pseudolikelihood = -1385.3676

Note: Estimates in bold are statistically significant at 0.05 level in a one tailed test

Absolute rebel strength in terms of capacity to challenge is not the only feature that can make it harder for a government to eliminate an insurgent group. Hypothesis 2 predicted that it will be particularly hard for a government to win a decisive victory in conflicts where insurgents exercise control over territory, even if rebels may appear to be militarily much weaker than the government. We find strong evidence for this prediction in our results. As can be seen, the estimated coefficient for territorial control is negative in both Models 1 and 2, indicating that con-

licts where the government cannot target rebels effectively in the rebel's base territory tend to last longer.<sup>15</sup>

We have argued that conflicts where the insurgents can substitute non-violent political activities for violent activities will tend to be shorter. Tables 3 and 4 suggest that our key measure of ability to substitute non-violent for violent means – whether the rebels have a legal political wing – is indeed associated with a much greater likelihood of conflict termination, supporting the prediction of Hypothesis 3. These results do not simply reflect a difference between autocratic and democratic political systems, but hold even when we control for democracy. Indeed, we find that regardless of how we measure democracy – whether as a binary dummy variable, a country's Polity score, or by allowing for a possible curvilinear relationship by adding a term for the square of the Polity score – we find a negative effect of democracy on the hazard rate, indicating that conflicts in democratic states tend to be *less* likely to end. There are a large number of long-lasting wars in democracies, including India, Israel, Colombia, and Northern Ireland.<sup>16</sup> However, the fact that democratic institutions by themselves are *not* associated with shorter wars strengthens our argument that democracy by itself is not sufficient for reducing violence. We have also examined whether there is an interaction effect between legal political wings and democracy, but found no evidence for this.<sup>17</sup>

The results with regards to differences in duration across conflict types are somewhat mixed. Not surprisingly, we find strong evidence that coup attempts are much shorter than other civil conflicts. However, there is no evidence that ethnic conflicts are generally more persistent than other forms of conflict, when we take into account other conflict characteristics. Consistent with Cunningham (2006), we find that conflicts that have more than one dyad or non-state actor

tend to last longer than other conflicts. Finally, the sign for wars fought on a country's core territory is negative, but far from statistically significant.

For the other control variables, the results are generally consistent with expectations. Civil wars appear to last longer in countries with higher populations and with lower incomes. We find no evidence that ethnic diversity prolongs conflicts. Indeed, the coefficient estimate is positive, indicating that conflicts are more likely to terminate the higher a society's ethnic and linguistic fractionalization.

### *Conflict outcomes*

So far we have looked at how dyadic characteristics predict the duration of conflict. However, since our arguments also imply that some specific outcomes should be more likely than others under particular circumstances, we must also consider how conflicts terminate. Kreuz et al. (2005) suggest a typology of conflict termination distinguishing between negotiated settlements to end the conflict, victory for the government, victory for the rebels, and cases where a conflict ends by entering into a period of low activity with less than 25 deaths per year. We have expanded this coding to the conflict dyads in our data back to 1945.

There are a few conceptual problems in testing our hypotheses about conflict outcomes. There can be real ambiguities as to whether an outcome is "favorable" or not to a faction, particularly for conflicts ending in "low activity," without a formal agreement or a clear victory. Governments may be content with a rebel organization that ceases to engage in violence without a decisive defeat. Likewise, a rebel organization allowed de facto control over territory in the periphery without challenges from the government may be quite satisfied with a low activity outcome. Moreover, it is highly unlikely that the probability of seeing the different outcomes will be

independent of one another. For example, if one of the parties is likely to win a conflict militarily, the willingness of the other party to make concessions should also increase and make agreements more likely. Furthermore, certain outcomes may become more or less likely over time relative to the others. Finally, since we observe relatively few cases of each of the individual outcome types, testing hypotheses about particular outcomes makes substantial demands on a limited number of data points.

These caveats notwithstanding, here we examine conflict termination and outcome by individual dyads. Since the concept of “insurgent” victories is ambiguous for coups, where the challenger comes from within the state, we drop cases of coups from this analysis. Furthermore, since the range of possible outcomes is restricted in colonial conflicts, as these invariably have ended in the eventual independence of the country, we also exclude all conflicts that take place outside of a country’s core territory. As can be seen in Table 2, this leaves us with 288 instances of dyadic conflict terminations, with low activity as the modal outcome.

