

The Downstream Effects of Combatant Fragmentation on Civil War Recurrence

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Abstract

We consider whether the fragmentation of combatants during civil war has downstream effects on the durability of peace following civil wars. We contend specifically that the splintering of groups, a primary manifestation of fragmentation, produces potential spoiler groups that are neither incidental nor unimportant in the process of civil war resolution. Making connections to the spoiling and credible commitment literatures, we hypothesize that splintering hastens the recurrence of civil wars. Empirical analysis of fragmentation events since WWII offers support for the hypothesis that splintering decreases the duration of post-civil war peace. Taken together, the results suggest the need to pay closer attention to the dynamics of fragmentation.

1 Introduction

Accounts of civil wars are replete with examples of changes to the set and characteristics of the combatants. Evidence from Chad, Sudan, Chechnya, Israel, Burundi, Peru, Angola, India, among many others, demonstrates that actors change substantially even during short periods of time. Groups often fracture, leading to new groups that are sometimes closely tied to their former group as allies; other times they break ties completely. Although group splintering occurs in a number of cases, it is less certain whether the effects of splintering are incidental or fundamental to likelihood that civil wars are resolved peacefully. Certainly, there are a number of cases, such as Afghanistan, Chad, and Liberia where groups splinter (?), and subsequent peace does not last (?). In this paper, we ask whether such a relationship holds more generally. Are wars that experience such fragmentation more likely to recur, and if they do recur, how quickly.

Most theoretical accounts of civil war generally consider two primary actors, a government and rebel group, or leave unspecified the set of actors involved. Other than some recent exceptions (?, ?, ?, ?, ?), few quantitative studies account for the role of a lengthy roster of combatants. In most qualitative accounts, the full set of actors in a civil war may be appreciated much more, but it is unclear what generalizable lessons can be learned. Greater attention to the dynamics of multiple warring factions has appeared in recent years, but this work is largely considered in the context of comparing wars with greater numbers of actors against wars with fewer (?, ?). Others find little evidence that general group disunity effects the durability of negotiated peace. We question whether there is something unique about the dynamics of group formation and change that needs to be considered.

In this paper, we contend that specific events of fragmentation, specifically the splintering of combatant groups into at least two groups with the capability to continue fighting, which occur while wars are still ongoing can alter the environment in which groups inter-

act in ways that change their propensities to seek peace or or spoil peace processes in the pursuit of further war. Whereas splintering could shorten the civil war, such as with ? “win away pieces” argument, we ask whether the duration of *post-war* peace is shortened, even if fragmentation contributed to the cessation of hostilities. We argue that splintering not only creates new groups with divergent preferences and potentially significant capabilities, but it may also lead to significant commitment problems that persist after the end of the civil war. These conditions lead to the recurrence of conflict, as new groups may be unwilling to accept the post-war situation, and governments will be wary, even of rebel groups that agree to a negotiated settlement.

Using the Uppsala Conflict Actor Database (V 2.1-2010) and ? data on civil war recurrence, we examine whether and how rebel group splintering affects the timing of civil war recurrence. While fragmentation could refer to a generic decentralization of actors, institutions, and power (? , ?), we focus this study specifically on the effects of splits within groups, which we hereafter refer to as “fragmentation” or “fragmentation events”. Our coding indicates that splintering takes place in 16% of civil wars in ? data, but even this relatively small group of cases appears to lead to a significant shortening of post-civil war peace.

We proceed by first reviewing the literature on civil war resolution to make the point that the dynamics of actor formation and change leave many unanswered questions. Then we develop connections between fragmentation and incentives to spoil peace agreements and identify hypotheses that we then test. Of particular note, we detail the findings that fragmentation is associated with the recurrence of war. The paper contributes to our understanding of civil war resolution by drawing more attention to the dynamics of multiple stages of conflict as well as the potential for nominally weaker actors to influence the course and outcome of peace processes.

