Going in When it Counts:

Military Intervention and the Outcome of Civil Conflicts*

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Abstract

Conventional wisdom suggests that biased military interventions in civil conflicts should increase the probability that the supported side will win. However, while this is the case for rebel groups, the same is not true for governments. The explanation for this surprising finding becomes clear once one considers the decision of a third party intervener. Since interveners want to impact the outcomes of civil conflict, government- and rebel-biased interventions will be more likely when the government is facing a stronger rebel group. Given that government-biased third parties intervene in the "toughest" cases, empirically they appear to be less effective than rebel-biased interveners.

In recent years, there has been great scholarly interest in the effects of military interventions in civil conflicts, particularly the impact that interventions have on the duration of civil conflicts. The conventional wisdom drawn from the literature appears to be that military interventions increase the duration of civil conflicts.[1] However, a closer look at previous studies indicates that there is no consensus on the relationship between military intervention and civil war duration. In fact, only one published study finds a positive relationship between biased military intervention and civil war duration (Balch-Lindsay and Enterline 2000). On the other hand, Collier, Hoeffler, and Söderbom (2004) find that rebel-biased military interventions decrease the duration of civil wars, while government-biased interventions have no significant effect. Finally, Regan (2002) and Regan and Aydin (2006) find that biased military interventions have no statistically significant effect on the duration of intrastate conflicts.

This lack of empirical consensus concerning military intervention and civil war duration is likely due to the fact that military interventions do not primarily affect the duration of civil wars. Instead, the primary effect of an intervention is on the *outcome* of a civil war. When a third party intervenes militarily to support one side in a civil conflict, it provides additional military support for the targeted side. This additional support shifts the balance of power more in favor of the targeted side. On average, then, biased military interventions should increase the probability that the targeted side will win a conflict.

Third parties, however, do not randomly intervene in civil conflicts. Since potential interveners care about the outcome of a civil conflict, and intervention is costly, they should be more likely to intervene militarily when it would have the greatest marginal effect on producing a more preferred outcome. The potential effect of a military intervention depends, in part, on the characteristics of the domestic groups engaged in a civil war. Previous studies indicate that additional military resources have the greatest impact on battlefield success when neither side has a significant advantage in capabilities over the other (Dupuy 1987; Hirshliefer 1989, 2000). Civil wars differ from international wars in that they are often asym-

metrical (Zartman 1995). Governments generally have structural advantages unavailable to rebel groups. Thus, rebel groups are rarely significantly stronger than their government opponents. Given this, the effectiveness of providing additional resources in a civil war is greatest in cases with strong rebel groups.

If potential interveners care primarily about influencing civil war outcomes, military intervention should be most likely when governments face strong rebel groups. Consider an intervener biased in favor of the government. While governments can often defeat weak rebel groups with or without outside help, strong rebel groups provide a legitimate threat to the survival of the government. Thus, intervention on behalf of the government can have a greater effect on shifting the outcome of the civil conflict toward government victory when there is a stronger rebel group. On the other hand, consider the case of a rebel-biased intervener. In general, weak rebel groups are unlikely to be able to achieve military victory over government forces on the battlefield whether or not they receive outside military support. Instead, outside military support will be more efficiently used when there is a strong rebel group that is more effective at fighting the government.

Since intervention is more likely when rebel groups are strong, government-biased interventions may appear to be less effective than rebel-biased interventions. However, this does not necessarily imply that government-biased intervention has no effect. Instead, interveners are strategically choosing to intervene in the "toughest" cases: those in which the rebels have a high level of military capabilities and are likely to be effective at waging war. On the other hand, rebel-biased interveners choose to intervene in cases where rebel groups have the highest likelihood of winning, which reinforces the positive effect of intervention on the probability of rebel victory.

The theoretical argument outlined above incorporates strategic decision making. Given this, game theory provides a useful method to ensure both the logical consistency of the argument and identify other empirical implications of the theoretical argument. In the analysis that follows, I develop a game theoretic model of third party intervention in a civil

conflict. From the model, I deduce a number of testable implications about the factors that influence both the outcome of a civil conflict and the likelihood that a conflict will experience a third party intervention, which are tested using data on civil conflicts from 1944 to 1999.

Intervention as Influence Over Outcomes

Dating back at least to the Peloponnesian War (Thucydides 1972), military intervention in civil conflict is an ancient phenomenon. Due to decolonization and the rivalry between the superpowers, the rise in the number of civil wars and interventions led scholars of international relations to further examine the phenomenon during the Cold War era (Bull 1984; Morgenthau 1967; Rosenau 1964). According to Rosenau (1969), the defining characteristics of intervention are that it is "convention-breaking" and "authority-oriented." The analysis presented here follows a more recent derivation of Rosenau's definition of third party military intervention proposed by Regan (2000, 10): "convention breaking military ... activities in the internal affairs of a foreign country targeted at the authority structures of the government with the aim of affecting the balance of power between government and opposition forces."

Given that the primary effect of biased military intervention is to shift the balance of power in favor of one side of the conflict, one would expect biased military interventions to have an effect on the outcome of the conflict. Many scholars assume this to be the case (Balch-Lindsay and Enterline 2000; Mason, Weingarten, and Fett 1999; Regan 2000), but none have examined this relationship in a large-sample empirical analysis. While some previous studies have examined the effect of intervention on civil conflict outcomes, none examine the separate effects of government-biased and rebel-biased interventions on government and rebel victory. Mason, Weingarten, and Fett (1999) collapse government-biased and rebel-biased interventions into a single category to examine the effect of biased interventions on three civil war outcomes: government victory, rebel victory, and negotiation. On the other hand, Enterline and Balch-Lindsay (2001) examine government-biased and rebel-biased

interventions separately, but they collapse government and rebel victory into a single category of military victory. One of the most recent comprehensive studies of civil war outcomes in the literature does not incorporate the effect of military interventions (DeRouen and Sobek 2004). In the analysis that follows, I empirically estimate the separate effects of government-biased and rebel-biased intervention on government and rebel victory.

Motivations of Interveners

In the emerging literature on intervention, a number of different motivations have been proposed to explain the intervention decisions of third parties. Some scholars, such as Regan (2000), argue that the primary motivation of interveners is to end conflict. In contrast, Balch-Lindsay and Enterline (2000) argue that intervention decisions are made in a complex security environment and are largely determined by complex international strategic factors. Other scholars, such as Saideman (2001), argue that intervention decisions are made for domestic political reasons. Ross (2004) finds that opportunities to loot resources influence the decisions of some third parties to intervene on behalf of rebel groups.

While these factors may play a role in intervention decisions, third parties primarily intervene in order to influence the outcome of a conflict. In particular, since the main effect of biased military intervention is to shift the balance of power in favor of one side or another, it would make sense that third parties would choose that foreign policy tool for that purpose. On the other hand, if a third party was most interested in conflict resolution, one would expect that it would choose a foreign policy tool, such as diplomatic intervention, more directly aimed at such a purpose (Regan and Aydin 2006). While some civil wars can provide opportunities for looting by interveners, third parties motivated by such incentives will also care about the war's outcome, as a victory by the opposing side will likely cut off any future access to resources in the target country.

Potential interveners care about the outcome of civil wars because they care about the policy outcome that will come about as a result of the outcome of the war. The policy in

question could be the sovereignty or autonomy of an ethnic group, the type of government or economic system of the country, the policy of the government concerning the distribution of resources or access to resources by external parties, or a myriad of other similar policies. In the context of the theoretical framework outlined here, it does not matter whether these preferences come from international strategic factors or domestic sources. The critical factors are that the third party has preferences over a policy and that the outcome of this policy will be determined either by the party that wins the conflict or through a negotiated settlement between the two parties. Given this, third parties will prefer to intervene in civil conflicts when a military intervention will be most effective at increasing the likelihood of a more favorable policy outcome. The next section formally develops this theoretical framework with a game theoretic model of biased third party intervention.

Theoretical Model

To examine the relationship between military intervention and civil conflict outcomes, I develop a civil conflict bargaining model in which there is the possibility of external military intervention. Though it provides novel predictions as to the determinants and consequences of military interventions, the model incorporates a number of features common in previous models of civil conflict and military intervention. First, military intervention is embedded in a domestic bargaining environment between a government and a rebel group. As in previous bargaining models, such as Cetinyan (2002), intervention is modeled as a level of effort that can influence the outcome of a domestic conflict. Second, civil war is assumed to result from a commitment problem. A predominant explanation for the occurrence and persistence of civil wars is the inability of domestic combatants to commit to the agreements that they make (Azam and Mesnard 2003; Fearon 1998, 2004; Walter 2002). Like previous models of civil war initiation by Fearon (2004) and Azam and Mesnard (2003), the model presented here assumes that civil war results from the fact that there is some chance that the government will renege on any agreement made with the rebel group.[2] Finally, the outcome of a civil

war is modeled using a logistic contest success function, connecting this model to the formal literature on such contest success functions as they relate to military conflicts (Gates 2002; Hirshliefer 1989, 2000; Skaperdas 1996).