Table 5: Distribution of conflict outcomes at termination

Outcome	N	%
Formal agreement	69	23.96
Government victory	62	21.53
Rebel victory	46	15.97
Low activity/other	111	38.54
Total	288	100

To account for both duration and outcome within the same model, we estimate a multinomial logit of outcome type, with conflict continuation as the baseline category, using all our covariates from previous models. We also include the log of time at state (in days) as an addi-

tional right hand side covariate to account for the impact of time and duration-dependence in the outcomes. The individual observations are either annual data or conflict phases, if shorter than a year. The results are displayed in Table 6. Since multinomial logit coefficients indicate the effects of variables on the log odds of a specific outcome over the baseline, it is more informative to assess whether a variable  $x_k$  makes an overall difference for the expected outcomes of the dependent variable than to assess the individual coefficient estimate and their standard errors. Hence, we test the null hypotheses that the coefficients for the J-1 outcomes are all undistinguishable from 0 (i.e.,  $\beta_{k,1} = \beta_{k,2} = \dots = \beta_{k,J-1} = 0$ ). Table 6 shows that we reject the null for all independent variables except territorial control at either the 0.05 (bold) or 0.10 level. Likewise, a given covariate's effect on the probability of a specific outcome depends not only on the likelihood relative to the baseline outcome given by the individual coefficients, but its impact on the probability of all the other outcomes as well. Hence, the implied effects on the probabilities of particular outcomes can be difficult to interpret from the coefficients themselves, and so we plot the implied probabilities for four dyadic profiles in Figure 2.

All of the estimated coefficients for the time at state variable are negative, indicating that any particular outcome becomes less likely as the conflict wears on. However, the magnitude of the coefficient suggests that government victories in particular become dramatically less likely with the passing of time compared to the other outcomes. As can be seen in Figure 2, although all the outcomes become absolutely less likely with time, the relative decline is faster for government victories than any of the other outcomes. The plot of the predicted probabilities for a dyad profile with all independent variables at their median values in the upper left corner of Figure 2 indicates that termination in government victory becomes less likely than a low activity outcome after about 50 days, and that rebel victories, government victories, and agreements are

all more or less equally likely once a conflict has dragged on beyond 3 years. These results are consistent with the prediction of Hypothesis 4, which states that the government becomes relatively less likely to win the conflict over time.

Table 6: Multinomial logit estimates of termination type

Outcome	Formal agreemt.		Governnt. victory		Rebel victory		Low activity	
Variable	Coef	SE	Coef	SE	Coef	SE	Coef	SE
Intercept	0.610	2.097	-2.682	2.295	4.431	2.202	-3.729	1.662
Time at state	<b>-0.176</b>	<b>0.092</b>	<b>-0.458</b>	<b>0.062</b>	<b>-0.313</b>	<b>0.097</b>	<b>-0.231</b>	<b>0.067</b>
Territorial control	-0.121	0.345	0.254	0.339	-0.300	0.410	-0.628	0.315
Rebels stronger	<b>0.367</b>	<b>0.595</b>	<b>0.266</b>	<b>0.815</b>	<b>2.381</b>	<b>0.707</b>	<b>0.266</b>	<b>0.838</b>
Rebels at parity	<b>0.636</b>	<b>0.365</b>	<b>0.018</b>	<b>0.561</b>	<b>1.279</b>	<b>0.462</b>	<b>-1.047</b>	<b>0.742</b>
Legal political wing	<i>0.008</i>	<i>0.486</i>	<i>0.899</i>	<i>0.373</i>	<i>0.776</i>	<i>0.506</i>	<i>0.658</i>	<i>0.344</i>
ELF index	<b>1.039</b>	<b>0.650</b>	<b>-0.880</b>	<b>0.735</b>	<b>-1.052</b>	<b>0.733</b>	<b>1.371</b>	<b>0.695</b>
Ethnic conflict	<b>0.816</b>	<b>0.359</b>	<b>-0.482</b>	<b>0.376</b>	<b>-1.763</b>	<b>0.574</b>	<b>0.122</b>	<b>0.284</b>
Ln GDP per capita	<i>0.096</i>	<i>0.202</i>	<i>0.198</i>	<i>0.198</i>	<i>-0.700</i>	<i>0.251</i>	<i>0.136</i>	<i>0.161</i>
Democracy	<b>-0.348</b>	<b>0.408</b>	<b>-2.281</b>	<b>0.732</b>	<b>-1.402</b>	<b>0.924</b>	<b>-1.132</b>	<b>0.352</b>
Two or more dyads	<i>-0.470</i>	<i>0.312</i>	<i>-0.571</i>	<i>0.420</i>	<i>0.183</i>	<i>0.354</i>	<i>-0.493</i>	<i>0.301</i>
Ln Population	<b>-0.424</b>	<b>0.136</b>	<b>0.177</b>	<b>0.144</b>	<b>-0.029</b>	<b>0.190</b>	<b>0.116</b>	<b>0.113</b>