2 Literature

The civil war resolution literature has boomed in recent years with growing consensus around a number of factors associated with the successful settlement of civil wars. Generally, the literature has been guided by the rationalist approach to consider commitment and information problems (A, B). More specifically, substantial attention has been placed on what makes negotiated agreements strong enough to be signed and hold over the long run (C, D). Some contend that wars ending in victory are likely much more secure than negotiated agreements (E, F, G, H). Related, the issue that has drawn perhaps the most attention is the existence and character of power-sharing arrangements (I, J, K, L, M, N, O). The little work that has questioned the importance of power-sharing points to the important role of ethnicity (P), suggesting that ethnic wars may face more severe commitment problems and are likely to see issues as indivisible (Q).

Third-parties may be no less important. Some have contended that a third-party security guarantee is a near necessary condition for successful implementation of peace agreements (R, S, T). Third-parties could also occupy a central role in a more holistic peacebuilding process (U, V) especially if implemented in a paced and measured way (W). Contextual factors such as economic development, improvements, and incentives may be crucial to successful peace implementation (X, Y, Z), a result that, if correct, might imply a strong role for third-parties in granting foreign aid and helping with other economic incentives.

In recent years, scholars have begun to focus more explicit attention on the behavioral dynamics of the combatants involved, including the number of combatants fighting wars or attempting to make peace, as well as the incentives that these dynamics create. Particularly, it is becoming clear that the roster of actors cannot be ignored: some combatants may exercise a “veto” over the decision to end a war (AA), governments may refuse to make concessions to some groups if they are likely to face demands from many other groups

afterwards (?), and even third-party military intervention can complicate the length and terms of a war's resolution (? , ? , ? , ? , ?). Delving deeper into this relation, others have asked whether it matters *how* the various actors are involved and find that excluding actors from a peace agreement may not always matter, especially if the included parties prepare for likely violence from these additional actors (?). And it may be the case that third-parties have developed ways to mediate conflicts to overcome such problems (e.g., ? , ? , ? , ?).

Despite substantial attention to the general conditions under which civil wars end, as well as many emerging ideas on how multi-actor wars can complicate civil war resolution, there is a lack of understanding about how fragmentation affects war dynamics. It is likely the case that the *process* of actor fragmentation whereby new actors are formed, modified, or even destroyed, affects civil wars differently than if one were to simply count up actors and consider how multi-actor wars complicate resolution. A greater understanding of how actors are formed and behave, along with all the associated complexities (?), could offer new insights into the behavioral conclusions of wars. As noted above, fragmentation could be conceptualized as an event or as a characteristic. We are suggesting that the event of splitting may in itself matter, rather than just the characteristic that a large group is fractured along several lines for a variety of reasons (?) or alternatively the exclusive rise of new actors (?).

A focus on splintering challenges the unitary actor and fixed set of actors assumptions in much of the current literature (?). It implies that how actors form, change, and cease to exist may be important for how conflict rises and falls.¹ Some work suggests this is the case during wartime (See, for examples, ? , ? , ? , ?) and has stimulated a number of questions in need of greater investigation. There is little empirical work on how splintering may effect conflict *after* civil war, however. ?, for example, focus on the effects of group

¹Note that our interest is in the effects, not causes, of fragmentation. The literature on the causes of fragmentation is extensive (see review in ?), especially in the social movement literature.

disunity and group cooperation during a civil war on the durability of subsequent peace agreements. This neglects the specific process of group splintering, which we argue is not only the most dramatic, but the more important, form of group disunity. This may be why their study finds mixed evidence that group disunity effects the durability of peace agreements (? , 449).

Some literature has examined fragmentation in greater depth and contends that fragmentation may actually be beneficial to ending a war, because groups are weakened and easier to defeat (?), otherwise known as “divide and conquer” (?). For instance, a split in the Ugandan rebel group WNBF led to the easier defeat of the WNBF and its splinter faction, the UNRF II. It may be the case that, rather than pursue victory, the government pursues a negotiation strategy that attempts to “win away pieces” (? , 23) or “divide and concede” (?) in an attempt to reach a settlement (?), encouraged by incentives not to make major concessions, especially too early in a war (?) or if more combatants remain (?).² Such a strategy may increase the likelihood of successful settlements, as it decreases the prevalence of inherent “commitment problems” (?).