In the model, there are two domestic groups—a government (G) and a rebel group (R)—that disagree over a particular policy (x), such as the distribution of resources in the country or the level of autonomy enjoyed by the rebel group. In the model, G can make an offer to R. If R accepts the offer, an agreement is made, but there is some probability that the government will renege on the agreement. On the other hand, if R rejects the settlement offer, a civil conflict ensues. A potential third party intervener (T), who is biased in favor of one of the two groups, can decide whether to intervene in the conflict and provide military support for its preferred side. The conflict ends with a military victory by either the government or the rebel group, and it is assumed that the victorious side imposes its ideal policy.

As noted above, the heart of the conflict is that G and R disagree about some policy x. Formally, let $0 \leq x \leq 1$ and assume without loss of generality that R prefers higher values of x while the G prefers lower values of x. For example, x might be the level of autonomy enjoyed by R's ethnic group. In this case, R would prefer greater autonomy while G would prefer less autonomy. Let the value of policy x to the government and the rebel group be $v_G(x) = 1 - x$ and $v_R(x) = x$, respectively. Assume that the intervener, T, shares the policy preferences of the group that it is biased towards and that the bias of the intervener is common knowledge. Therefore, $v_T(x) = 1 - x$ if T is biased in favor of the government, and $v_T(x) = x$ if T is biased in favor of the rebels. For the remainder of the discussion, let i represent the party that T favors, and let j represent the other party. For example, if T is biased in favor of the rebels, then $i = R$ and $j = G$.

At the beginning of the game, G makes an offer $x_o \in [0, 1]$ to R. If R accepts the offer, an agreement is made, which may or may not be implemented. In particular, it is assumed that with probability q, G will renege on the agreement and impose its most preferred policy ($x = 0$). Otherwise, the players receive payoffs corresponding to the policy x_o. The assumption

that there is some probability that G will renege on an agreement is consistent with previous formal models that examine commitment problems in civil wars (Azam and Mesnard 2003; Fearon 2004). Fearon (2004) assumes that there is some probability that the government might return to a stronger state after the war and impose its most preferred policy, while Azam and Mesnard (2003) assume that government promises to redistribute resources are not always credible when domestic political institutions are weak. Given that the model presented here primarily focuses on the determinants and effects of military intervention, rather than the causes of war, I make no assumptions as to the microfoundations underlying the commitment problem.[3]

If R rejects the offer, a conflict ensues and G and R must pay a cost of fighting, c_G and c_R, respectively. Let m_G and m_R be the respective military capabilities of G and R prior to any intervention. After R rejects the offer, T has the option to intervene militarily in the conflict. In particular, T chooses the amount of military resources, $m_T \in [0, \bar{m}_T]$, to provide to its preferred party. Let α represent the marginal cost of providing military resources to a party in the civil conflict. With probability p_R, R wins the conflict and imposes a policy of $x = 1$, and with probability $p_G = 1 - p_R$, G wins the conflict and imposes a policy of $x = 0$.

The probability that a given group wins the conflict is a function of the military capabilities of the combatants, including any resources provided by a third party intervener. I assume that the outcome of the war is determined by a logistic (or difference) contest success function. Contest success functions provide the probability that a given player will win a contest for any given level of efforts by the players (Hirshliefer 1989, 2000; Skaperdas 1996). Hirshliefer (2000, 778) argues that a logistic contest success function is most appropriate for modeling the outcomes of military combat because "information can be imperfect, the defeated side may find refuges, and even the victor can be subject to disorganization and exhaustion." He notes that analysis by Dupuy (1987) of force ratios and battlefield success in World War II and Arab-Israeli conflicts support such a formulation. While the model presented here addresses civil wars rather than international wars, one would expect that

the same functional form would be relevant in civil wars as well. Both types of conflicts share the characteristics—incomplete information, fatigue, varied battlefield terrain—that make logistic success functions relevant for modeling military battles. Also, logistic contest success functions have been used previously to formally model the outcomes of civil conflicts (Gates 2002).

In this model, contest success is a function of the military capabilities of the combatants. Let m'_G and m'_R be the respective military capabilities of the government and the rebels after any military intervention. For example, if there is an intervention on behalf of the government, $m'_G = m_G + m_T$. The probability that player i wins the conflict is as follows:

$$p_i(m'_i, m'_j) = \frac{1}{1 + \exp[k(m'_j - m'_i)]}$$

where k is a constant. Figure 1 illustrates the contest success function, p_i, for a given value of m_j. As with all contest success functions, the probability that a player wins the conflict is increasing in its capabilities. Thus, an increase in G's capabilities increases its likelihood of winning the war, while an increase in R's capabilities decreases the likelihood that G wins. However, the marginal increase in the probability of victory given an increase in capabilities is not constant. As one can see in Figure 1, it is increasing for values of $m_i < m_j$ and decreasing for values of $m_i > m_j$. Formally, $\partial^2 p_i / \partial m_i^2 > 0$ if $m_i < m_j$, and $\partial^2 p_i / \partial m_i^2 < 0$ if $m_i > m_j$. Therefore, the marginal effect of an increase in capabilities is greatest when the two sides have similar capabilities than when one side has a great advantage.[4]

[FIGURE 1 ABOUT HERE]

The relationship between military capabilities and conflict outcomes implied by the conflict success function is intuitive. Until it gains a sufficient level of capabilities, a warring party is unlikely to have a great chance of winning a war. Once it reaches such a level, though, additional resources can significantly increase its likelihood of winning. However, after a group achieves a significant advantage over its opponent, there are diminishing marginal returns to adding additional military resources. As mentioned above, this pattern is consistent with examinations of actual military battle outcomes in international wars (Dupuy 1987).

Equilibrium Strategies

The subgame perfect equilibrium of the game can be solved by backwards induction. First, consider the decision of the third party to intervene in the conflict. The expected utility to T of intervening and providing m_T resources to i is

$$EU_T(m_T) = p_i(m_i + m_T, mj) - \alpha m_T.$$

In equilibrium, T chooses the value of $m_T \in [0, \bar{m}_T]$ that maximizes this function. Let m_T^* be $T's$ equilibrium strategy. The following proposition outlines the conditions under which T intervenes (i.e., chooses $m_T^* > 0$) in equilibrium:

Proposition 1. *T intervenes ($m_T^* > 0$) if and only if the marginal cost of intervention is sufficiently small ($\alpha < k/4$) and $m_i^* \leq m_i < m_i^{**}$, where $m_i^* < m_j < m_i^{**}$.*

The proof can be found in the appendix. In general, the proposition states that if intervention is not sufficiently costly, a third party intervenes if its preferred party's relative capabilities are in an intermediate range. If the targeted party is significantly stronger or significantly weaker than the opposing party, there will be no intervention. To understand the intuition as to why this is the case, consider the contest success function. The marginal effect of an increase in capabilities (i.e., $\partial p_i / \partial m_i$) is greatest when the capabilities of the parties are similar. Therefore, an intervention will have a greater effect when the parties are more equal in strength than when one party has a significant military advantage. The proof for Proposition 1 does not depend up on the specific logistic contest success function assumed above as it only relies upon the characteristics of the partial slopes of the contest success function. Given this, one can state the following more general corollary about the equilibrium conditions for intervention:

Corollary 1. *Given any contest success function such that an increase in military capabilities increases the likelihood of victory and the marginal effect of additional military capabilities is increasing for values below parity and decreasing for values above parity, T intervenes if*

and only if the marginal cost of intervention is below a certain threshold and neither side is sufficiently stronger than the other.

In equilibrium, T's precise strategy if $m_T > 0$ is to choose $m_T = \min\{\bar{m}_T, m_i^{\alpha h} - m_i\}$. This is proved in Lemma 3 in the appendix.