N = 2201

Wald  $\chi^2(44) = 283.13$

Log pseudolikelihood = -1029.3952

Note: Coefficient estimates indicate effects on log odds of outcome over continuation

Estimates in bold(italics) indicate statistical significance at the 0.05(0.10) level in a joint significance test for all outcomes

Our results further reveal that our measures of rebel strength have positive estimated coefficients, indicating that all outcomes become more likely the stronger the rebels are. This is particularly true for rebel victory and formal agreement. As can be seen in the plots in the lower left and upper right quadrant of Figure 2, conflicts are more likely to end in outcomes favorable to rebels when they are stronger or at parity with the government. Rebel victories in these cases are always more likely than a government victory; indeed, at the outset, strong rebels defeat the



state nearly fifty percent of the time. In cases of power parity, agreements become more likely than government victories after just over a year. If we combine this result with the findings from Table 4, we see that rebels that are stronger than or at parity with the government fight short wars and are more likely to get at least some of their demands met, either through outright victory or through a negotiated agreement. These results are consistent with Hypothesis 5, stating that decisive outcomes are more likely when the rebels are stronger or at parity with the government. However, we are somewhat surprised to find that strong rebels also raise the probability of a “low activity” outcome and that they are less likely to achieve a negotiated settlement relative to other outcomes.<sup>18</sup>