While there is clearly much to be learned about whether fragmentation, in fact, motivates negotiated agreements, there is potentially an important paradox: as groups fragment, they may do so along consequential cleavages, such as moderates and extremists, where moderates can press for peace more easily. Fragmentation could encourage quicker negotiated agreements (?), but the process of reaching an agreement following fragmentation might sow the seeds for later breakdown.

By conventional wisdom, splits that create weak groups should not matter, because weaker groups should not have sufficient ability to veto or affect the outcome of the war (?). This contrasts, however, with others who contend that even small, nominally weak groups may be able to use other strategies to create mistrust or otherwise sway the

²It may be the case that fragmentation complicates bargaining, such as in ?, though this approach treats fragmentation as a characteristic of the group and not as an event.

balance and derail the peace process (? , ?). Indeed, a literature on “spoiling” has emerged in recent years (? , ? , ?) that highlights the perils of implementing the peace following civil wars, especially in the face of marginalized groups with incentives to disrupt peace. As internal political divisions affect a group’s opportunity and willingness to spoil (?), we now turn to a discussion of conditions under which this could occur.

3 Theory

Fragmentation creates difficulties for peace after the conclusion of fighting in a civil war. In this section, we discuss how group splintering during civil wars may lead to problems after civil wars. Such fragmentation may create new groups with different preferences, and sufficient capability to continue fighting after the conclusion of a civil war. Furthermore, the fragmentation of a rebel group during a civil war may create commitment problems in the post-civil war period, as governments and other rebel groups are uncertain of the prospects of continued adherence to the post-war status quo.

Combatants engaged in civil war are motivated by the desire to achieve a number of possible outcomes. Conventional wisdom holds that the war’s outcome is paramount for both the government and rebel factions. For governments, the goal is typically thought to be a preservation of the status quo to retain power. The motivation for rebels: achieve political change — either limited concessions, independence, or government overthrow. Wars, however, are complex and leave room for many other motivations, both political and personal (? , ?). A combatant is not likely to have a single political goal, furthermore, but rather a variety of goals depending on the particular internal organization of the group.

During the process of war, the internal organization of a group, and its preferences about the outcome of the war, may fluctuate in response to events on the ground. As battles are won or lost and as opportunities for negotiations arise, combatants must

attempt to navigate their way through the “fog” of war (?). Decisions, such as how to prosecute the war, whether to pursue peace, and on what terms, face combatants regularly. And much hangs in the balance: the war could be won or lost with much at stake for the individuals who participated. Such existential threats naturally result in consequential decisions such as whether rebels should part ways and fight separately or remain together, despite different goals.

As groups splinter, the creation of new groups with divergent preferences affects how a war ends, especially whether a war ultimately recurs. The most direct way that rebel group fragmentation impedes successful civil war resolution is through the creation of factions that prefer to continue violence rather than agree to a particular settlement (?, ?). Fragmentation is likely to occur because combatants within the original rebel group disagree over the strategies or the end goals of the groups, especially in response to outside hostility (?). In either case, the fragmentation is indicative of an underlying divergence of preferences among rebels, which can lead to differences in commitment (or opposition) to peace agreements and the acceptance of victory of one of the combatants.

While the presence of multiple rebel groups may complicate war resolution (?), mere presence of multiple groups does not imply a significant divergence of preferences. Geographic limitations, such as the inability of groups with limited capability to coordinate attacks, could account for the difficulty of securing peace. In such a case, each group may possess similar preferences, with significant overlap in their demands on the government. As groups actively pursue a split or dissolution of part of their group, however, resulting groups are likely to have significantly different sets of preferences, and it may therefore be more difficult for a settlement to satisfy all of the combatants. This is particularly true when newly splintered groups are less willing to end the violence (?, ?).

Negotiated agreements nonetheless occur under a wide variety of circumstances. Some agreements likely exclude one or more parties with the expectation that the agreement will survive in spite of violence by those parties (?). Or an all-inclusive settlement may

obtain, but be more beneficial to some groups and not others, especially if a significant divergence of preferences characterizes the various groups. And sometimes an agreement is not reached at all, but the war stalls or ends. Such war endings are intermediate steps towards the end goal of successful peace implementation (? , ?), leaving open the important question of whether fragmentation affects the durability of a particular settlement.

