Power Parity and Peace? The Role of Relative Power on Civil War Settlement

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Abstract

Theories of civil war highlight how relative power affects conflict onset, dynamics, strategy, outcome, and duration. Yet, most studies of civil war have not been able to capture rebel power adequately and often rely on national-level characteristics to infer relative power distributions. This study addresses this shortcoming by using a troop strength measure to test arguments about how relative power affects civil conflict settlement. Drawing on the international crisis bargaining literature, while noting the inherent differences between interstate and intrastate conflicts, this study argues that the condition of power parity increases the likelihood of negotiated settlement and ceasefire. Weak rebels are unable to achieve concessions through negotiation since governments view them as minor threats. Yet, governments have difficulty defeating weak rebels due to an emphasis on guerrilla warfare. On the other end of the spectrum, rebels that are superior to the government in strength are unlikely to settle given their power advantage. Strong rebels that can rival the strength of the government (i.e., they are near parity) can exact more concessions because fighting at parity exposes information about how long each side can hold out while escalating the costs of war, giving each side a greater incentive to negotiate and eventually seek a ceasefire or peace agreement. This argument is supported using data on 112 dyads in the post-cold war period.
Introduction

That civil wars are one of the world’s deadliest social phenomena is widely recognized. This reality is reflected in the proliferation of academic research on the subject. Despite a growing understanding of this bloody phenomenon, the research on civil wars — especially research on termination and duration — has suffered from an inability to connect theory to measurement for one of its most important concepts: relative power. The concept of relative power has been used extensively and fruitfully in international relations. For interstate war, one of the consistent findings concerning power is that war initiation is more likely under parity than large asymmetries in power (Kugler and Lemke, 1996; Moul, 2003; Reed, 2003). For interstate dyads, power parity is associated with war. Civil wars, however, usually begin with large asymmetries in relative power. Rebels most often start with a significant material disadvantage even when facing weak states.

This study argues that the more equal the power distribution between factions in a civil war, the more likely that war is to end in settlement. Governments tend to legitimize rebels with negotiations only after rebels grow strong enough to mount a significant attack (Bapat, 2005). Still, governments have difficulty defeating relatively weak rebels due to the nature of asymmetric warfare. On the other end of the spectrum, rebels that are superior to the government in strength are unlikely to settle given their power advantage. Rebels that rival the strength of the government are more likely to be granted concessions through negotiated settlements. For intrastate dyads, power parity is associated with peace or at least the most peaceful resolution of conflict.

This study also reveals that relative power is a less powerful indicator of government victories in civil war compared to interstate war. While relative power affects the specific
strategies for both the government and the rebel organization (Butler and Gates, 2009), the combination of these strategies does not correspond to a clear prediction of victory. Governments often do not take weak rebel groups seriously. When they do, the rebels can remain formidable due to emphasis on asymmetric warfare. Weak rebel groups are not easily defeated in civil wars, as weak states may be in interstate wars.

This paper proceeds as follows: The theory section builds on arguments from international crisis bargaining and recent civil war literature to advance a theoretical account explaining how different levels of relative power influence the tactical options available to each side, which in turn affects the likelihood of settlement in civil conflicts. I then discuss the methods, case selection, and data operationalization for empirically testing the hypotheses. The following section presents the results of the statistical models and a discussion of the results, and I conclude with a discussion of the contribution, limitations, and implications of this study for future research.

Levels of relative power\(^1\) and the likelihood of settlement

The main thesis of this article is that power parity provides a condition favorable to the peaceful resolution of internal armed conflict as measured by negotiation, ceasefire, and settlement. How can the power parity be a condition for peace in civil wars when it is found to be a condition for war between states? I argue that the nature of rebel groups, as a non-state actor, makes internal armed conflicts fundamentally different from interstate conflicts, though theory from international conflict bargaining regarding uncertainty, the informational utility of fighting, and war costs is useful. Since rebel organizations, unlike states, are not required to hold and control

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\(^1\) I follow Wood (2010) analytically and (later) empirically by using rebel relative power as a ratio that divides rebel power by state power. It is bounded by zero at extreme asymmetry but unbounded where rebels are superior, since rebels can be more powerful than the state (though most of the time they are not) (Wood, 2010: 607).
territory to remain viable belligerents, ‘[a] different logic than that provided by international relations theory is required to understand civil armed conflict’ (Butler and Gates, 2009).

The primary difference concerns the role of uncertainty before and after fighting occurs. Before fighting occurs between potential belligerents, uncertainty over a likely winner (i.e., relative strength) in a potential conflict is most salient. After fighting begins, uncertainty over how long each party can hold out is most salient. Because internal armed conflicts have at least one belligerent that is not territorially bound (i.e., the rebels), the uncertainty over relative strength is less relevant to conflict initiation. Instead, uncertainty over how long the rebels can survive matters most. In short, weak rebels can hide out rather easily while relatively strong rebels (i.e., roughly at parity) are less likely to be able to hide and avoid confrontation. The remainder of this section clarifies this logic, while the following subsections detail the strategies of governments and rebels at different levels of relative power: asymmetry, parity, and rebel superiority.