Now consider the decision of the rebel group to accept or reject an offer by the government. If R accepts an offer x_o from G, its payoff is x_o if G does not renege and 0 if G does renege. On the other hand, if R rejects the offer and enters a conflict, then it will receive $p_R(m'_R, m'_G) - c_R$. Therefore, R will accept x_o if:

$$\begin{aligned} (1-q)x_o &\geq p_R(m'_R, m'_G) - c_R \\ x_o &\geq \frac{p_R(m'_R, m'_G) - c_R}{1-q} = x_o^*. \end{aligned}$$

Since greater values of x_o imply greater concessions to the rebels, G prefers to make smaller offers. The utility to the government of offering x_o^* is:

$$U_G(x_o^*) = q + (1-q)(1-x_o^*) = 1 - (1-q)x_o^* = p_G(m'_G, m'_R) + c_R.$$

Since this value is greater than the expected utility for conflict, $p_G(m'_G, m'_R) - c_G$, G will prefer to propose x_o^* if it is feasible (i.e., $x_o^* \leq 1$). However, if $x_o^* > 1$, there is no agreement that the rebels will accept. In this case, G is indifferent between all offers since they will all be rejected. For simplicity, I assume that G offers $x_o = 0$ in these cases. Therefore, G's equilibrium strategy is to offer x_o^* if $0 \leq x_o^* \leq 1$, and offer 0 otherwise. In equilibrium, conflict occurs if $x_o^* > 1$, or by substitution, $p_R(m'_R, m'_G) - c_R > 1 - q$. Thus, conflict is more likely as the probability that G reneges (q) increases and the capabilities of the rebels m_R increase.[5] These comparative statics are consistent with those in Fearon (2004) and Azam and Mesnard (2003), highlighting the connection between the current model and previous models of commitment problems in civil wars.

The next section further examines the empirical implications of the model concerning the effects of third party intervention on the outcomes of the civil conflicts and the decision of rebel- and government-biased third parties to intervene in civil conflicts in the first place.

Implications of the Theoretical Model

The equilibrium conditions of the model indicate that the decision to intervene in a civil conflict depends in part upon the characteristics of the domestic groups involved in the conflict. Since potential interveners care about policy outcomes, they will be most likely to intervene when they can have the greatest influence on the outcome of the conflict. According to the model, intervention is most likely when one side is not significantly more powerful than the other. Empirically, it is unlikely that rebel groups will have a significant military advantage over the government without any outside support. In an examination of civil wars from 1945 to 2002, Cunningham, Gleditsch, and Salehyan (2007) find that only two rebel groups were "much stronger" than the government.[6] As Zartman (1995, 7) observes, "The most striking characteristic of internal conflict is asymmetry: one party (government) is strong and the other (insurgents) is weak." Governments enjoy structural advantages—legitimacy, sovereignty, standing army, access to resources—that are often not available to rebel groups. In some cases, rebel groups can use informal institutions and structures to overcome these disadvantages and gain parity or a slight advantage over the government. However, empirically, rebel groups rarely achieve overwhelming military superiority over government forces.

Therefore, for the empirical implications below, I assume that rebel groups are not significantly stronger than government forces. One should note that this assumption only refers to the military capabilities of rebel groups before any external intervention. Historically, the strongest, most successful rebel groups have been those that receive external support. Given the structural disadvantages faced by rebel groups, it is often difficult to stage a successful rebellion without access to external resources and staging grounds (Salehyan 2007). Under this assumption, it is still possible for outside intervention to tip the military balance in favor of a rebel group.

Proposition 1 and the assumption that rebel groups do not have a significant pre-intervention military advantage over government forces lead to the following empirical im-

plication of the model:

Implication 1. *An increase in the relative capabilities of a rebel group will increase the risk of both rebel- and government-biased intervention.*

To understand the intuition behind this implication, consider the contest success function in Figure 1. Potential interveners biased in favor of the government generally do not face situations to the far left of the graph ($m_G \ll m_R$). Since the slope of the contest success function is greatest in the middle section of the graph, the potential effect of an intervention on a government victory is greatest when the government faces a relatively strong rebel group. On the other hand, when there is a weak rebel group, the government is likely to win the conflict with or without external support. Thus, government-biased intervention is more effective when there is a strong rebel group. Conversely, rebel-biased interveners generally do not face situations to the far right of the graph ($m_R \gg m_G$). From Figure 1, one can see that the marginal effect of an intervention will be greater when rebel groups are stronger since such rebel groups have sufficient resources to provide a threat to the government.

The theoretical model described above also has implications concerning the factors that influence whether a civil conflict will end in a government or rebel military victory. First, consider the effect of a rebel-biased intervention. Since $\partial p_R / \partial m_R > 0$, an intervention increases the rebels' material resources and, in turn, the likelihood that the rebel group will win the conflict. Also, given Implication 1, a third party biased in favor of the rebels is more likely to intervene when the rebel group has higher capabilities, so rebel-biased interventions will be more likely in cases when the rebels have a greater chance *a priori* of winning a war. These factors lead to the following implication:

Implication 2. *All else equal, rebel-biased intervention will increase the risk of military victory by a rebel group.*

The relationship between government-biased interventions and civil conflict outcomes, however, is not as straight-forward. Since an intervention moves the balance of material

capabilities in favor of the government, the government is more likely to gain a military victory than it would have in the absence of an intervention. However, given Implication 1, a government-biased third party is more likely to intervene when the government faces a strong rebel group. Therefore, government-biased interventions occur in those cases when the government faces the toughest challenge and is therefore more likely to lose a conflict. Thus, even with a military intervention, governments in these cases may be more likely to lose a conflict than stronger governments that receive no external support. These cross-cutting effects in favor and against an increased likelihood of a government victory when there is a government-biased intervention lead to the following implication:

Implication 3. *The model does not make a prediction as to the observed empirical relationship between government-biased intervention and government victory.*

In sum, the model predicts that rebel-biased intervention will increase the likelihood of rebel victory but that government-biased interventions may not appear to have such an effect empirically. Given these implications derived from the model about the likelihood of intervention and policy outcomes, I now turn to a statistical test of the theory.

Empirical Test

To test the implications of the model, I examine the factors affecting biased military intervention and civil war outcomes. Like all theories, the model above is a simplification of reality. It provides a "snapshot" of the decision of a potential intervener at a particular point of time in a conflict. The simplifying assumptions made in the model allow one to gain insight into the strategic incentives of third party states to intervene in ongoing civil wars. Of course, real world situations are not so simple. For example, states realistically have multiple opportunities to decide whether to intervene in a civil war. Also, one might expect that the effect of military interventions would be greatest at the initial point of intervention and decline over time. Finally, previous research indicates that the hazard rates of biased

intervention (Findley and Teo 2006) and civil war outcomes (DeRouen and Sobek 2004) change over the lifetime of a conflict. These observations imply that there is a dynamic component to the causes and consequences of intervention decisions. My goal, therefore, is to incorporate the insights of the theoretical model into an empirical analysis that can also control for temporal dynamics. For this reason, I use an event history approach to test the predictions of the theoretical model.

Data

The cases for the analysis are drawn from Regan's (2002) civil conflict intervention data set. These data are used for two primary reasons. First, unlike other data sets that require a relatively high threshold of 1,000 battle deaths for a conflict to be defined as a civil war, Regan's data set includes civil conflicts with at least 200 fatalities. Given that potential interveners may not know how wide-scale a war may become when they decide to intervene, this lower threshold allows one to examine a broader range of opportunities for intervention. Also, a higher threshold may mask "successful" interventions that manage to end a conflict before there are 1,000 fatalities. Second, Regan's data set includes a broad range of military intervention activities. Other potential civil war data sets did not meet these same criteria. The data collected by Fearon and Laitin (2003) and Doyle and Sambanis (2000) do not contain data on military interventions. While the Correlates of War (COW) Intra-State War data set does contain information on military interventions, its definition of intervention is much stricter than Regan's and it requires a higher threshold of 1,000 battle deaths (Sarkees 2000). Finally, while the Uppsala/PRIO Armed Conflict Data Base does incorporate a lower fatality threshold and includes information on "internationalized" civil wars, it does not include data on a wide range of intervention activities (Gleditsch et al. 2002).

Government- and rebel-biased intervention are operationalized as in Regan (2002). Each case is coded as to whether the conflict experienced a government-biased and/or rebel-biased intervention. Regan (2002), however, does not include a variable on civil war outcomes. Since

this set of civil conflicts is unique due to its lower fatality threshold, a number of different sources are used to code the dependent variable for the model of civil war outcomes. The COW data base codes the outcome of each war as being a government victory, opposition victory, or a stalemate. On the other hand, for the civil wars included in their analysis, Doyle and Sambanis (2000) code the outcome as being a government military victory, opposition military victory, treaty, or truce. Given the difference between a stalemate and a treaty or truce, the two databases use different coding rules to identify civil war outcomes. While the COW data base attempts to identify a winner whenever possible, Doyle and Sambanis (2000) are more likely to code a civil war ending in one of the "middle" categories of treaty and truce. Given the coding of negotiated outcomes, the Doyle and Sambanis (2000) variable seems to provide a better operationalization of the outcomes in the analysis. To construct the outcome variable for the analysis, I collapse the treaty and truce categories into one "agreement" category and use Doyle and Sambanis's (2000) coding as a starting point for the outcome variable for the analysis. The data from Doyle and Sambanis and COW were compared to identify cases in which they disagree as to whether the government or the opposition won a war. For these cases and those conflicts that were not part of Doyle and Sambanis's (2000) analysis, I rely on *Keesing's Record of World Events* and other historical sources to determine the outcome of the war. For each conflict, if a clear compromise agreement was made, I coded the outcome as being a settlement. If no agreement was made, I then used the historical sources to determine which party won a military victory.