The splintering of an existing group means that each of the resulting groups is likely to maintain some combative capacity. That is, fragmentation results in not only the creation of groups that are likely to possess divergent interests, but the creation of groups that are likely to possess the means to pursue those different interests. Fragmented groups are therefore better able to continue fighting and opposing the government when compared to groups that are newly created during the conflict. Regardless of how the civil war ends, fragmented groups thus present a consequential obstacle to peace. Even if war ends with the relative victory of one of the combatants, splintered groups may be unwilling to accept the finality of this outcome, and may bide their time until they are able to mount a new campaign against the post-war status quo. Therefore, group splintering can cause problems not only for negotiated peace, but also for peace won on the battlefield.

Even in cases where the preferences for continuing the war do not diverge, or when all fragmented groups are included in a negotiated agreement (?), fragmentation may create uncertainty regarding the future that may lead to renewed violence. The fragmentation of a group during a civil war may create commitment problems (e.g., ?) that are difficult to overcome after the end of a civil war. Some argue that these issues are lessened by fragmentation, because the resulting groups that ally with the government will retain the capacity to punish the government from failing to follow through on any resulting settlement (? , 121). Fragmentation is not only about the resulting capability of groups, however. Splintering may indicate a significant divergence of preferences within a group, and that further fragmentations are likely. This creates a great deal of uncertainty in the post-civil war environment.

If a civil war ends in settlement, all included parties must commit to implementing the peace agreement (?). This includes splintered groups that subsequently side with the government in the conflict, and how much can the government trust a rebel groups to commit to peace that has so recently been an enemy? Other groups may be unwilling to fully implement an agreement when there is a belief that *any* one of the parties of the agreement will fall apart. This may create caution for implementation in other rebel groups or the government, either because this possible fragmentation may create an opportunity to obtain a greater portion of the spoils, or because groups are afraid to commit significant resources to implementing an agreement that will likely fall apart (?). Fragmentation itself may be the most ready indicator of whether future splintering of groups is likely to undermine peace.

We argue that fragmentation creates new groups that are either likely to continue fighting after the civil war, or groups that increase commitment problems among the other actors in the post-civil war period. Thus the length of peace after a civil war (despite whether the civil war ended through negotiation or fighting), is much more tenuous in cases where rebel group fragmentation occurred during the civil war. This leads to the expectation that peace is much less likely to last in cases of civil war rebel group fragmentation:

Hypothesis 1 *The duration of peace after a civil war is likely to decrease if at least one rebel group fragmented during the civil war.*

Fragmentation is an important process during civil war, but the consequences of fragmentation are felt even after the conclusion of the civil war. Fragmentation creates significant obstacles to peace, whether the obstacle is a new group willing to spoil the peace, or a severe commitment problem that make implementation of peace difficult. In either case, a fragmentation may lead to a shorter duration of peace after the civil war.

4 Research Design

We use the ? data set to analyze civil war recurrence for several reasons.³ They include data not only on civil wars, but on the recurrence of civil wars (see 4.1). The data are extremely well documented, especially the beginnings and endings; something that is often ambiguous in other datasets. This additional information is necessary when determining whether a participant fragments during a civil war as opposed to before or after (see 4.2). The data contain information on civil wars from 1946–2002, a significant number of years. Finally, the death threshold is higher than the Uppsala Database, which is important given that splintering is identified if new groups contribute to having at least 25 battle-related deaths. We need to consider fragmented groups that have some non-trivial capability. But as we discuss below, the substantially higher death threshold ensures a difference in group formation and ability to bring about war recurrence.

The unit of analysis for this study is the post-civil war period, as the hypothesis refers to the duration of peace following civil war. Furthermore, we include all civil wars in the data set, regardless of whether any negotiated agreements were signed (unlike ?). The theoretical arguments in the previous section indicate that fragmentation may affect civil war recurrence regardless of how the civil war ended. Given this, we utilize all of the cases in the ? data as a baseline.