International wars are thought to arise from incomplete information and uncertainty of the eventual victor (Blainey, 1973; Kugler and Lemke, 1996; Moul, 2003; Reed, 2003). ‘…[W]ars usually begin when fighting nations disagree on their relative strength’ (Blainey, 1973: 122 emphasis in original). Each state holds private information about its utility of fighting and the inability to reveal this information credibly during crisis bargaining can result in bargaining failure or war (Fearon, 1995; Powell, 1999). Power parity is a condition whereby these problems are most severe. Alternatively, where clear power superiority exists, the weaker actor is expected to acquiesce to demands by the stronger state, rather than fight and pay the costs of war when victory is highly unlikely.

While international wars are expected more frequently at power parity, once they begin,
they are expected to end as the battlefield reveals more information and expectations converge around an appropriate settlement (Slantchev, 2003). In other words, war is the mechanism for reducing the uncertainty over the balance of power, which is the theoretical reason for the bargaining failure. Furthermore, given that war is costly, both sides have strong incentives to terminate hostilities relatively quickly (Slantchev, 2003: 621).

For internal armed conflicts, this logic only applies when relative power is near parity. When weak, rebels have advantages that allow survival that states do not have in international conflict. The nature of rebel groups, as a non-state actor, makes internal armed conflicts fundamentally different from interstate conflicts. Rebels can become or remain clandestine and avoid fighting if confronted. Cunningham, Gleditsch, and Salehyan (2009: 574-575) call this the ‘power to resist.’ If rebel survivability does not require territory, they can abandon it if they believe they will lose an imminent battle.

In other words, rebels can survive while weak; they do not have to disagree about relative power to fight. Hence, uncertainty over power is not a cause that needs to be resolved as in international wars. The more salient uncertainty does not concern the balance of power but how long each belligerent can fight. The type of fighting near parity, conventional warfare, reveals this information and thus reduces the associated uncertainty. This theory section lays out the expectation that parity should be associated with negotiation and settlement by further discussing the role of uncertainty, costs of war, and rebel tactical strategy at three levels of relative power: asymmetry, rough parity, and rebel superiority.

**Extreme to moderate asymmetry**

At the low end of the rebel relative power scale is extreme asymmetry, where the rebels’ material
strength is vastly inferior to the government’s. This level of relative power is common for most insurgencies, especially at their early stages. As noted above, there is no uncertainty about the rebels’ probability of winning. In the near term, it is next to none. Instead, there is uncertainty about how long the rebels can hold out and whether they can amass the necessary power to challenge the government more directly. Rebels hold this information asymmetrically.

Even though there are costs to war at this level, they do not imply that both sides have strong incentives to quit fighting. At asymmetry, the costs of war are small and uneven across belligerents. Rebels can inflict costs against the government while often avoiding paying direct costs. The hit-and-run tactics associated with weak rebels, such as terrorism and guerrilla warfare, allow them to avoid direct conflict with the government forces and build military strength for a later period where they can attack the government more directly.

Although asymmetric conflict inflicts costs on the government, they are unlikely to be great enough costs to force negotiation. Weak rebels can generally only inflict modest costs against governments. While hit-and-run tactics can allow weak rebels to survive, they do not convey that the rebels have a high probability of winning, thus the government has little incentive to negotiate. Negotiation may legitimize the rebels, which could help solve their recruitment problems (Bapat, 2005). Hence, a negotiated settlement is unlikely under extreme and moderate asymmetry.

Rather than achieve concessions from the government, the most likely scenarios at this level of relative power are either ongoing conflict (the year-to-year default), or rebel collapse (the default termination type). The tactical strategies of weak rebels (i.e., terror or guerrilla warfare) are essentially designed for survival. They necessarily avoid direct battle with the more powerful government (Buhaug, Gates, and Lujala, 2009; Butler and Gates, 2009; Cunningham,
Gleditsch, and Salehyan, 2009). Given the right conditions of a supportive population or perhaps difficult terrain, weak rebels may not find it difficult to survive and maintain their viability. Two recent studies by Buhaug, Gates, and Lujala (2009) and by Cunningham, Gleditsch, and Salehyan (2009) predict and find that conflicts are longer when rebels are weak.2

If the conflict does end at asymmetry, it is likely to be via rebel collapse whereby rebels unilaterally disintegrate or otherwise fail to inflict damages on the government. This category (also called low activity) is found to be one of the most common types of conflict outcomes (Kreutz, 2010). Since recruitment is related endogenously to the insurgent’s relative power, where rebel power has a snowball effect, we should expect rebel collapse to occur when rebels are weakest.