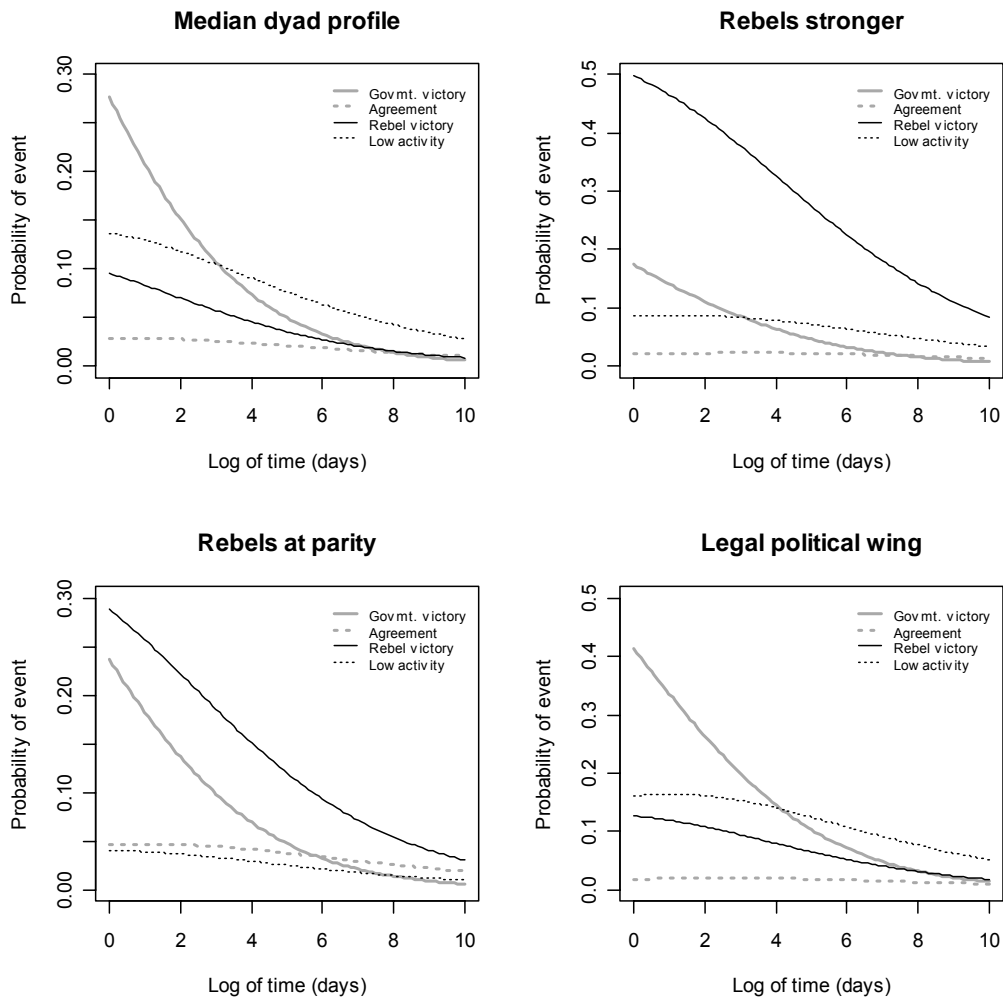


Figure 2: Predicted probabilities of termination type by time for selected dyad profiles

The territorial control variable has negative coefficients for all outcomes, except for government victories, suggesting that conflicts where rebels have territorial control are more likely to persist than to end in any particular outcome. This result is consistent with that from Table 4, and shows that rebels that control territory tend to fight long conflicts. However, since the variable is not significant overall, we cannot conclude with any confidence that rebel territorial control reduces the likelihood of a decisive outcome, as we had hypothesized. But this must be seen in light of our caveats regarding the difficulties in establishing what a “low activity” outcome

means in practice, and we also note that a territorial “safe-haven” is not the only way that rebels can evade government repression. Rebels may use other strategies, including bases in neighboring states, to resist government attacks. We will address this issue in future research.

The presence of a legal political wing, by contrast, displays positive estimated coefficients across the board, suggesting that such conflicts are more likely to end. However, our results do not directly support the claim in Hypothesis 7 that a legal political wing makes formal agreement more likely than the other outcomes. Given the caveats about making inferences from the types of end outcomes identified here, we clearly need further research into the effects of the political dynamics of conflict bargaining and termination. In particular, it should be kept in mind that substitution for non-violent alternatives can occur even in the absence of a formalized settlement. Consider, for example, if a government co-opts some opponents acting through legal channels while devoting greater resources to successfully defeating intransigent armed wings. This would be classified as a government win using our procedures, even if the end outcome may include a political process with concessions to the initial rebel demands.

In general, then, our analysis provides strong support for our arguments about the duration of civil war. These tests supported some of our predictions about the outcome of civil war, despite some surprising results and ambiguities, which we hope to be able to better examine in future research on the political process of war termination. Taken as a whole, however, these results show what can be gained from integrating group-level data into the study of civil war dynamics and can help to refine our theoretical understanding of conflict.

## Discussion and Conclusion

In this paper, we have argued that much of the existing literature on civil war has suffered from taking an overly structural and state-centric view of conflict, or focused exclusively on group characteristics rather than organizations. Ultimately, intrastate conflicts consist of dyadic interactions between a government and one or more non-state insurgent actors. We have examined a simple model of dyadic interaction and its implications for conflict duration and outcome. We argued that strong insurgent groups should be more likely to mount effective challenges or obtain concessions from governments. We also expected that factors making it more difficult for states to launch decisive blows against insurgents should make conflict more likely to last longer. Moreover, we have argued that meaningful political alternatives to violence should increase the chances of a faster settlement. We believe that our empirical results provide strong support for many of our conjectures, and more generally, illustrate the possibility of making progress in studies of civil war by including information on non-state actors and their interactions with states. We make no claim, however, that the factors that we have concentrated on here are the only relevant dyadic conflict attributes in the study of civil war, and encourage additional research on dyadic characteristics of civil war and further use of our data.