4.1 Dependent Variable

The hypothesis requires that we use information on the amount of time that passes prior to a civil war recurrence (Hypothesis 1). Fortunately, the ? data set contains variables fulfilling this requirement. The dependent variable used to test Hypothesis 1 is ? duration variable on the number of months that pass prior to civil war recurring.

³We obtained their replication data set from <http://pantheon.yale.edu/~ns237/index/research/DS2006replication.zip>.

This variable contains information not only on how much time passes prior to a civil war recurrence, but also whether a civil war recurs. This is necessary, because even though we are interested in the amount of time that passes prior to civil war recurrence, it is possible that civil wars never recur, and this information should be considered in the analysis. Unlike ?, we do not restrict the data to cases of civil wars that ended in peace agreements. The hypothesis in the previous section applies to a broader set of cases, including cases that ended in the victory of one of the combatants.

We utilize event history analysis to test this variable, similar to previous studies interested in explaining the amount of time that passes prior to recurrence (?,?,?, ?, ?). There is less agreement on what type of event history model to use in the civil war recurrence context, with some studies utilizing a Cox Proportional Hazards model (?,?, ?, ?, ?), and others utilizing alternatives, such as the Weibull model (?, ?). Here, we use the Cox Proportional Hazards model, because we do not have a strong empirical or theoretical justification to assume that civil war recurrences take place in a particular pattern (?).

4.2 Independent Variables

In order to test the hypothesis, we must construct a variable indicating whether or not a fragmentation takes place during a civil war. The ? data set does not contain a variable indicating fragmentations during the civil war. Instead, the fragmentation variable is constructed by examining other sources for evidence. First, we searched the text descriptions of the ? to find references to fragmentations taking place during the course of the war. Second, the ? lists rebel groups, and contains “a dummy variable that indicates whether a non-state actor was formed by breaking away from an actor that has also been registered in UCDP data” (?, codebook, p. 12). Finally, other sources are used to determine whether fragmentations take place in other civil wars.⁴

⁴Replication data available upon request.

One difficulty is that much of the information on fragmentation is derived from the UCDP/PRIO Armed Conflict Dataset (?), rather than the ? data. In some cases, the ? indicates that a fragmentation takes place in a year when there is no ongoing civil war in the ? data set. At this time, we are only interested in fragmentations that take place during a civil war, which means that we exclude cases when a fragmentation takes place prior to the beginning date or after the ending date of a civil war. In cases where the ? does not clearly indicate the year a fragmentation takes place, we consult additional sources in an attempt to determine a more specific timing.⁵

Although there is not a perfect overlap between the UCDP/PRIO data and the ?, it is important that we use ? because of the higher death threshold. Using the UCDP data would be problematic because splintering is identified when new groups contribute to the production of at least 25 deaths. If the death threshold for the dependent variable were also 25 deaths, then the analysis would verge on tautology. By including the higher death threshold from ?, we can be sure that splintered groups are both conceptually and operationally separate from the outcome of interest. Further, by ensuring that newly splintered rebel groups are capable of causing 25 deaths, we exclude a number of cases where rebels groups are formed that are subsequently too weak to influence conflict or even the perceptions of other actors.⁶ This leads to a more conservative estimate of the frequency of fragmentation (e.g. compared to (?, 881)), but this coding of fragmentation more closely follows the theoretical explanation in this paper.

[Table 1 here]

In the analysis, we include a number of control variables from the ? data set that

⁵Additional information on the sources used to determine timing, as well as those cases where timing is still unknown will be made available in the codebook.

⁶One potentially problematic case is Northern Ireland. Although a group calling itself the Real IRA, does splinter prior to the peace agreement in 1998, the resulting group's activities do not lead to deaths until after the civil war (?, ?). We code this as a case of splintering during the civil war, since this is when the fragmentation appears to take place. Also, given that the Northern Ireland case does not recur in the data, coding this group as a civil war fragmentation provides disconfirmatory evidence for the hypothesis.

correspond to theoretical arguments and empirical findings in the existing literature. First, a number of variables are included to control for characteristics of the war: whether or not the war was an ethnic conflict (?), the costliness of the war (?), the number of factions involved in the war (?), and whether or not the civil war ended in a military victory (?). Another key variable included as a control is whether there was a third-party peace operation (?). Finally, two economic control variables regarding the country where the civil war takes place are included: the amount of primary commodity exports (?) and the level of development (?), as indicated by the amount of electricity used (?).