Parity

While most rebel groups are unable to overcome their power inferiority, many are successful at achieving parity where rebel power rivals the government’s. Rough parity provides the condition whereby the logic of international wars is more useful. Rebels nearing parity can no longer hide from government forces as they could under asymmetric conflict. Given a greater chance of victory, rebels should be expected to change to more conventional warfare to fight the government more directly (Butler and Gates, 2009). Thus, fighting begins to take on the informational properties as it would during international wars. In terms of imperfect information, conventional warfare reveals private information whereby expectations about the chances of victory can converge. Like international conflicts, fighting is the mechanism by which

2 Readers may find it strange that asymmetry can be positively related to both rebel collapse and rebel survival. It is important to remember that these hypotheses are comparative at different levels of relative power, not just relative to other outcomes. Essentially, this claim is that the year-to-year default of ongoing conflict is likely under asymmetry, yet if a conflict does have a distinctive termination at this level, it is expected to be rebel collapse.
uncertainty is reduced (Slantchev, 2003, 2004). Similarly, fighting near parity reduces the uncertainty of how long the rebels can hold out by revealing information on the battlefield.

Furthermore, fighting more conventionally near parity establishes that the rebels are a legitimate threat that must be managed. Conventional warfare is an indicator of rebel strength and by itself provides the informational value that demonstrates to the government that rebels have a greater probability of victory, thus the government has a plausible probability of defeat.

Parity, through more conventional warfare, also provides the condition whereby costs become greater and more symmetrical. It may not, however, necessarily indicate a clear favorite leading to a condition of costly conventional warfare for the foreseeable future or mutually hurting stalemate (Zartman, 1985). Whether expectations quickly converge or whether a hurting stalemate arises, both sides should have stronger incentives to end hostilities at parity.

Governments ought to be concerned about the condition of parity because it demonstrates the possibility of losing. While under asymmetry, though the probability of government military victory was not necessarily high, the probability of defeat was very low. Parity and conventional warfare not only demonstrate the possibility of losing but also introduce a sense of urgency to resolve the issue. Governments may see parity as a condition of rebel advantage. Unlike asymmetry, where governments fear legitimizing the rebels, the condition of parity allows negotiation and settlement as viable government options (Bapat, 2005).

Rebels, too, may find parity is a condition that is conducive to settlement. When relatively strong, rebels can no longer hide as they could when they were weak and should have expectations to continue paying high costs if fighting continues. Conventional warfare might demonstrate their military legitimacy, but victory remains a distant hope. Rebels still face difficult obstacles to overcome, such as taking and holding cities, which tend to be government
strongholds. Furthermore, rebels have an incentive to settle while relatively strong rather than risk being weakened, which would reduce bargaining power and the terms of the settlement. Given the high costs, the condition of parity should facilitate settlements or other nonviolent termination types (e.g., ceasefires).

Hypothesis 1: The condition of power parity increases the likelihood of negotiation, ceasefire, and settlement. Stated differently, relative rebel capability has an inverted U-shaped curvilinear effect on the likelihood of negotiated settlements and ceasefires.

These expectations are consistent with much of the recent literature. Studies focusing on relative power as a proxy for probability of victory apply an expected utility of victory approach to civil wars. Assuming the highest payoff for victory, the lowest for defeat, and settlement somewhere in the middle, these studies argue that any asymmetry in power should be associated with a lower likelihood of settlement and that parity is a condition favorable to settlement (Brandt, et al., 2008; Mason and Fett, 1996; Mason, Weingarten, and Fett, 1999). A major weakness in these studies, however, is the inability to capture rebel or relative power. Instead, they work from the problematic assumption that larger government armies face asymmetrical challenges. Cunningham, Gleditsch, and Salehyan (2009) measure relative power and also find that parity is favorable to settlements adding further confidence to the relationship. However, their measure of relative power is at the dyad level (as opposed to a temporal measurement such as dyad-year). This measurement cannot account for different levels of relative power within conflicts and one would expect the findings to be sensitive to when relative power is coded within a dyad’s existence.

*Rebel superiority*
In some rare cases, the rebel group achieves power superiority. Like in the condition of parity, we should expect conventional warfare where rebels challenge the government directly. One notable difference is that rebels are expected to take major cities rather than consolidate power in the countryside. Similar to the government under asymmetry, rebels in this situation have a low probability of defeat, which reduces their willingness to settle or seek a ceasefire.

