Terrorism, Spoiling, and the Resolution of Civil Wars[*]

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Abstract

Civil war combatants use terrorism frequently during civil wars, yet we understand very little about terrorism's effects on war resolution. It is generally assumed that the primary combatants to a war hold a veto over the resolution of the war, but less attention has been devoted to whether otherwise marginal groups can derail peace agreements. We contend that even terrorism, a low-level form of violence, can make civil war peace processes far less likely to end in a peaceful, durable resolution. Using a new and large geographically coded database of terrorism in civil wars, we find that violence by even weak, marginalized actors can spoil peace processes by prolonging the time until the end of a war, or hastening the time until recurrence. The paper adds to the literature on civil wars by fleshing out the mechanisms linking terrorism to war duration and outcome. It also provides solid empirical tests, which have been lacking in past studies of spoiling and civil war resolution. More generally, the results underscore the importance of investigating the overlap between different varieties of violence during civil wars.

1 Introduction

In civil wars throughout the world, achieving durable peace is difficult because of the role of leaders and groups that seek to strategically destabilize and often derail peace processes. The behavior of such leaders and groups has resulted in the failure of peace processes in contexts as diverse as Rwanda, Northern Ireland, and Bosnia, which resulted in the resumption and sometimes expansion of civil war. Until Stedman's (1997) work on what he termed *spoilers* of signed peace agreements, conflict resolution scholars paid little direct attention to the challenges that these leaders or groups pose to peace. Since Stedman's (1997) seminal article, a number of studies have appeared, but nearly all of them lack systematic evidence about the effects of strategic violence. In this paper, we take a first step towards more complete and systematic tests of the effects of strategic violence on the outcome of peace processes by considering how terrorism affects war resolution.

Terrorism has emerged as a prominent strategy often used to spoil peace processes (Bueno de Mesquita 2005, Kydd & Walter 2006). In this paper, we investigate why terrorism may have a negative effect on combatants' ability to reach an agreement and then implement that agreement. A variety of motives underly the use of terrorism during war, but regardless of motivation, such violence complicates moves towards peace. The case of Angola is illustrative.

In Angola, several peace agreements were signed in the early 1990s, but as the peace processes ramped up, so too did terrorist violence. Arguably, the strategic violence destabilized the parties' commitment to the peace process. Figure 1 shows a timeline of events from 1977–1997. The dashed vertical lines represent three signed peace agreements as defined by the Uppsala Conflict Database (Uppsala 2006). The connected, dotted line represents the number of terrorist events over time occurring in civil war zones. It is clear that the number of events is very low until the peace process gains momentum in the

late 1980s at which time terrorism begins to ramp up. There is a small increase in the number of events in the year prior to the first agreement and then, there are two large increases in the years following the first two peace agreements, potentially contributing to their demise. These data illustrate that terrorism in civil war zones can contribute to spoiled steps towards peace.

[**FIGURE 1 ABOUT HERE**]

The conflict in Bangladesh between the government and the United People's Party of the Chittagong Hill Tracts and its armed wing, the Shanti Bahini, occurred for nearly two decades from 1977 to 1997. At issue were indigenous rights for the Chittagong people and some form of autonomy from the central government. After a lengthy peace process, the government and representatives for the rebels signed the Chittagong Hill Tracts Peace Accord. As Figure 2 demonstrates, terrorism was common in the context of the conflict, but it did not spike during the the periods before the implementation of the peace agreements. In fact, terrorism reached its apogee in 1995, then declined precipitously in the two years leading up to the agreement. After the agreement was signed in December of 1997, terrorism remained relatively low compared to the average levels during the conflict. In contrast to Angola, terrorism did not spoil the peace and civil war did not recur after the signing of the accord. Terrorism, however, may have contributed to increasing the duration of the conflict, especially in the late 1980s and early 1990s.