Given the theoretical model, one important independent variable of interest is the relative military capability of the rebel group. Regan (2002) provides an aggregate measure of the size of the opposition forces for each conflict. To measure the government's military capability, I use the military personnel component of the COW National Material Capabilities data set, which measures the size of the national army (Singer, Bremer, and Stuckey 1972). I then measure the relative capability of the rebels using a standard measure of relative capability in the international relations literature: the natural log of the ratio of rebel capabilities to

government capabilities. Unfortunately, the measure of rebel troop size does not vary over the course of the conflict. However, the size of the state's army is reported annually, which allows the measure to capture some of the temporal variation of relative rebel capability over the lifetime of the conflict.

Civil Conflict Outcomes

If, as the theory predicts, government- and rebel-biased interventions are more likely when there is a strong rebel group, government-biased interventions may appear to be less effective than rebel-biased interventions because government-biased interveners intervene in the toughest cases. To test the theoretical predictions about the factors that affect whether a conflict ends in a government or rebel military victory or a negotiated settlement, I estimate a competing risks duration model. A competing risks model is appropriate when an event can end in a number of different outcomes and there are different factors that influence the likelihood of the outcomes (Box-Steffensmeier and Jones 2004). Since the probability of different conflict outcomes occurring is not likely to be constant over the course of a conflict, an event history analysis allows one to examine how the hazard of different conflict outcomes changes over time. Additionally, an event history framework allows one to include ongoing civil conflicts (i.e., right-censored observations) in the analysis. In a competing risks analysis, events that end with an outcome other than the one being examined are assumed to be right-censored. For example, if one wants to examine the likelihood that a civil conflict ends in an agreement, cases where the conflict ends due to military victory by the government or the rebels are coded as being right-censored. Since the theory has no strong prediction as to how the likelihood of various civil conflict outcomes changes over time, I use a Cox proportional hazard model in the competing risks analysis.

According to the implications outlined above, the theory indicates that rebel-biased interventions should increase the likelihood of rebel military victories, but it makes no prediction as to the effect of government-biased interventions. One would expect that the effect of an

intervention on the outcome of a civil conflict would diminish over time. Given this, I operationalize intervention as a dummy variable indicating whether an intervention has occurred multiplied by a decay function that decreases as time passes from the time of the most recent intervention.[7] In particular, the variable is coded as $0.9^t(i_j)$, where i_j is a variable that indicates whether or not an intervention of type j has occurred and t is the elapsed time since the most recent intervention of type j occurred.[8]

In addition to intervention, scholars have identified a number of other factors that could impact civil conflict outcomes. DeRouen and Sobek (2004) argue that state capacity plays an important role in the conduct of civil wars. In particular, they argue that negotiated settlements will be more likely and rebel victories will be less likely in stronger states. In their empirical analysis, however, they find limited support for this hypothesis. DeRouen and Sobek (2004) operationalize state capacity using three indicators: size of the government army relative to the population, democracy, and bureaucratic capacity. Given the theoretical model being tested, it is more appropriate to measure the strength of the government army relative to the rebel group, rather than the population at large. Thus, I include the measure of relative capability described above as an independent variable. Following DeRouen and Sobek (2004), I also include the country's score on the 21-point Polity scale in the year before the conflict started as a measure of democracy (Marshall and Jaggers 2002).[9] Since the measure of bureaucratic capacity used by DeRouen and Sobek is not available before 1982, it is not included in the analysis.

Previous empirical analyses have also found that the likelihood of civil war outcomes varies depending up the type of conflict. In particular, rebel victory is less likely in identity-based civil wars fought along ethnic and religious lines (DeRouen and Sobek 2004; Mason, Weingarten, and Fett 1999). Given this, I include a variable from Regan (2002) indicating whether the conflict mainly concerned ethnic or religious differences. Additionally, scholars have found that combatants are more likely to negotiate when there have been a higher number of battle deaths (Walter 2002). For this reason, I include a measure of the intensity

of the conflict, operationalized as the number of battle deaths per month (Regan 2002). Additional independent variables in the analysis include a measure of mountainous terrain, as operationalized by Fearon and Laitin (2003), and a Cold War dummy variable.

[TABLE 1 ABOUT HERE]

The results of the competing risks analysis of civil conflict outcomes can be found in Table 1.[10] A diagnostic test indicated that the *Ethnic/Religious* variable violated the proportional hazard assumption for the model examining negotiated settlements, so I included an interaction term between this variable and the elapsed time of the conflict (Box-Steffensmeier and Jones 2004). Positive coefficients indicate that an increase in the value of the independent variable increases the likelihood that a civil conflict ends in the corresponding outcome in a given month, given that the conflict has survived up to that point.

As the theory predicts, rebel-biased interventions have a positive and statistically significant impact on the likelihood of rebel victory. Of course, according to the theory, this increase in the probability of rebel victory is not only the result of the support that the rebels have received, but is also due to the fact that rebel-biased interveners choose to intervene when rebel groups are most effective at defeating the government. In contrast to rebel-biased intervention, government-biased intervention does not have a statistically significant effect on any of the outcomes of the conflict. This is not surprising given the theoretical model. If government-biased intervention is most likely when governments are facing stronger rebel groups, it may be that case that an intervention increases the likelihood that a government wins a particular conflict. However, since government-biased interveners generally intervene in tougher cases, on average, governments will not be more likely to win conflicts when there is an intervention than when there is not one. Finally, rebel-biased interventions have a positive and statistically significant impact on the likelihood that a civil conflict ends in a negotiated settlement.[11]

To get a sense of how the likelihood of different outcomes varies over the lifetime of a conflict, one can estimate the hazard functions of the various outcomes. Figure 2 presents the

estimated hazard functions of government victory, rebel victory, and negotiated settlement over the first fifteen years of a conflict, holding all independent variables at their mean values. These functions give the probability that a conflict will end in a specific outcome in a month given that it has survived up to that point. The graphs indicate that military victories, especially by the government, are more likely earlier in the lifetime of a conflict than later. On the other hand, the likelihood of negotiated settlements increases as the length of the conflict increases.

[FIGURE 2 ABOUT HERE]

The results also provide additional insights into arguments that state capacity affects the outcome of civil wars. Previous studies have hypothesized that rebel victory will be less likely when there is a strong government but have not found empirical support for this claim (DeRouen and Sobek 2004; Mason, Weingarten, and Fett 1999). These studies, however, have generally operationalized government military strength as the size of the army relative to the total population. The result here that relative rebel capability increases the likelihood of rebel victory perhaps illustrates the importance of looking at the capability of the government relative to rebel group rather than the population at large. The insignificant effect of rebel capability on government victory is also in line DeRouen and Sobek's (2004) argument that the effect of state capacity has an indeterminate effect on the likelihood of government victory. The empirical analysis, however, provides mixed support for DeRouen and Sobek's hypothesis that state capacity increases the likelihood of a negotiated settlement. Agreements are more likely when the state was governed by a more democratic regime before the war, but they are also more likely as the strength of the rebel group increases relative to the government.

The competing risks analysis also indicates that the intensity of the conflict increases the likelihood of military victory by either side, but has no effect on negotiated settlements. This might appear to contradict a previous finding by Walter (2002) that combatants are more likely to negotiate when there are more battle deaths; however, her study included

the number of battle deaths for the entire war, rather than the rate of battle deaths per month. Given that negotiated settlements are, on average, achieved longer after the start of conflicts than military victories, it is not surprising that negotiated settlements would be correlated with greater aggregate numbers of battle deaths. However, this does not imply that negotiated settlements would be more likely when there are greater numbers of battle deaths per month. Finally, the results also support previous findings that rebel groups are less likely to achieve military victories in identity-based conflicts than in ideological conflicts (DeRouen and Sobek 2004; Mason, Weingarten, and Fett 1999).

Military Interventions

The results of the analysis support the prediction that rebel-biased interventions should appear to be more effective than government-biased interventions. However, this does not necessarily indicate that this empirical regularity is the result of the mechanism found in the theoretical model. Therefore, I also need to examine whether government- and rebel-biased interventions are more likely when there is a stronger rebel group. To test the implications of the model concerning intervention decisions, I estimate the factors that affect the likelihood of government- or rebel-biased intervention using an event history model. As mentioned above, the likelihood of intervention is not likely to be constant over time. An event history model allows one to explicitly examine how the hazard rate of intervention changes over the lifetime of a conflict.[12] As the theoretical model does not provide any expectation as to how the likelihood of intervention would change over time, I estimate a Cox proportional hazard model because it makes no assumption about shape of the hazard function.