Since the government and rebels are inherently different types of actors, rebel superiority also leads to some different expectations than simply inverting the expectations from rebel inferiority. For governments to remain governments, they must hold and control some territory, especially the capital. If they fail to do so, they are defeated. Weak governments, then, cannot hide and practice guerrilla warfare like weak rebels can. Therefore, the likelihood of protracted warfare is reduced (Cunningham, Gleditsch, and Salehyan, 2009). However, strong rebels may not wish to settle when they have a power advantage so negotiations, ceasefires, and peace settlements should be less likely when rebels are stronger.

**Methods and data**

To investigate the role of relative power on conflict settlement, this study employs a competing risks framework to isolate the covariates that lead to different outcomes. I use multinomial logistic regression for the three unordered outcomes: settlement/ceasefire, government victory, and rebel victory. Settlement and ceasefires are pooled because both are negotiated means to termination and the theoretical hypotheses expect relative power to affect each similarly. The

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3 Ongoing conflict, the year-to-year status quo, is the base category. It is coded as a 0 for each year until the dyad terminates. Some dyads do not terminate during the time sample. The appendix reports a model that excludes all dyads that do not end in the time sample to ensure that these observations of non-terminated conflict do not affect the results. The results are very similar with all key variables in the same direction and significance level as the model reported in the main text.

4 Indeed, multiple model specifications across different outcome specifications demonstrate that relative power
category for government victory reported below also contains the termination category of 'low activity,' since it would be considered government victory by default.\(^5\)

The multinomial logit results are performed on cross-sectional, time-series data using dyad-years as the unit of analysis.\(^6\) This study uses the Uppsala Conflict Data Program/Peace Research Institute, Oslo (UCDP/PRI) Armed Conflict Dataset, version 4-2006 (Gleditsch, et al., 2002), as well as the definitions that the dataset employs. A conflict is a ‘contested incompatibility’ between the government of a state and at least one other party resulting ‘in at least 25 battle-deaths’ (Gleditsch, et al., 2002). The cases for this study are limited to ‘internal armed conflict’ and ‘internationalized internal armed conflicts.’ Internal armed conflicts concern a state government and at least one non-state internal combatant. Internationalized internal armed conflicts are the same as above with an intervention by state government(s) on any side (Gleditsch, et al., 2002). I dropped military coups from this study because the process of a coup is fundamentally different than a civil war.\(^7\) Cases are limited further by data availability. The primary independent variable, relative power, is limited to the years 1989-2004. The resulting dataset consists of 636 observations (dyad-years) regarding 153 dyads. The models reported below use fewer observations (475 across 112 dyads) due to lags.

The UCDP dataset is fitting for studies of conflict termination, especially those using relative power, though it does create distributional issues. It employs a minimalist battle-death threshold for inclusion into the data set. This not only has a statistical benefit of adding

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\(^5\) This coding also simplifies the presentation of the findings, since government victory is not the primary focus of this article. The appendix reports alternative coding schemes for robustness and demonstration purposes.

\(^6\) The dyad-year unit of analysis is most appropriate for measuring the direct relationships between rebels and governments, yet it introduces interdependency problems since multiple rebel groups in one conflict are not independent of each other. In the appendix, I report alternative models that are clustered by the conflict to demonstrate this interdependency is not driving results.

\(^7\) Military coups do not require the popular mobilization that largely informs the theory about civil war processes. I rely on Power and Thyne (2011) to establish coup dyads to be removed.
observations, but it adds theoretically and empirically relevant observations compared to datasets with a higher threshold. Notably, the observations that are most likely added are those at the low end of the rebel relative power scale. While these observations create a positively skewed distribution, these observations are quite important. First, this distribution mirrors the real world. No useful relative power measure will provide a normal distribution because relative power in civil conflict is not normally distributed. More importantly, since the dependent variable is conflict termination, as measured by fatalities, using a dataset with a higher fatality threshold would be inappropriate. It would result in numerous false ‘low activity’ terminated cases where the insurgency continues but at an intensity level lower than, for example, 1,000 annual fatalities.

The dependent variable for the study is the outcome of the civil war: ongoing war, settlement/ceasefire, government victory, or rebel victory, as defined by Kreutz (2010). The data are time series, with ongoing war coded as 0 and the outcomes coded only in the year in which the dyadic conflict ended.  

*Relative rebel capabilities (RCi)*

Adequately capturing relative power has been a consistent problem for civil war researchers. Since the nature of rebel groups is inherently different from the government, comparable measures of strength have been lacking. In lieu of sufficient measures for rebel capabilities, some studies of civil war have used solely the size of the government’s armed forces/capacity to capture the probability of winning (Brandt, et al., 2008; DeRouen and Sobek, 2004; Mason and Fett, 1996; Mason, Weingarten, and Fett, 1999). Measuring one side’s strength alone is insufficient since the size of the insurgent group will affect government strategies. Other studies

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8 There is some concern that using ongoing conflicts as the baseline
have attempted to solve this problem by measuring the strength of the rebels compared to the government (Buhaug, Gates, and Lujala, 2009; Cunningham, Gleditsch, and Salehyan, 2009). However, this measurement has been for the conflict as a whole, not accounting for temporal variation within dyads. Since theories of civil war stress the dynamic nature and various stages of rebel strength, we should not expect a conflict to show one particular level of relative power, such as asymmetry, parity, or superiority. A rebel group that reaches superiority has probably spent several years in other stages. When the measurement occurs should affect the results.