5 Empirical Analysis

Our empirical examination of the effect of fragmentation on post-civil war peace focuses on the duration of peace following war (Hypothesis 1). Throughout our analysis, we use the Cox Proportional Hazards model, where the dependent variable is a measure of time until war recurrence. In Table 2, we report hazard ratios for each of the variables in the analysis. A hazard ratio above 1 signifies an increasing likelihood of civil war recurrences (i.e. the length of peace after the civil war decreases), whereas a hazard ratio below 1 signifies the opposite.⁷

[Table 2 here]

Table 2 presents four separate analysis, each with a different model specification to examine the robustness of the fragmentation finding. Across each of the models, the fragmentation variable is statistically significant, and the hazard ratio indicates that the presence of a fragmentation during a civil war decreases the duration of peace after the

⁷We further test to insure the assumptions of the Cox Proportional Hazards model are not violated in our primary model (Model 1). Both the “link test” and the “Schoenfeld residuals” test indicate the assumptions are not violated (?).

civil war. That is, civil war is more likely to recur sooner after civil wars where a splinter group has formed. These findings provide robust support for Hypothesis 1.

The findings are consistent across each of the model specifications. After employing a baseline model specification in Model 1, we then turn to Model 2, which excludes the variable indicating the number of groups active in the civil war in order to separate the effect of the process by which rebel groups may be created (i.e. fragmentation) from the results of this process (the number of groups active). The fragmentation variable is statistically significant across both models, indicating that the process by which new groups are formed is distinctly important relative to the overall number of groups in explaining civil war recurrence.

Model 3 uses a different variable indicate the presence of a peacekeeping mission, focusing on United Nations peacekeeping rather than peacekeeping from a variety of sources.⁸ Again, the effect of the fragmentation variable is consistent with previous models, although when examining the presence of United Nations peacekeeping, the hazard ratio of the fragmentation variable decreases slightly. Regardless of the source of the peacekeeping operation, however, there appears to be little evidence from the models that peacekeeping increases the length of peace after the termination of a civil war. This runs counter to the finding in much of the literature that such operations increase peace in the post-civil war period (?, ?, ?, ?, ?).

The final model (Model 4) in Table 2 includes a number of other variables from the ? data that may also influence the length of peace after civil war. Only one of the additional variable in Model 4, the population of the state experiencing civil war, appears to be related to the length of peace. According to the model, as the population gets larger, the duration of peace decreases. Fragmentation remains a statistically significant indicator of a decrease in peace duration. There are, however, other consistent findings

⁸Both of these peacekeeping variables are from ? data, insuring measurement consistency across the two variables.

across the four models. First, the primary commodity exports variable is statistically significant, and indicates that as these exports increase, the duration of peace decreases. This supports existing findings in the literature (?, ?). Second, the development variable indicates that the greater the development of a state, the longer the duration of peace after a civil war, as indicated in previous studies (?).

[Figure 1 here]

The statistical evidence thus offers strong support for Hypothesis 1, illustrating the negative effects that the fragmentation of groups can have on the prospects for durable peaceful resolution to civil wars. As a further illustration of the effect of fragmentation on the duration of peace, Figure 1 presents the rate at which civil wars recur over time, comparing cases where a splinter group was created during the civil war (the dashed line) with cases where no fragmentation took place.⁹ The figure indicates that a number of cases of civil war appear to recur immediately, however, a civil war is much more likely to recur in the first month after civil war if a fragmentation occurred during the civil war (i.e. approximately 0.9 survival rate for non-fragmentation compared with approximately 0.8 survival rate for fragmentation cases). Further, the rate at which civil wars recur is much greater over time when fragmentation takes place during the conflict. Both Table 2 and Figure 1 thus provide robust support for Hypothesis 1.