As the theoretical model makes distinctions between interventions on behalf of governments and rebel groups, I examine these two types of interventions separately. Each model examines the likelihood that a civil war will experience a given type of intervention (e.g., government-biased intervention) in a certain month of a conflict given that it has not experienced an intervention (of that type) up to that point. Of the 140 conflicts included in the

analysis, 66 experienced a government-biased intervention and 59 experienced a rebel-biased intervention. To test the main prediction of the theoretical model concerning intervention decisions (Implication 1), I include the measure of relative rebel capabilities described above as an independent variable.

In addition to relative rebel capability, I also incorporate other factors that could influence the likelihood of intervention in a conflict. Regan (2000) argues that that interventions should be more likely when civil conflicts are more intense, when there are a greater number of contiguous states, and during the Cold War.[13] One might also expect that intervention decisions might be different in identity-based conflicts, such as ethnic and religious civil wars (Regan 2000). Additionally, the occurrence of previous interventions can affect the likelihood of intervention (Findley and Teo 2006). Given this, I include an independent variable that indicates whether there has been an intervention on behalf of the other side in a civil war. For example, in the model examining government-biased interventions, I include an indicator as to whether there has been a previous intervention on behalf of the rebels.[14] Given that one would expect that the impact of an individual military intervention would decrease over time, I operationalize intervention as a decay function, as in the analysis of civil conflict outcomes.

Given their unique status in the international system and high level of capabilities, one would expect that intervention in major powers would be more costly than in other states. In fact, this is most certainly the case since there are no observations of military intervention in a major power.[15] However, since major power status would perfectly predict nonintervention, it cannot be included in a multivariate analysis. Given this, civil conflicts in major powers are excluded from the analysis.

[TABLE 2 ABOUT HERE]

The results of the event history analysis of government- and rebel-biased interventions can be found in Table 2. A test of the proportional hazard assumption indicated that the *Cold War* variable violated the proportional hazard assumption for the model predicting

rebel intervention. Given this, I included a coefficient for this variable interacted with the elapsed time of the conflict. Positive coefficients indicate that an increase in the value of the independent variable increases the likelihood of intervention in a given month, given that there has not been a previous intervention of that type in the conflict. As the theory predicts, the relative capability of a rebel group has a positive and statistically significant impact on the likelihood of both government- and rebel-biased military intervention.[16]

To examine the substantive effect of relative rebel capability on the likelihood of intervention, I estimated the hazard function of both government and rebel intervention at various capability levels. Figure 3 displays the estimated hazard of both types of intervention over the first five years of the conflict. I assume that there has not been a previous intervention of either type and hold all other independent variables at their mean values. The solid line indicates the hazard of intervention when the relative capability of a rebel group is one standard deviation above the mean, while the dashed line indicates the hazard of intervention when the relative capability is one standard deviation below the mean. As one can see, a change in relative capability from the lower to the upper value has a significant impact on the likelihood of intervention. In particular, it more than doubles the likelihood of a government intervention. This indicates that government-biased interveners are more likely to intervene in difficult cases in which governments face a significant threat from rebel groups.

[FIGURE 3 ABOUT HERE]

The analysis also indicates that intervention on behalf of one side of a conflict increases the likelihood of intervention on behalf of the opposing side.[17] This could be due to the fact that intervention decisions by one state are influenced by the intervention decisions of other states. Additionally, it could also indicate that some conflicts are more salient to potential interveners than others and are thus more likely to experience interventions of any type. Despite this fact, not all factors equally influence the likelihood of different types of intervention. Government-biased intervention is less likely in ethnic or religious conflicts than in ideological conflicts, while the type of conflict does not affect the likelihood of rebel-biased

intervention. On the other hand, the number of neighboring states influences the likelihood of rebel-biased intervention but has no significant effect on government-biased intervention. These results highlight the importance of examining the determinants of government- and rebel-biased interventions separately.

Discussion and Conclusion

A theoretical framework centered around the premise that potential third party interveners care about the outcome of a civil conflict provides an improved understanding of the patterns of military intervention. States are most likely to intervene when they can have the greatest impact on the outcome of a civil conflict. Since interventions will have the greatest impact when the government is faced with an effective rebel group, the theory predicts that both rebel- and government-biased interventions will be most likely when rebel groups have higher levels of relative material capabilities. The statistical analysis supports this claim and indicates that the relative capability of the rebels has a statistically and substantively significant impact on the likelihood that a conflict will experience a military intervention on behalf of the government and the rebels. The theory also helps to explain the observation that while rebel-biased interventions have a significant impact on the likelihood that a rebel group will win a civil conflict, government-biased interventions do not significantly increase the likelihood of government victory. Both rebel- and government-biased interveners intervene when rebel groups provide the greatest challenge to government. Thus, government-biased third parties intervene in the toughest cases, leading them to appear to be ineffective, while rebel-biased third parties intervene in the most favorable cases.

Also notable are the findings that different factors influence the likelihood of government and rebel interventions. Most previous analyses have pooled these types of intervention and examined the likelihood of military intervention in general.[18] However, the results here indicate that the same factors do not influence interventions on behalf of the government and rebel groups. Government-biased intervention is more likely in ideological conflicts

than in identity-based conflicts, while rebel-biased intervention is equally likely in both types of conflicts. Additionally, the number of shared borders increases the likelihood of an intervention on behalf of the rebel group but has no significant effect on government-biased intervention. The ability to support rebel forces militarily may require the need to use neighboring countries as staging grounds. Given this, "neighborhood effects" may be more important in the case of rebel-biased interventions than government-biased interventions. This argument also falls in line with findings that rebel groups are more likely to rebel when they have access to more resources in neighboring countries (Salehyan 2007). The findings about the effects of conflict type and shared borders indicate that interventions to support the government and rebel groups should be examined as distinct phenomena with separate causes and effects. The theoretical framework and analysis above provide a first step in such a direction, and the results indicate that further study of micro-foundations of these different types of interventions will provide a fruitful avenue for future research.

In addition to providing a better understanding of military intervention in civil conflicts, the theoretical framework presented here helps to bridge the gap between the analysis of intervention in civil and international conflicts. As Gleditsch and Beardsley (2004, 381) note, "Recent studies of civil war have borrowed many concepts from studies of international conflict, but they paid little attention to their international dimensions and relations to third parties." The assumption that the primary goal of third-party interveners in civil conflicts is to affect policy outcomes more closely mirrors the assumed preferences of interveners in studies of intervention in international wars (Gartzke and Gleditsch 2004; Smith 1996; Werner 2000). Given that policies are often dictated by the winners in both international and civil conflicts, third parties care about who wins and who loses. At its heart, politics is as Harold Laswell (1936) described it—a struggle about "who gets what, when, [and] how"—and military intervention is no exception.

However, despite the similarities between interventions in international and civil conflicts, they still remain distinct phenomena. While international conflicts are fought between two

sovereign powers, civil conflicts are generally fought between an established government and a rebel group. Therefore, while there may not be a fundamental difference between intervening in favor of "State A" or "State B" in an international conflict, the analysis here shows that the same cannot be for intervening in favor of the government or a rebel group in a civil conflict. These differences are in part due to the asymmetry of power inherent in civil conflicts. Therefore, while some parallels can be made between intervening in international and civil conflicts, military interventions in civil wars should be analyzed in light of the asymmetric struggle between two competing domestic groups that characterizes these conflicts. The analysis above hopefully moves the study of military intervention in civil conflicts further in that direction.

Notes

[1]For a discussion of this conventional wisdom, see Regan and Aydin (2006).

[2]While I assume that civil wars result from commitment problems, the implications of the model derived below do not depend upon this assumption. Alternatively, I could have assumed that civil wars result from another rationalist explanation, such as asymmetric information.

[3]I assume that the government has the potential to renege to keep the model in line with previous models of the onset of civil war. Amending the model to allow for the rebels to renege would not affect the predictions about the relationship between military intervention and civil war outcomes.

[4]The implications of the model do not depend upon this specific functional form. Any contest success function such that $\partial p_i/\partial m_i > 0$, $\partial^2 p_i/\partial m_i^2 > 0$ if $m_i < m_j$, and $\partial^2 p_i/\partial m_i^2 < 0$ if $m_i > m_j$ will lead to similar predictions.

[5]Given T's strategy, m'_R is weakly increasing in m_R.

[6]These cases were the NPFL in Liberia (1989–96) and the NSF in Romania (1989). In the empirical analysis below, I reestimate the model excluding these extreme cases to make sure that these outliers do not influence the results. None of the substantive findings change when these cases are excluded.