This study addresses these problems by using a dyadic capability ratio constructed by Wood (2010) from the UCDP. The UCDP publishes this data beginning for the year 1989. The UCDP collected this data based on figures mostly from *Military Balance* and *SIPRI Yearbook* but also examined reports from nongovernmental organizations (NGOs) and intergovernmental organizations (IGOs), such as human rights groups on the ground and the United Nations (Harbom and Högbladh, 2006). The measure is a ratio of rebel troops divided by a scaled number of government troops, where government troops are scaled by the number of insurgent groups that the government faces (Wood, 2010: 605-606). This variable, *Relative Rebel Capability* (RCᵢ), reflects the strength of rebels compared to the government with lower values indicating weakness, higher values indicating superiority, and values around 1 indicating rough parity.

Since power is a function of many components, such as other material capabilities, quality of soldiers’ training, motivation, morale, and strategy, the troop strength measure does not perfectly measure the balance of capabilities and numerical values of relative power stages (e.g., parity) are only rough estimates. Since troop strength levels are consistent across units unlike other

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9 ‘Scaling accounts for multiple insurceries within a country that presumably necessitate the division of government troops. RCᵢ is constructed by dividing the number of troops in insurgent group i by the scaled value of government troops (g). g is calculated by multiplying the total number of government forces (G) by the proportion of troops i represents of the total number of insurgents (I) within a conflict system \[g = (i / I) * G\]’ (Wood 2010, 606).
components of power, this measure should give us, at least, a better indicator of relative power than the literature has offered thus far. I use a lagged version of $RC_i$ to reduce endogeneity issues since imminent victory, settlement, or defeat should affect recruitment and desertion rates. The results reported below exclude some extreme and problematic observations from the UCDP/PRIO dataset to ensure that they do not drive the curvilinear effects as predicted by the theory section above. By doing so, I removed 21 observations (i.e., dyad-years) from the reported estimations; most of which were values where $RC_i$ was above 2.\textsuperscript{10} The mean of $RC_i$ is about 0.19 after removing these observations.\textsuperscript{11} See Table I for further descriptive statistics.

I include the squared term of $RC_i$ (lagged) to capture the curvilinear predictions of the study. Specifically, settlement should most likely occur at values around 1 (i.e., parity) of $RC_i$. Therefore, the squared term is expected to be negative to confirm the inverted U-shape of the relationship.

**Control variables**

The models reported below include several control variables that the literature has either theorized or found to be important indicators of civil war outcome, duration, or conflict dynamics. They include both dyad-specific variables and country-level aggregations. To capture specifics of the dyad’s experience, I measure conflict intensity with a logged version of annual battle fatalities from Lacina and Gleditsch (2005).

The type of the rebel group and the incompatibility are captured by two variables:

\textsuperscript{10} The problematic observations come from dyads in Afghanistan 1990-1995, where the coders note it is difficult to establish which parties are fighting with or against the government, and Liberia-NPFL years 1991-1995, where the coders note the violence is non-state conflict. The extreme value is from Sierra Leone (2000) where its $RC_i$ value is far beyond the rest of the observations (i.e., $RC_i=5$; the next highest in dyad is 0.26). The appendix (Table A.8) reports a model with all values and the results are similar.

\textsuperscript{11} Before the problematic observations were removed, the mean was about 0.32.
identity and territory. Identity is a binary variable where 1 denotes a dyad in which the rebel group represents a different identity group than the government (Buhaug and Gates, 2002; Wood, 2010: 606). Identity-based conflicts have been theorized to be resistant to compromise or settlement. Empirical studies are mixed, however. Bapat (2005), DeRouen and Sobek (2004), Mason and Fett (1996), and Mason, Weingarten, and Fett (1999) do not find a significant difference between ethnic and non-ethnic wars, where Cunningham, Gleditsch, and Salehyan (2009) find ethnic wars to be more likely to end in settlements and less likely to end in either government or rebel victories. Further, Fearon (2004) finds that conflict type is associated with duration.

Territory is a binary variable and takes the value of 1 when the incompatibility between the rebel group and the government is over a specific piece of territory smaller than the entire state (Harbom, Melander, and Wallensteen, 2008; Wood, 2010: 606). Theoretically, territorial conflicts should be less resistant to settlements because they inherently involve divisible stakes. Several previous studies have been unable to show a consistent relationship (Mason and Fett, 1996; Mason, Weingarten, and Fett, 1999) though many territorial conflicts have proven to be quite intractable (Walter, 2009).