[**FIGURE 2 ABOUT HERE**]

These cases briefly illustrate the effects terrorism might have on the ending and recurrence of civil war. What we lack is a larger investigation of how spoiling behavior and specifically terrorism influences these civil war processes. In this paper, we provide an empirical test of the consequences of terrorism for war endings and recurrence in all civil wars

3

between 1970–2002. we use data on terrorist events worldwide (LaFree & Dugan 2007) and map the data to civil war zones to explore how terrorism in those areas affects peace processes. The terrorist events are geocoded (geographic coordinates are coded) for most terrorist events worldwide (roughly 50,000) and are then spatially joined to geocoded data on civil war zones in order to identify events that relate to civil wars.[1] All attacks against military and government targets are dropped, however, to avoid capturing violence that is a regular part of the civil war. We test the hypothesis that terrorism should lengthen the time until conflict ends and shorten the time until conflict recurs using event-history models.

In what follows, we examine literature on terrorism and spoiling during and after civil wars. Because this paper provides an empirical test of spoiling, we focus mostly on evaluating empirical studies. Extant literature, however, focuses primarily on the post-agreement period, and as such we tie into other conceptual and theoretical material about the consequences of violence during and after wartime. The argument identifies testable expectations about the consequences of terrorist violence on the course of a peace process. Following, we detail the research design and empirical tests, which evaluate the hypotheses and provide a number of implications for the civil war literature.

One of the most important lessons that emerges from the analysis is that terrorism is a consequential means to spoil peace processes and should not be ignored in the context of civil war resolution. Nominally weak actors may have disproportionately more influence than conflict resolution scholars typically grant.

2 Terrorism and Spoiling in Civil Wars

Terrorism is used for a variety of reasons both in and out of civil war. With few exceptions (e.g., Kalyvas 2004, Sambanis 2008, Findley & Young 2012), very little work examines

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[1]See (Findley & Young 2012) for a similar approach

4

the role of terrorism during civil wars. Some have considered violence against civilians for purposes of inducing compliance (Kalyvas 2006, Balcells 2010), outbidding rival groups (Bloom 2005), facilitating bargaining with governments (Lake 2002*a*, Hultman 2007), intimidating or outlasting other groups (Kydd & Walter 2006), and for recruitment (Humphreys & Weinstein 2006).

While it has many purposes more generally, spoiling attempts at achieving durable peace represents one key role of terrorism when used during war (Kydd & Walter 2002, Bueno de Mesquita 2005, Kydd & Walter 2006). Some actors may hope to stop the peace process and return to war, while others may not intend to cause the breakdown of a peace process; they could instead use terrorist violence to extract further concessions, for example. But a crucial question remains: if terrorist violence is used, regardless of the motivation, does it derail the peace process by prolonging the time until settlement or hastening the time until recurrence? A consideration of how terrorism affects peace processes must thus begin with discussion of the literature on spoiling followed by its connections to terrorism and peace processes.

2.1 Spoilers and Spoiling

A fundamental challenge to understand spoilers is to clarify (1) how to identify spoilers and (2) when they are active. Much current work on spoilers identifies any group that attempted to derail a peace process completely, whether successful or not, as a spoiler. Implicitly, this approach assumes that only certain actors are problematic — those that attempted to stop the peace process. It neglects the possibility that, a priori, all groups have the potential to use strategies, such as terrorism, that risk subverting the peace. Furthermore, identifying spoilers based on behavioral traits fails to distinguish between actors with different intentions. Some groups unsuccessfully attempt to derail an agreement whereas others are more successful. Moreover, some groups use various strategies

with the intention to wreck the peace process completely and return to war. Other groups might use these same strategies with the simple intention of increasing their bargaining leverage, hoping not to cause the complete breakdown of the peace process, but nonetheless they risk derailing it permanently.