[7]Given his operational definition, Regan (2002) codes an intervention as an event that occurs at a specific time, not as a time period.

[8]A similar operationalization of intervention was used by Regan and Aydin (2006) to examine the effect of intervention on the duration of civil conflicts.

[9]If a Polity score was not available for the year preceding the start of a conflict (because the conflict started in the state's first year of independence), I used the Polity score of the first year of the conflict. In all of these cases, the conflict lasted more than a year, so the outcome of the conflict did not affect the coding of the regime type.

[10]Given that Polity data are not available for Grenada, this civil conflict was excluded

from this analysis, but is included in the analysis of military interventions below. Data on military personnel is missing for four additional conflicts, which were excluded from both analyses.

[11]To examine the robustness of the effects of intervention, I re-estimated the competing risks models with decay functions ranging from $0.50^t(i_j)$ and $0.99^t(i_j)$. The effect of significant effect of rebel intervention on rebel victory upheld across all specifications.

[12]Findley and Teo (2006) also examine intervention decisions using an event history approach. Their study examined why particular states intervene in a particular civil war, while this analysis only examines why a particular civil war experiences an intervention. Findley and Teo did not include a measure of relative rebel capability in their analysis.

[13]*Neighbors* is the number of states contiguous by land or river to the state undergoing the conflict, as coded by Stinnett et al. (2002).

[14]Rather than including a variable indicating whether there has been a previous intervention of the other type, another possibility would be to estimate a stratified Cox model in which two separate baseline hazards depending upon whether there has or has not been a previous intervention of the other type. I estimated such a model and the substantive results were similar to those of the model presented here.

[15]Perhaps this is due to the very definition of a major power. As Bull (1984, 1–2) notes, "a great power is, among other things a power that cannot be intervened against: when a once great power becomes the target of foreign intervention, like Turkey in the last century or Russia after 1917, this is a sign that its status as a great power has lapsed."

[16]As a robustness check, I also estimated these models using an alternative measure of relative rebel capabilities coded by Cunningham, Gleditsch, and Salehyan (2007) that relies on both subjective and objective criteria. Given that this measure was not available for all conflicts in the Regan (2002) data, this additional analysis only included a sample of 118 conflicts. The results of the robustness check confirmed the finding that relative rebel strength increases the likelihood of government-biased intervention. However, rebel strength

did not have a statistically significant effect on rebel intervention. These findings indicate that we can be less confident with the results predicting that rebel strength increases the likelihood of rebel-biased intervention. Given that the Cunningham, Gleditsch, and Salehyan (2007) measure is available for fewer cases and only varies over time in eleven of the conflicts (compared to ninety-nine using the Regan/COW measure), I have elected to report the results using the Regan/COW measure in the paper. Results from the robustness check are available from the author upon request.

[17] I also estimated the model using decay functions ranging from $0.50^t(i_j)$ and $0.99^t(i_j)$ to operationalize intervention, and this had no effect on the substantive implications of the model.

[18] A notable exception to this is Findley and Teo (2006).

Appendix

Let m_i be the pre-intervention capabilities of the favored party and let m_j be the pre-intervention capabilities of the unfavored party. In the proofs that follow, I assume a fixed value of m_j and find critical values of m_i. Though not denoted as such, it should be understood that all critical values are functions of m_j. For a given value of m_j, let $m_i^{\alpha h}$ and $m_i^{\alpha l}$ be the values of m_i such that $\partial p_i/\partial m_i(m_i^{\alpha h}) = \partial p_i/\partial m_i(m_i^{\alpha l}) = \alpha$, where $m_i^{\alpha h} > m_j$ and $m_i^{\alpha l} < m_j$. Therefore, $\partial p_i/\partial m_i < \alpha$ for $m_i > m_i^{\alpha h}$ and $m_i < m_i^{\alpha l}$, and $\partial p_i/\partial m_i > \alpha$ for $m_i^{\alpha l} < m_i < m_i^{\alpha h}$.

Lemma 1. *In equilibrium, (1)* $m_T^* = 0$ *if* $m_i \geq m_i^{\alpha h}$*, and (2)* $m_T > 0$ *if* $m_i^{\alpha l} \leq m_i < m_i^{\alpha h}$.

Proof. Consider $m_i \geq m_i^{\alpha h}$. Since $\partial p_i/\partial m_i < \alpha$ for all $m_i > m_i^{\alpha h}$, $EU_T(0|m_i) > EU_T(m_T|m_i)$ for $m_T > 0$. Thus, if $m_i \geq m_i^{\alpha h}$, T's optimal strategy is to chose $m_T^* = 0$. Now consider $m_i^{\alpha l} \leq m_i < m_i^{\alpha h}$. Since $\partial p_i/\partial m_i > \alpha$ for all $m_i^{\alpha l} < m_i < m_i^{\alpha h}$, there exists $\epsilon > 0$ such that $EU_T(\epsilon|m_i) > EU_T(0|m_i)$. Thus, if $m_i^{\alpha l} \leq m_i < m_i^{\alpha h}$, it can never be the case that $m_T^* = 0$. □

Lemma 2. *In equilibrium,* $m_T^* \leq m_i^{\alpha h} - m_i$.

Proof. It is sufficient to show that $EU_T(m_i^{\alpha h} - m_i) > EU_T(m_T)$ for all $m_T > m_i^{\alpha h} - m_i$. Consider a level of intervention $m_T = m_i^{\alpha h} - m_i + \epsilon$, where $\epsilon > 0$.

$$\begin{aligned} EU_T(m_i^{\alpha h} - m_i) &> EU_T(m_i^{\alpha h} - m_i + \epsilon) \\ p_i(m_i^{\alpha h}) - \alpha(m_i^{\alpha h} - m_i) &> p_i(m_i^{\alpha h} + \epsilon) - \alpha(m_i^{\alpha h} - m_i + \epsilon) \\ \alpha\epsilon &> p_i(m_i^{\alpha h} + \epsilon) - p_i(m_i^{\alpha h}) \end{aligned}$$

Since $\partial p_i/\partial m_i < \alpha$ for all $m_i > m_i^{\alpha h}$, the above inequality is always true. □

Lemma 3. *If* $m_T^* > 0$, $m_T^* = \min\{\bar{m}_T, m_i^{ah} - m_i\}$.

Proof. Assume $m_T^* > 0$ and let $m_T^* = \min\{\bar{m}_T, m_i^{ah} - m_i\}$. By definition, $m_T^* \leq \bar{m}_T$, and by Lemma 2, $m_T \leq m_i^{\alpha h} - m_i$. Suppose there exists $m_T < m_T^*$ such that $EU_T(m_T|m_i) >$

$EU_T(m_T^*|m_i)$. Consider m_T such that $m_i+m_T \geq m_i^{\alpha l}$. Since $\partial p_i/\partial m_i > \alpha$ for $m_i \in [m_i^{\alpha l}, m_T^*]$, $EU_T(m_T) < EU_T(m_T^*)$, implying that m_T cannot be an equilibrium. Now consider m_T such that $m_i + m_T < m_i^{\alpha l}$. Since $\partial p_i/\partial m_i < \alpha$ for $m_i < m_i^{\alpha l}$, $EU_T(m_T) < EU_T(0)$, implying that m_T cannot be an equilibrium. Since $m_T^* > 0$, it must be the case that $m_T^* = \min\{\bar{m}_T, m_i^{ah} - m_i\}$. □

Lemma 4. *In equilibrium, if $m_T^* > 0$ at $\tilde{m}_i < m_i^{\alpha h}$, then $m_T^* > 0$ for all $m_i \in (\tilde{m}_i, m_i^{\alpha h})$.*

Proof. If $\tilde{m}_i \geq m_i^{\alpha l}$, the lemma follows directly from Lemma 1. From Lemma 3, we know that in equilibrium $= \min\{\bar{m}_T, m_i^{ah} - m_i\}$. Suppose $\tilde{m}_i < m_i^{\alpha l}$ and T's optimal strategy is $m_T^* = m_i^{\alpha h} - \tilde{m}_i$. This implies that

$$\begin{aligned} EU_T(m_i^{\alpha h} - \tilde{m}_i|\tilde{m}_i) &\geq EU_T(0|\tilde{m}_i) \\ p_i(m_i^{\alpha h}) - p(\tilde{m}_i) - \alpha(m_i^{\alpha h} - \tilde{m}_i) &\geq 0. \end{aligned} \tag{1}$$

Now consider $m_i = \tilde{m}_i + \epsilon \leq m_i^{\alpha l}$, where $\epsilon > 0$. T prefers intervening with $m_T = m_i^{\alpha h} - \tilde{m}_i - \epsilon > 0$ to not intervening if

$$\begin{aligned} EU_T(m_i^{\alpha h} - \tilde{m}_i - \epsilon|\tilde{m}_i + \epsilon) &\geq EU_T(0|\tilde{m}_i + \epsilon) \\ p_i(m_i^{\alpha h}) - p(\tilde{m}_i + \epsilon) - \alpha(m_i^{\alpha h} - \tilde{m}_i - \epsilon) &\geq 0. \end{aligned} \tag{2}$$

Since $\partial p_i/\partial m_i < \alpha$ for all $m_i \in (\tilde{m}_i, \tilde{m}_i + \epsilon)$, it follows that $p_i(\tilde{m}_i + \epsilon) - p_i(\tilde{m}_i) < \alpha\epsilon$. This implies that the left hand side of inequality (2) is greater than the left hand side of inequality (1). Given this, if (1) is satisfied, then (2) is satisfied. Thus, $m_T^* > 0$ for all $m_i \in [\tilde{m}_i, m_i^{\alpha l})$. From above, we know that $m_T^* > 0$ for $m_i \in [m_i^{\alpha l}, m_i^{\alpha h})$.