I also control for foreign support, which has been identified as a contributor to civil war outcome and duration though the results are mixed (Mason and Fett, 1996; Balch-Lindsay and Enterline, 2000; Balch-Lindsay, Enterline and Joyce, 2008; Regan, 2002; Collier, Hoeffler, and Soderböm, 2004). I use two binary variables: pro-government support and pro-rebel support. Each takes the value of 1 if a foreign government supplied troops to the supported party. The information comes from UCDP database.

The country-level control variables are the level of economic development measured by
gross domestic product (GDP) per capita (Gleditsch, 2002) and level of democracy measured by the 21-level indicator in the Polity IV dataset (Marshall and Jaggers, 2006). The level of development has been linked to civil war onset through a variety of mechanisms, such as representing weak state capacity (Fearon and Laitin, 2003) and a low opportunity cost (Collier and Hoefler, 2004). In both cases, it is expected to facilitate rebel recruitment and allow the rebel group to grow enough in strength to challenge the government directly. The level of democracy has not been consistently related to the likelihood of settlements (Bapat, 2005; Cunningham, Gleditsch, and Salehyan, 2009; DeRouen and Sobek, 2004). However, Dixon (2009: 122) notices that these studies have not tested the curvilinear aspects of regime type (i.e., whether anocracies are more or less likely to settle or win civil conflicts). Despite evidence that the democracy finding for civil war onset is deficient (Vreeland, 2008), I include the squared term of Polity as a control.

To account for time dependence, I use cubic polynomial approximation, which adds the duration of the dyad, its squared term, and cubed term, to the multinomial logit model (Carter and Signorino, 2010).

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Table I in here

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**Results and discussion**

Table II reports the multinomial logit results for three outcomes: 1) negotiated
settlement/ceasefire, 2) government military victory, and 3) rebel military victory. Positive coefficients are interpreted as being more likely than ongoing war, the year-to-year default for each dyad. Figure 1 graphs the predicted probabilities of \( R_{Ci} \) on settlement and ceasefire, the 95% confidence interval, and the frequency distribution of \( R_{Ci} \). The following discussion of the results will discuss the role of relative rebel capability on settlement and ceasefire, and will then briefly discuss the results for the other outcomes and the control variables.

**Relative rebel capabilities**

Table II (Settlement and ceasefire column) shows that \( R_{Ci} \) has an inverted U-shaped curvilinear relationship on the likelihood of settlement and ceasefire, which are the two negotiated means to conflict termination. \( R_{Ci} \) (lagged) is positive and significant at the 99% level. The squared term is negative and significant at the 99% level. Figure 1, which graphs the empirical relationship of \( R_{Ci} \) (lagged) on settlement and ceasefire, shows the expected inverted U-shaped relationship. This finding is consistent with Hypothesis 1. As Figure 1 demonstrates, the probability of negotiated settlement or ceasefire (fitted values) begins near zero and rises steadily with rebel relative power. This is consistent with the theory section above and much of the literature, especially Bapat (2005). Governments have little incentive to negotiate with weak rebels. At parity, the predicted probability of settlement or ceasefire is a little greater than 0.3. The relationship peaks near parity. After the peak of \( R_{Ci} \), the probability of settlement or ceasefire

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12 Since the multinomial logit estimation includes three outcomes that already consume a great deal of space, it is difficult and ultimately counterproductive to report alternative specifications. Numerous alternative specifications were attempted. The curvilinear effect of \( R_{Ci} \) on settlements is consistent across many specifications. It also is consistently not related to government victories, even when government victory and ‘low activity’ are separated (see appendix). One notable exception is that \( R_{Ci} \)’s effect on ‘conflict-regulating ceasefires,’ one of the three negotiated means to termination in the Kreutz (2010) dataset, is not consistently significant. However, \( R_{Ci} \)’s effect on both formal settlements and general ceasefires is quite consistent. See the appendix for more specifications.

13 Predicted probabilities are computed while holding values of control variables to their means or modes using STATA 12. Confidence intervals are calculated using the standard error of the forecast (or prediction) option.
declines as expected by Hypothesis 1.

The steepness of the downturn toward the right side of the relationship, where rebels are superior in troop strength, is somewhat unexpected. Since rebels very rarely ever achieve troop superiority over their respective governments, when they do they still may not have battlefield superiority given the often greater material advantages of governments. In other words, rebels with troop strength superiority are not invulnerable to defeat and settlements or ceasefire should not be off the table. Given the lower number of observations from this end of the relationship, it would not be wise to over-generalize. Instead, what we can fairly safely claim for this sample is that the likelihood of settlement and ceasefire is higher when rebels are relatively strong.