Analytically, labeling groups as spoilers is laden with pitfalls. Shifting the emphasis from a group label to an action helps solve the problem. Rather than discuss *spoilers*, one can think in terms of the action of *spoiling*, in which various forms of behavior, such as terrorism, may affect the course and outcome of the peace process.[2] Alternatively, because all combatants in a civil war use various strategies such as terrorism to achieve their goals — many of which threaten peace processes — one could maintain group labels, but refer to groups as *potential* spoilers. In the context of this paper, each potential spoiler uses terrorism to alter the course and outcome of a war and peace process and, whether intending to or not, risks complicating or derailing the process completely.

A related difficulty surrounding the concept of spoilers is that these groups are often thought to be marginal actors who espouse fringe or extremist preferences, and who do not have a chance at being included in a post-war settlement. That is, these groups cannot compete with the primary combatants; therefore, they resort to terrorism or other lower-level violence in an attempt to upset others' chances. To use a sports analogy, spoilers are those teams that have no chance of making the playoffs (or to a bowl game), but pull off a key win that prevents another team (that had some chance prior to the loss). With few exceptions, marginal groups are largely considered irrelevant especially if using small-scale tactics such as terrorism. Perhaps because such groups are considered only marginal actors, the civil war literature focuses more extensively on two primary combatants: a government and the largest opposition group.

Some work has begun to contend that we should look beyond two-actor models and

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[2](Asal, De La Calle, Findley & Young 2012) discuss a similar debate over focusing on actors involved in terrorism vs. terrorist acts and the implications for research on the topic.

incorporate a role for greater heterogeneity of combatants. Some have argued that certain actors are "veto players": Cunningham (2006) argues that there could be more than two relevant actors, but that additional actors must be fairly coherent, structured groups, which ignores the possibility that groups can have an influence by other means. Third-party extremists, for example, could be very weak structurally or in their capabilities, yet still able to have an influence over moderates or the government (Kydd & Walter 2002, Werner & Yuen 2005, Bueno de Mesquita 2005). This research highlights important possibilities about the role of multiple actors and an important next step is to begin more systematic empirical investigations.

Moving further from a two-actor understanding of spoilers, one could further distinguish between groups and individuals as potential spoilers. Even individuals typically act on behalf of a group, however. Jonas Savimbi in Angola, for example, is widely blamed for derailing the 1991 peace agreement with the MPLA-led government, but he relied on the rebel group UNITA to carry out the violence. In some cases, potential spoiler groups are fairly cohesive entities, whereas at other times they are fractured and may stretch the definition of a group. Regardless, it does not take an excessive number of people to engage in terrorist violence that risks spoiling the peace.

2.2 Empirical Studies of Spoiling

Theoretical and conceptual work on spoiling is abundant, with most research arguing that potential spoilers are dangerous to the peace process (e.g., Stedman 1997, Zahar 2003, Greenhill & Major 2007, Newman & Richmond 2006). Despite significant attention directed to potential spoilers, empirical analysis of such questions is limited. The most prominent empirical studies are insightful but incorporate only brief empirical discussions, focusing on a limited number of cases (Stedman 1997, Doyle & Sambanis 2006, Newman & Richmond 2006, Greenhill & Major 2007, Johnston N.d.). Other studies provide even more

limited empirical analysis to supplement formal models, primarily referencing terrorism in the Israeli-Palestinian conflict and the Bosnian war (e.g., Kydd & Walter 2002, Werner & Yuen 2005).

Some scholars have turned to cross-country statistical analyses examining the duration of peace following war. Implicitly, these studies incorporate a potential role for violence that risks spoiling the peace, but only indirectly and not as a primary objective (e.g., Fortna 2004*b*, Nilsson 2008, Svensson 2007). Nilsson (2008), for example, examines the duration of peace *following* civil war settlements between 1989–2003. She posits that groups signing peace deals are likely to anticipate violence from excluded groups and only sign if they believe they can withstand post-agreement violence. Thus, a commonly held assumption that highly inclusive deals should increase the likelihood that peace will last might not be accurate.[3]

Nilsson's (2008) work is an important step towards sorting out and testing hypotheses applicable to spoiling and opens further avenues of research. The empirical analysis, however, only considers the post-settlement behavior of warring parties. Although this is consistent with what Stedman (1997) originally outlined, it excludes the possibility of understanding the consequences of violence earlier in the peace process. That is, like most other works in this area, it fails to account for the peace agreements that *did not happen* when groups successfully prevented agreements from being signed in the first place. Furthermore, Nilsson's (2008) key explanatory variables are the number of groups and exclusion/inclusion from the process — neither of these factors directly proxy violence that can spoil the peace later.