Lack of attention to attributes of non-state actors is certainly not the only form of excessive state-centrism in existing cross-national studies of civil war. In particular, we believe that much of the empirical literature on civil war also suffers from a geographic aggregation bias. The characteristics that may motivate groups to take up arms are often inherently local, and may not bear any resemblance to national level aggregates. This can easily be seen in the context of many measures of ethnic heterogeneity and fractionalization. Minority groups seeking independence such as the Achenese in Indonesia are often a trivial fraction of the national population, and will

not exert much impact on ethnic fractionalization measures at the national level. Instead, looking at power relations between groups promises to improve upon our understanding of conflict processes (see Buhaug, Cederman, and Rød 2008; Cederman and Girardin 2007). In future research, we wish to take into account how such local characteristics can influence dyadic interaction.

We also think that it is limiting to treat states as isolated entities, and ignore their relationship with actors outside the country and processes transcending international boundaries. We have shown elsewhere that transnational factors such as conflicts in neighboring countries, interstate rivalry, ethnic ties, and migration, influence the risk of civil war, even when we control for the main country characteristics believed to be associated with conflict (see AUTHOR). Such external features are also likely to influence dyadic interactions. For example, we would expect that insurgent groups that can mobilize resources among diasporas and maintain bases outside the boundaries of the state will be more impervious to repression. Even when states possess the technical capacity to repress, crossing international boundaries in efforts to retaliate against insurgents creates additional risks (AUTHOR). We have collected data on the external dimensions of civil war, and will explore the impact of such linkages on outcomes at the dyadic level in future research.

Finally, there are many other possible approaches to disaggregating the units of analysis. In particular, we believe that the study of civil war can benefit from greater use of survey data at the micro level to understand mobilization, types of participation, and attitudes at the individual level, and how these influence war as an outcome at the macro level. Research using survey data has already found its place in conflict studies (see MacCulloch 2004, Humphries and Weinstein 2008).

Academic interest aside, we believe that our results have considerable relevance for policies seeking to contain civil wars or limit their consequences. Leaving aside normative questions about whether rebellions (at least in some occasions) may originate from legitimate grievances, our results suggest that counterinsurgency strategies using military might alone are far less likely to be effective than is often assumed. Weak rebels in the periphery have defied vastly more powerful governments, and increasing government capabilities alone may not lead to shorter conflicts. Most importantly, our results show that government victories become less likely as a conflict wears on, even if the rebels appear to be significantly weaker. Therefore, governments fighting insurgencies must pursue alternative strategies. Rather than an exclusively military solution seeking to shore up governments in “weak states”, efforts to encourage non-violent dispute resolution mechanisms and enhance government responsiveness may ultimately be more effective in improving the prospect for peace.

## Endnotes

• We thank \*\*\*.

<sup>1</sup> Although conflict is usually studied as a dyadic phenomenon, disputes are of course not necessarily limited to only two parties, and extra-dyadic ties or relationships to other actors can clearly influence the risk of disputes (see Gleditsch and Gartzke 2007).

<sup>2</sup> Other examples of dyadic analyses of conflict include DeRouen and Bercovitch (2008) on conflict recurrence, Nilsson (2008) on conflict termination, and Svensson (2007) on mediation and negotiated settlements.

<sup>3</sup> The most common goals are demands for territory/autonomy or political power/government. The specific demands are not important for our discussion here *per se*, although they tend to be associated with different types of potential rebels (i.e., peripheral groups vs. rival actors in the center) and therefore different patterns of conflict.

<sup>4</sup> For example, the UK Broadcasting Act was amended in the late 1980s to prohibit direct broadcast of statements by individuals seen as supporters of the Irish Republican Army (IRA), and the 1972 Anti-Radical Decree in the Federal Republic of Germany barring individuals from public sector employment if associated with organizations considered opposed to the constitution, even if these had not engaged in violent activities.