Table II in here

Figure 1 in here

RC\textsubscript{1} is not significantly related to either government victory or rebel victory.\textsuperscript{14} Although one might expect a government victory to correlate with weak rebels, this is really not surprising given the advantages weak rebels hold in terms of hiding. Since rebels are not territorially bound, they can often avoid defeat by avoiding direct fighting. Still, if the government were able to locate or identify the weak rebels, they would likely defeat them. Thus, the effect of RC\textsubscript{1} on government victory is indeterminate. Rebel capabilities are also not significantly related to rebel victories, but since rebel victories are so rare for this dataset (only 5 dyads), it would be unwise

\textsuperscript{14} This non-finding for government victory holds even when clear military victories are separated from victories by default (i.e., those ending in low activity). See the appendix for more details.
to draw conclusive inferences.\footnote{The appendix reports a model using a current (i.e., non-lagged) version of RC, in which there are 10 cases of rebel victory. RC reports a curvilinear, inverted U-shaped relationship, but the effect is substantively small (p=.006) at its maximum.}

\textit{Control variables}

Most control variables are not significant in most models, although there are a few exceptions. The intensity of fighting (battle-deaths) is statistically significant for some outcomes. It is negatively correlated to the likelihood of settlements (significant at the 95\% level) and the likelihood of government victory (at the 99\% level) contrasting with most previous studies that find no significant relationship.

Identity conflicts are less likely to end in settlement (significant at the 95\% level). Territorial conflicts are more likely to be settled (at the 99\% level).\footnote{Whether the conflict is territorial or not may condition how relative power affects settlements (or other outcomes). The amount of relative power a rebel group needs to bargain effectively with the government may depend on whether the conflict is territorial or over the government. Attempts to include this interaction effect were unsuccessful; the multinomial logit regression would either drop the variable or not converge. However, I think this is a promising area for future research. The appendix reports a graph of displaying the varied effects of different types of conflicts (identity-based or territorial), but does not force an interaction effect. I thank the editor for pointing this out.} As one would expect, the presence of pro-government support is negatively correlated to the probability of rebel victory and pro-rebel troops are negatively correlated with government victory.\footnote{The multinomial logit regression reported above models the role of external troops as an additive variable, though the presence of external troops is likely related to relative power. Modeling the relationship may be a fruitful area for future research, but would overcomplicate the analysis here. I thank reviewer 2 for the comment.} GDP per capita is not significantly related to any outcome. Last, Polity is negatively related to government victory, but this relationship is not consistently significant across specifications. The squared term for Polity is negative and significant in the settlement/ceasefire column.

\textbf{Conclusion}
This article contributes to the literature on civil war settlement by testing relative power arguments with time-varying data, filling a gap in the literature. The literature on civil war termination (including duration) has progressed steadily over time with each new work contributing to the progress. This is especially true in regard to relative power arguments. In the absence of relative power data, earlier work used state characteristics (i.e., size of government army) to infer the relative power balance (DeRouen and Sobek, 2004; Mason and Fett, 1996; Mason, Weingarten, and Fett, 1999). Cunningham, Gleditsch, and Salehyan (2009) overcome this problem by introducing a dyadic analysis that accounts for relative rebel capability (see also Buhaug, Gates, and Lujala, 2009). Still, their dyadic analysis ignores that rebel power varies over time. Rebel power, then, must be coded at its peak and periods when rebel power is low are ignored. Still, it is important to note that the relative power data for this article does not vary greatly within dyads (see Table I). Most dyads never move beyond asymmetrical conflict, but capturing those that do is important.

Despite some limitations, this article is a suitable complement to previous studies. The findings presented here are generally consistent with previous research. The primary finding of this article, that the condition of parity is conducive to settlements, is consistent with theory emphasizing probability of victory arguments (Brandt, et al., 2008; Mason and Fett, 1996; Mason, Weingarten, and Fett, 1999) as well as findings from dyadic analyses (Cunningham, Gleditsch, and Salehyan, 2009). However, due to data limitations, this study should be viewed as a complement to previous studies rather than a substitute. Most notably, previous studies have the advantage of a longer time sample. To my knowledge, a dyadic measure for time-varying rebel strength is only available beginning in 1989.

\[^{18}\] In the Cunningham, Gleditsch, and Salehyan (2009) results, both parity and rebel superiority are positively associated with settlements. The coefficient is larger for parity, suggesting a similar relationship to the results from this study (see Table II, Settlement/Ceasefire column and Figure I).
It is important to take into account how the time sample affects the results. During the cold war era, many civil wars were seen as proxy wars between the United States and the Soviet Union. Superpower intervention in these conflicts affected, not only the relative power balance in the conflict, but may have directly influenced the decision to settle or not. As the cold war ended, the interest of great powers waned and many governments and rebel groups lost their benefactors. The post-cold war era, which is analyzed in this article, has more third party intervention specifically intended for facilitating settlements via mediation or physical intervention from such organizations as the United Nations and the African Union, as well as great powers acting on their behalf. Whether they are successful in affecting their goal is not addressed in this paper since the process of accepting mediation is endogenous to the likelihood of settlement and, as the current results suggest, the relative capabilities of the belligerents. Still, one would be skeptical of its effect given Regan’s (2002) finding that neutral interventions are associated with longer conflicts.