Suppose $\tilde{m}_i < m_i^{\alpha l}$ and T's optimal strategy is $m_T^* = \bar{m}_T < m_i^{ah} - \tilde{m}_i$. This implies that $EU_T(\bar{m}_T|\tilde{m}_i) - EU_T(0|\tilde{m}_i) \geq 0$. Since $\tilde{m}_i < m_i^{\alpha l}$ and $\partial p_i/\partial m_i < \alpha$ for $m_i < m_i^{\alpha l}$, it must be the case that $\tilde{m}_i + m_i^* > m_i^{\alpha l}$. Now consider $m_i = \tilde{m}_i + \epsilon \leq \min\{m_i^{\alpha h} - \bar{m}_T, m_i^{\alpha l}\}$, where $\epsilon > 0$. T prefers $m_T = \bar{m}_T$ to $m_T = 0$ given $\tilde{m}_i + \epsilon$ if $EU_T(\bar{m}_T|\tilde{m}_i + \epsilon) - EU_T(0|\tilde{m}_i + \epsilon) \geq 0$. This will be the case if

$$EU_T(\bar{m}_T|\tilde{m}_i + \epsilon) - EU_T(0|\tilde{m}_i + \epsilon) \geq EU_T(\bar{m}_T|\tilde{m}_i) - EU_T(0|\tilde{m}_i)$$

$$
\begin{aligned}
p_i(\tilde{m}_i + \bar{m}_T + \epsilon) - p_i(\tilde{m}_i + \epsilon) - \alpha\bar{m}_T &\geq p_i(\tilde{m}_i + \bar{m}_T) - p_i(\tilde{m}_i) - \alpha\bar{m}_T \\
p_i(\tilde{m}_i + \bar{m}_T + \epsilon) - p_i(\tilde{m}_i + \bar{m}_T) &\geq p_i(\tilde{m}_i + \epsilon) - p_i(\tilde{m}_i) \qquad (3)
\end{aligned}
$$

Since $\partial p_i/\partial m_i > \alpha$ for $m_i \in [\tilde{m}_i + \bar{m}_T, \tilde{m}_i + \bar{m}_T + \epsilon]$ and $\partial p_i/\partial m_i < \alpha$ for $m_i \in [\tilde{m}_i, \tilde{m}_i + \epsilon]$, it must be the case (3) is true. Thus, $m_T^* > 0$ for $m_i \in [\tilde{m}_i, \min\{m_i^{\alpha h} - \bar{m}_T, m_i^{\alpha l}\}]$. It is shown above that if $m_T^* > 0$ for $m_i = \min\{m_i^{\alpha^h} - \bar{m}_T, m_i^{\alpha l}\}$, $m_T^* > 0$ for $m_i \in [\min\{m_i^{\alpha h} - \bar{m}_T, m_i^{\alpha l}\})$.

□

Proposition 1. *T intervenes ($m_T^* > 0$) if and only if $\alpha < k/4$ and $m_i^* \leq m_i < m_i^{**}$, where $m_i^* < m_j < m_i^{**}$.*

Proof. If $\alpha \geq k/4$, $\partial p_i/\partial m_i < \alpha$ for all m_i, so T's optimal strategy is to choose $m_T = 0$. If $\alpha < k/4$, $m_i^{\alpha h}$ and $m_i^{\alpha l}$ exist. Let $m_i^{**} = m_i^{\alpha h}$. It follows from Lemma 1 that $m_T = 0$ for $m_i \geq m_i^{**}$. Also, $m_i^{**} > m_j$ by definition of $m_i^{\alpha h}$. If $\alpha < k/4$, there exists a value of m_i such that $m_T > 0$ in equilibrium. Let m_i^* be the smallest value of $m_i \geq 0$ such that $m_T > 0$ in equilibrium. By Lemma 4, we know that $m_T > 0$ for all $m_i \in (m_i^*, m_i^{\alpha h})$. Given Lemma 1, it must be the case that $m_i^* \leq m_i^{\alpha l} < m_j$. □

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Table 1: Civil Conflict Outcomes (Competing Risks Cox Model)

	Government Victory	Rebel Victory	Negotiated Settlement
	β (s.e.)	β (s.e)	β (s.e)
Government Intervention	0.037 (.417)	-0.403 (.858)	-0.536 (.618)
Rebel Intervention	-0.697 (.546)	1.679** (.695)	1.466** (.520)
Relative Rebel Capability	-0.092 (.076)	0.251* (.131)	0.277** (.103)
Intensity	0.055** (.013)	0.052** (.018)	0.000 (.026)
Ethnic/Religious	-0.168 (.308)	-0.869* (.492)	0.704 (.662)
Cold War	1.004** (.449)	-0.536 (.492)	-1.080** (.349)
Mountains	-0.103 (.134)	0.088 (.212)	-0.297** (.113)
Democracy	-0.020 (.024)	-0.045 (.049)	0.060** (.028)
Ethnic/Religious*Time	—	—	-0.01* (.006)
N(Conflicts)	139	139	139
N(Months at Risk)	11542	11542	11542

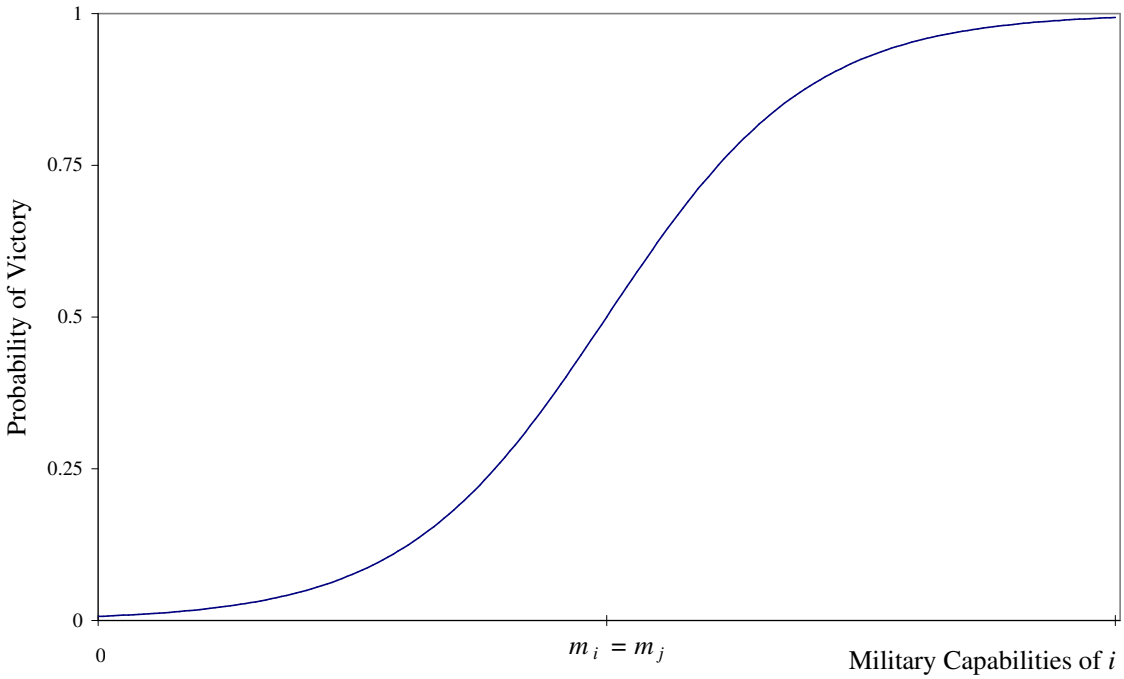
**$p < .05$, *$p < .10$. Robust standard errors are reported.