Others have begun to consider the role of violence during peace processes more directly, but are typically limited to smaller comparisons of cases (Darby & MacGinty 2003, Hoglund 2008). Cross-country empirical analyses explicitly devoted to violence

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[3]For reference specifically to the Palestinian case, where it is often argued that Hamas is needed for the peace process to move forward, see Gunning (2004) on this point.

during peace processes have only begun to address the topic more directly. Ayres (2006) attempts a more direct analysis using seven civil wars and measures 15 active potential spoilers; he finds preliminary support for the hypotheses that (1) rates of attacks and (2) numbers of casualties may have an impact on whether groups "win". Although an important start, this study relies on a limited number of cases, does not examine multiple stages of the peace process, and does not move beyond a descriptive overview of the data.

In sum, existing work makes important contributions to the study of spoilers, yet it also stimulates other possibilities for research and has not clearly explained the impacts of spoiling behavior. Most striking, perhaps, very little research has examined the consequences of violence on whether peace processes are spoiled. Further, almost no research systematically addresses violence over the course of a peace process, as opposed to following a peace agreement. Yet we might expect that potential spoilers would be most active in using strategies such as terrorism to alter the course and outcome of the peace process from the outset. The following theoretical section makes a case for this possibility and generates testable hypotheses.

3   Terrorist Violence and Spoiling the Peace

Peace emerges only as part of a long and complicated process that includes negotiations, agreements, and post-agreement cooperation (Darby 2001, Walter 2002). For example, Hamas has consistently used terrorist tactics prior to (and during) negotiations between the Israeli government and the Palestinian Authority. In the Chechen conflict, terrorism occurred prior to reaching agreements as well as after the agreements were signed, which resulted in the resumption of war. Motives for terrorism are varied, but it is clear that the violence has the effect of spoiling moves towards peace.

3.1 Why do Groups Use Violence During Peace Processes?

Our primary concern in this paper is to explain the effects of terrorist violence, once undertaken. To understand these effects, however, first we need to consider what motivates groups to use terrorist violence. Typically, groups hope to obtain some outcome from the civil war or associated peace process. During war, combatants might seek a military victory on the battlefield, which guarantees full control over the post-war settlement terms; military victory, however, is often the most difficult outcome to achieve (Fortna 2004a, Bohrer & Hartzell 2005). When combatants pursue a negotiated agreement, they are vying for a share in the outcome of peace accords, which include a variety of factors such as property rights, electoral rules, disarmament, territory, and amnesty for political prisoners (Darby & Mac Ginty 2000, Wood 2006). The Good Friday Agreement in Northern Ireland, for example, had a number of provisions including a power-sharing parliamentary assembly and a coalition government (both with Catholic and Protestant representation), disarmament of paramilitary factions within two years, and the release of prisoners charged with terrorist acts. In some cases, groups seek a share in these benefits and use violence to force their way into contention for these goods. In other cases, groups oppose the particular settlement terms being negotiated, because the proposed changes threaten the group's interests [EXAMPLE]. These groups thus use violence to undermine any serious discussion. Terrorism, in particular, has been used strategically in a diverse set of conflicts to attempt to achieve these various goals.