While the time sample of the post-cold war era limits the number of observations for this study, it does provide fairly current and relevant observations. If research in this area is to influence policy, it should take into account the differences of the international system and be careful not to generalize from out-of-date observations.

This article also highlights the fundamental differences between civil and international wars. While international wars are more likely to begin near parity (Kugler and Lemke, 1996; Moul, 2003; Reed, 2003), civil wars begin when rebels are quite weak and are more likely to end most peacefully near parity. This is due to the nature of rebels as a non-state actor, which means they are not territorially bound. It provides weak rebels with a reasonable probability of survival,

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19 The appendix includes a model that tests whether the loss of superpower support facilitated settlement, but it is inconclusive. A study specifically designed to test its effect would be required for serious conclusions on the issue.

20 See Greig and Regan (2008) for an examination of the process of accepting mediation.
though not a high probability of victory. This makes asymmetrical rebellion viable and mitigates the advantages of militarily strong governments. This phenomenon is highlighted by the lack of a relationship between relative power and government victory.

As rebels achieve more power where they can confront the government more directly, theory from international conflict becomes more relevant. Fighting near parity has informational value to each side, which can expose information about relative strength and how long each side can hold out. This informational value coupled with greater and more symmetric costs gives both sides an incentive to find an appropriate settlement or pursue a ceasefire.

Despite progress toward time-varying dyadic analyses of civil war termination, there are other avenues that should be addressed in future research. Cunningham, Gleditsch, and Salehyan (2009) correctly point out that theories of civil conflict are dyadic and yet most research is done at the country level. Up to this point, data was catching up with theory, yet most dyadic theory, including theory used for this article, assumes one rebel group even though some states face multiple rebel groups. Now, it seems theory should catch back up with data. How do states respond to multiple rebel groups? They may very well negotiate with some while purposefully leaving others out of the process. The analysis in this article provides useful generalities, but case studies and formal theory may provide interesting insights into the theoretical problem of multiple insurgencies.

**Replication data**

All statistical analyses were performed in STATA 12. The dataset, codebook, do-files, and output for the empirical analyses in this article, as well as those in the online appendix, can be found at http://www.prio.no/jpr/datasets.
Acknowledgements

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References


PHILIP HULTQUIST, b. 1982, doctoral candidate, University of New Mexico Department of Political Science (2008— ); current main interests: civil conflict violence, dynamics, and resolution.
### Table I. Descriptive statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. dev.</th>
<th>Within-dyad std. dev.</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
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<td>$RC_i$ (lagged)</td>
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<td>0.31</td>
<td>0.08</td>
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<td>0.14</td>
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<td>21821.86</td>
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<td>157464</td>
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*Values are rounded to two digits, where relevant. Std. dev. = standard deviation. N=475.*
<table>
<thead>
<tr>
<th>Variable</th>
<th>Settlement and ceasefire</th>
<th>Government victory</th>
<th>Rebel victory</th>
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<td>RC&lt;sub&gt;i&lt;/sub&gt; (lagged)</td>
<td>3.895**</td>
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<td>2.936</td>
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<td>(1.154)</td>
<td>(1.786)</td>
<td>(7.150)</td>
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<td>(0.777)</td>
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<td>(3.981)</td>
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<td>Battle-deaths (ln)</td>
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<td>-0.356**</td>
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<tr>
<td></td>
<td>(0.109)</td>
<td>(0.104)</td>
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<td>(0.425)</td>
<td>(1.461)</td>
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<tr>
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<tr>
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<td>(0.00792)</td>
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<td>Dyad duration&lt;sup&gt;3&lt;/sup&gt;</td>
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<td></td>
<td>(1.932)</td>
<td>(1.600)</td>
<td>(11.58)</td>
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</table>

Wald $X^2$ = 2812.91
Prob. > $X^2$ = 0.000
Dyads (conflicts) = 112 (71) 112 (71) 112 (71)
N (outcomes) = 475 (50) 475 (68) 475 (5)

Coefficients reported. Robust standard errors clustered on dyads in parentheses. Computed using STATA 12. ** p<0.01, * p<0.05. GDP = gross domestic product. ln = natural log.
Figure 1. Predicted probability of termination via ceasefire or settlement