6 Conclusion

Splintering occurs in a number of civil wars (see Table 1), and our analysis indicates that the presence of these fragmentations may significantly alter the peace after a civil war. The quantitative analysis here suggests that cases such as Liberia and Chad, where fragmentation occurs and peace is fleeting (?, ?) are not outliers, but rather part of a

⁹Figure 1 created using code adapted from ?.

general pattern. Although studies examine the possible effects of the number of combatants on civil wars (Alesina & Wacziarg, 2007), we argue that the process by which groups emerge during civil war is an important indicator of whether civil wars are likely to recur. Specifically, we argue that when groups are created through fragmentation, the resulting groups are likely to cause significant difficulties for maintaining peace in the future.

The findings here are particularly worrying given the potential incentives for a government to induce fragmentation in an effort to successfully end the civil war (Alesina & Wacziarg, 2007). It suggests that the strategies used by governments to help end civil conflict may be counterproductive for long term peace. Although space does not allow, further research is necessary to indicate whether supporting the splintering of rebel groups to arrive at peace is only an indicator of future violence, or a potential *cause* of that violence.

There are several possible theoretical explanations for the increased likelihood of civil war recurrence resulting from fragmentation. First, fragmentation may be tied to spoiling (Alesina & Wacziarg, 2007), where the fragmentation of a group indicates that the newly created group is likely to possess significantly different preferences from the original group, as well as the capability necessary to further these goals. Second, adding to the growing number of ways that commitment problems may be associated with civil war (Alesina & Wacziarg, 2007), fragmentation may make it difficult for other groups to commit to peace with a fragmented group. In either case, the specific process of fragmentation leads to a decrease in the time until recurrence of the civil war. Although there is support for the hypothesis that fragmentation decreases the duration of peace after a civil war, much remains to be done including addressing the mechanisms linking fragmentation to recurrence.

The empirical evidence does strongly support the growing suspicions of an increasing amount of scholarship on the deleterious effects of fragmentation during and after civil wars. Few empirical studies exist linking fragmentation to civil war dynamics and outcomes, however. We expect that this study will contribute to the burgeoning empirical literature on heterogeneity and fragmentation during war, and provide a basis for

continued work in this research area moving forward.

	Number of Cases	% Cases
Fragmentation	22	16%
No Fragmentation	116	84%
Totals	138	100%