<sup>5</sup> For a description of the MAR data, see Gurr (1993) and the MAR codebook (ND). The MAR data list some groups that do not seem to be meaningful actors (e.g., “foreigners” in Switzerland), and omit many groups not considered to be “at risk” (such as Scots in the UK). Some researchers have argued that the MAR data suffer from a selection bias since groups that are politi-

cally active are more likely to be considered “at risk”, while “latent” groups that have not mobilized are less likely to be included in the sample (see, e.g., Christin and Hug 2004).

<sup>6</sup> We here examine instances of violent conflict arising over incompatibilities rather than the incompatibilities themselves, which may endure in the absence of violence. Although the term conflict is sometimes used to denote latent conflict (e.g., Gleditsch 2002), the empirical civil war research tends to focus on violence rather than alternative actions that may arise over the underlying incompatibilities.

<sup>7</sup> See: <http://www.pcr.uu.se/database/index.php> (access date 2 February 2008)

<sup>8</sup> We refer to the overview in (AUTHOR) for information on the sources used, as well as the specific summaries of each individual conflict. Although we do not use these data in the analysis for this paper, the NSA data also include point estimates for the total number fighting under the command of the insurgents, as well as alternate “low” and “high” estimates. Moreover, the information in the raw data often includes several graded categories of characteristics relative to the government (e.g., low, medium, and high), but we focus here on the codings actually used in the analysis.

<sup>9</sup> The presence of a legal political wing is weakly positively correlated with democratic institutions (Spearman’s rank correlation is 0.09), however, insurgents do not have a legal political wing in the vast majority of conflicts in states with democratic institutions.

<sup>10</sup> There are two reasons for this. First, some conflicts in the ACD contain multiple rebel groups, without separating the onset and termination of conflict between the government and each individual group. Second, the ACD assigns all conflicts in a country over control of the government the same incompatibility and ID code. For example, two coups in Venezuela thirty years apart



are considered the “same” incompatibility, but for our purposes it would clearly be inappropriate to treat these as the same conflict dyad. The exact dates of entry and exit for some conflict actors remain unclear, and for these we used 1 January as the start date and 31 December as the end date.

<sup>11</sup> Moreover, most of the existing work on duration has been limited to wars that generate at least 1000 casualties, either in a year or over the course of a conflict. Since the casualty threshold used to identify conflicts here is considerably lower, the patterns found for large wars may not hold and vice versa.

<sup>12</sup> Moreover, since many successful coups will not generate sufficient casualties to reach the threshold for civil wars, the coups classified as civil wars may have an overrepresentation of failed challenges that are relatively easier for a government to repress.

<sup>13</sup> Duration could also be influenced by third parties even when these do not participate as combatants (Gleditsch and Gartzke 2007), but we leave this complication aside in this analysis.

<sup>14</sup> We refer to Box-Steffensmeier and Jones (2003) and Kalbfleisch and Prentice (2002) for further details on the Cox proportional hazard model and its relationship to other event history analysis models.

<sup>15</sup> We have also considered possible interactions between territorial control and military strength. Our results do not indicate that the effects of covariates for military strength vary with degree of territorial control, which in turn suggests that it is not a problem to interpret the effects of the two dimensions of power as additive.

<sup>16</sup> Another possibility is that democratic states that find themselves in civil war may find it more difficult to enact effective military measures to defeat or contain insurgents than other states less constrained by public opinion.

<sup>17</sup> The proportional hazards assumption in the Cox model implies that the effect of each independent variable must be constant over time. Tests for non-proportionality in Models 1 and 2 indicate that some of the covariates may violate this assumption. Based on the recommendations of Box-Steffensmeier et al. (2003), we have estimate models with interaction between these covariates and the natural log of time to correct for non-proportionality. Although there is some evidence the effects of some features here may weaken over time (e.g., legal political wings, GDP per capita, and extra-territorial conflict), we do not report these results here since the implications do not change qualitatively and the non-proportional hazard estimates are easier to interpret. These results are available on request.

<sup>18</sup> In some cases, conflicts involving stronger rebels may end up in stalemate situations where the rebels are able to obtain what they want without a formal agreement or a decisive military victory. This scenario is particularly likely in secessionist conflicts. King (2001) discusses several “quasi-states” such as Nagorno-Karabakh, South Ossetia and Abkhazia, where rebels have gained de-facto independence even though their control is not formally recognized by the government.

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