Table 2: Government and Rebel Interventions (Cox Model)

	Government Intervention	Rebel Intervention
	β (s.e.)	β (s.e)
Relative Rebel Capability	0.257** (.057)	0.148* (.077)
Intensity	0.021 (.017)	-0.008 (.025)
Contiguous States	0.07 (.056)	0.124** (.055)
Ethnic/Religious	-0.866** (.245)	0.349 (.250)
Cold War	0.461 (.337)	0.781** (.395)
Rebel Intervention	1.324** (.328)	—
Government Intervention	—	1.485** (.331)
Cold War*Time	—	-0.013 (.009)
N(Conflicts)	140	140
N(Months at Risk)	6356	7745

$^{**}p < .05$, $^{*}p < .10$. Robust standard errors are reported.

Figure 1: Contest Success Function: Probability of Military Victory, $p_i(m_i, m_j)$



The probability that Player i wins the conflict given its military capabilities, m_i. Plot assumes $m_j = 1000$ and $k = 0.005$.

Figure 2: Hazard Functions of Civil Conflict Outcomes

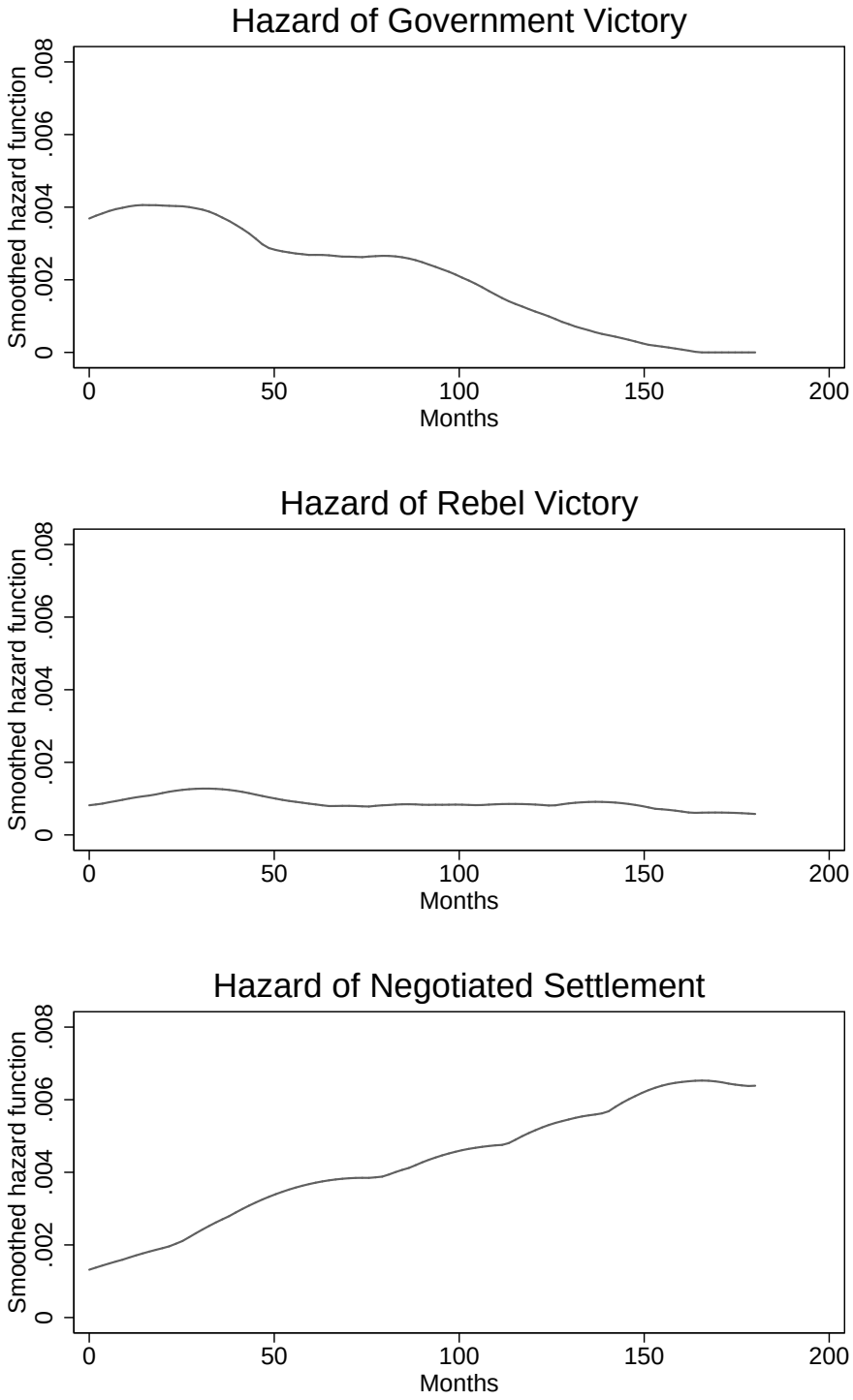
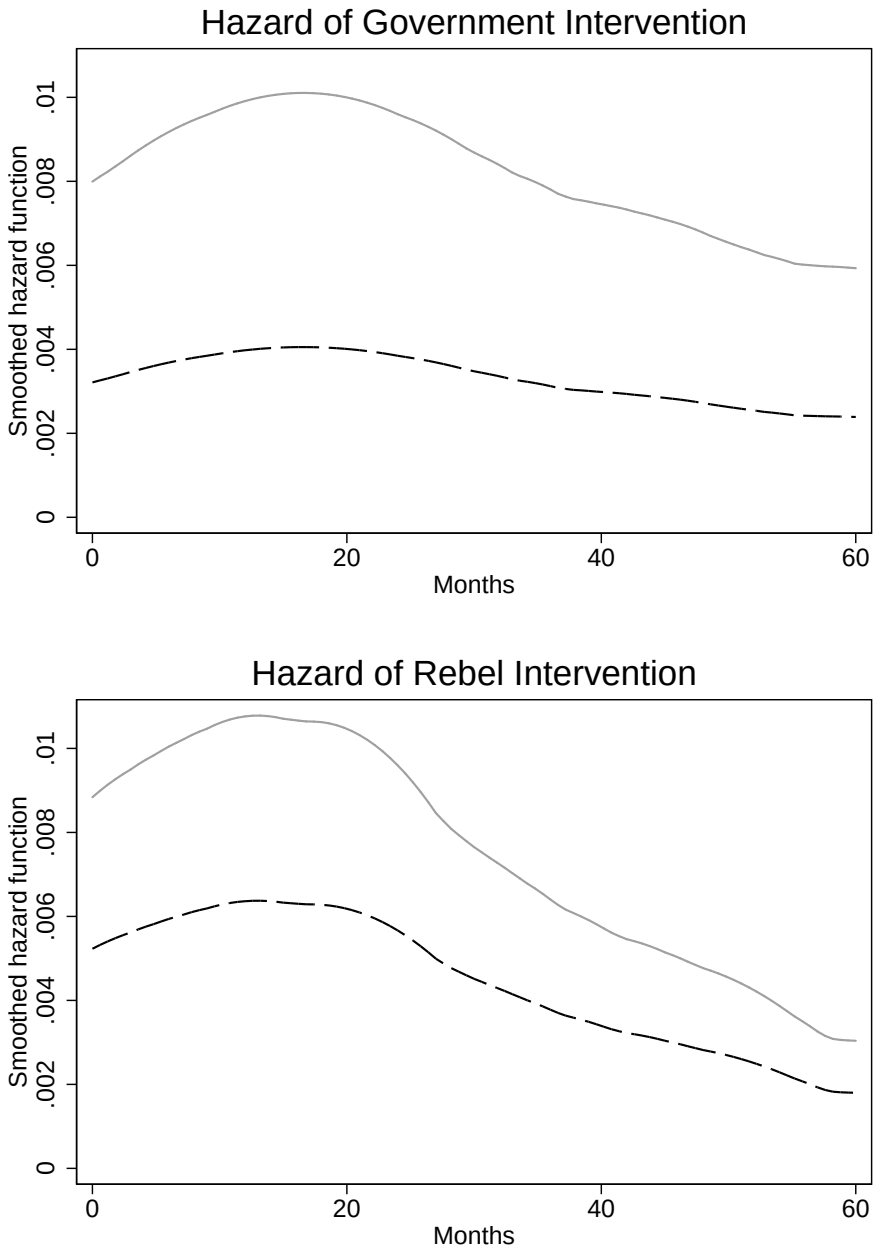


Figure 3: Relative Rebel Capability and Military Intervention



Solid Line: Rebel Capability = one standard deviation above mean.
Dashed Line: Rebel Capability = one standard deviation below mean.