Table 1: Frequency of Fragmentation

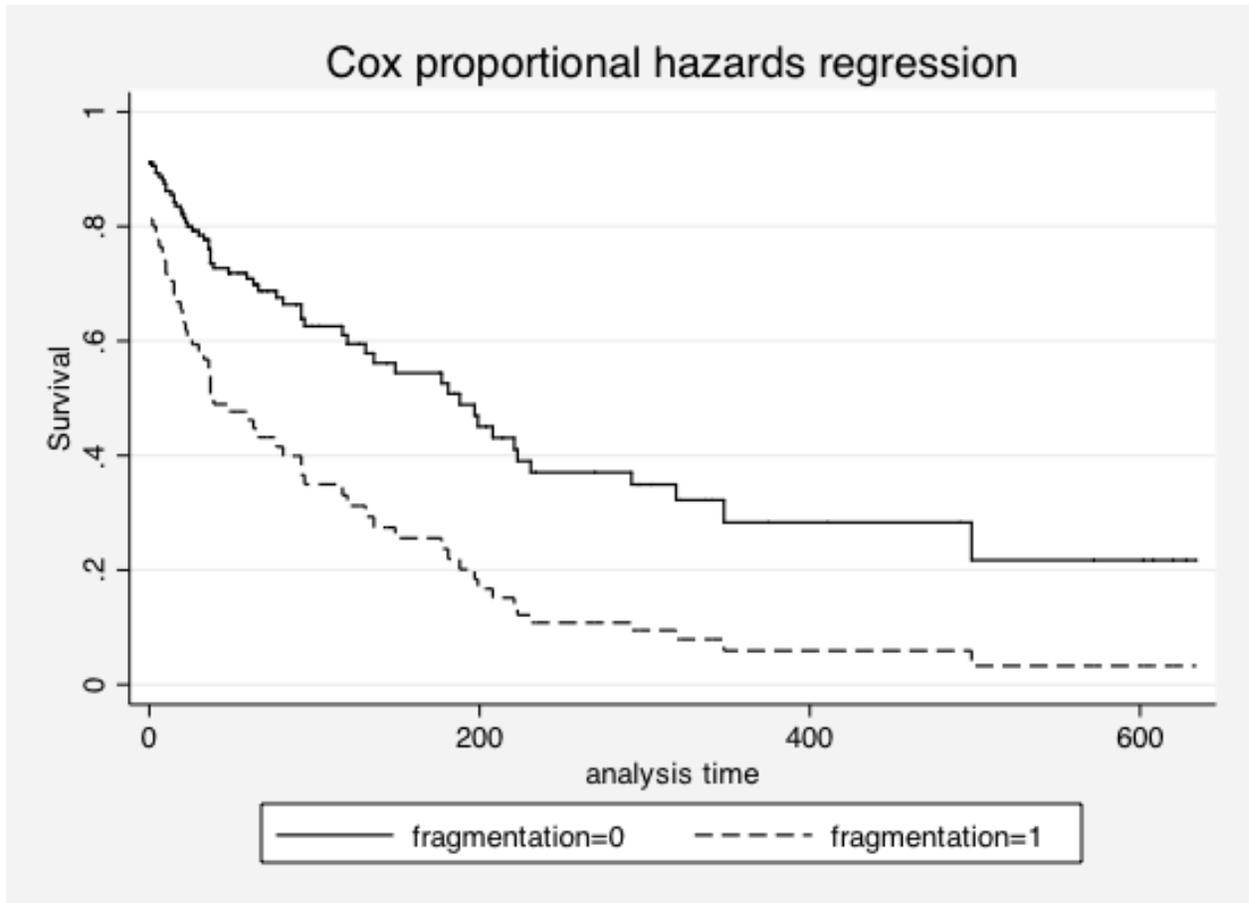


Figure 1: Comparison of Survival Rates Over Time (Fragmentation vs. No Fragmentation)

	Model 1	Model 2	Model 3	Model 4
Fragmentation	2.240**	2.254**	2.053**	2.247**
	(0.718)	(0.712)	(0.671)	(0.732)
Ethnic Civil War	1.528	1.523	1.504	1.316
	(0.440)	(0.436)	(0.435)	(0.400)
Costs of Civil War	1.095	1.097	1.093	1.077
	(0.069)	(0.069)	(0.066)	(0.071)
Number of Factions	1.014	-	1.027	1.080
	(0.079)	-	(0.079)	(0.085)
Strong Peace Operations (All)	0.765	0.772	-	0.801
	(0.320)	(0.323)	-	(0.374)
Strong Peace Operations (UN)	-	-	0.371	-
	-	-	(0.287)	-
Military Outcome	0.816	0.810	0.770	0.756
	(0.221)	(0.217)	(0.207)	(0.226)
Level of Development/Electricity	0.999**	0.999**	0.999**	0.999**
	(0.0003)	(0.0003)	(0.0003)	(0.0002)
Commodity Exports/GDP	2.930***	2.875***	2.729***	3.193**
	(1.115)	(1.070)	(1.041)	(1.582)
Length of Civil War	-	-	-	0.998
	-	-	-	(0.002)
Log of Population	-	-	-	1.138*
	-	-	-	(0.083)
Terrain (Mountains)	-	-	-	0.999
	-	-	-	(0.006)
Decade Civil War Began	-	-	-	1.086
	-	-	-	(0.121)
<i>n</i>	131	131	131	131
Log-likelihood	-277.343	-277.354	-276.403	-275.384
χ^2	< 0.001	< 0.001	< 0.001	< 0.001

Table reports hazard ratios, with robust standard errors in parentheses.

p-values: * < 0.1, ** < 0.5, *** < 0.01

Table 2: Cox Proportional Hazards Model