Bargaining during wartime is a complex process full of uncertainties (Clausewitz 1993). Because of the uncertainties, as the peace process progresses and becomes more institutionalized, groups must repeatedly (1) attempt to shape the process, (2) reevaluate whether they are obtaining their objectives, and (3) stop the process if they are losing out in important ways. Terrorist violence can occur anytime during the entire process, and is one means by which groups try to achieve their goals. Throughout the peace pro-

cess, groups might only seek a temporary interruption to gain more leverage over future negotiations or implementation. This is important, because it acknowledges that groups might use violence for different purposes at various stages of the peace process. During early negotiations, for example, groups might use violence to demonstrate the necessity of being included in the negotiations and agreement (i.e., that they *could* wreck the agreement down the road and so others should be aware). During implementation, the violence might be used be used to derail the peace process completely. Or it might be used to force the renegotiation of certain terms of a settlement. Despite the variety of motivations that can change both within and across conflicts, the violence always has the potential to derail the peace process.

3.2   The Consequences of Terrorist Violence

This perspective on a peace process, raises the issue of what happens to the peace process when terrorist violence is used: does it result in a spoiled peace process? Kydd & Walter (2002) argue that violence by a faction of one of the parties creates distrust in the groups that are actively negotiating or that signed onto an agreement.[4] Not only does the violence generate mistrust, it can intimate a general lack of commitment to the peace process in its current form. Even in cases where groups use violence intending to force their way into the peace process, the immediate effect can be to communicate disapproval of the current process and undermine others' valuations of the likelihood of successfully agreeing to peace. The violence could be the ticket into the peace process, but other groups will lack short-term assurances that violence will eventually subside and that the group using violent tactics intends to act in good faith.

Terrorist violence by moderate or extremist factions may also provoke a harsh re-

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[4]In the context of intragroup relations, violence actually could increase trust between parties, such as when groups use violence against sub-groups that they are trying to keep in line. In this case, violence demonstrates to the opponent that the main group can control its followers. Such intragroup violence, however, is beyond the scope of this paper.

sponse from the government. Although the harsh government response could hurt those using violence, it often leads to the anger, injury, or death of once neutral individuals or groups. This collateral damage can lead to more recruits and renewed interest in fighting against the government. Importantly, this process also potentially alters the distribution of capabilities among the combatants (Lake 2002b).

According to rationalist explanations of war both of these processes create uncertainty about the distribution of capabilities, resolve of the combatants, and the credibility of any commitments that parties negotiate with each other. In the absence of clear information about these factors, combatants are not likely to cooperate with each other. In sum, whether groups are deciding to reach an agreement or implement the agreement, violent behavior only undermines parties' abilities to continue their support of the peace process in the short term.

This discussion leads to a negative expectation. Terrorist violence by moderates or extremists should make it nearly impossible to reach and implement a peace agreement. Clearly some peace processes survive violence from moderate and extremist groups, however, raising the question of what precise role does violence play. In some cases, such as Northern Ireland, parties learn over time that the moderates intend to cooperate despite violence by peripheral groups (such as the real IRA). In these events, it takes significant time for the parties to develop the trust to move forward, despite the violence. This suggests that violence does make agreements and implementation more likely to be spoiled, but it also indicates that violence affects the duration until a peace settlement as well as the duration until recurrence of a war, should the peace fall apart.

Terrorism, as compared to other forms of violence in a civil conflict may be unique in its ability to spoil either trust between moderates (Kydd & Walter 2002) or other conditions that are necessary to either generate or maintain a peaceful equilibrium. Abrahms (2013), like the rationalist models of civil conflict, suggests that terrorism is a credible signal of resolve in a conflict. In contrast to arguments that suggest terrorism may be an effective

12

tool at extracting concessions from a state, Abrahms (2013) argues that extreme tactics by the rebels demonstrate to the state that negotiation is impossible with the group. In short, terrorism leads to a reduction in the willingness of governments to reach a negotiated settlement, even when the demands of the group are relatively moderate.[5] Thus, we hypothesize the following:

Hypothesis 1 *As terrorism occurs more frequently, the duration until a war ends should increase*

Hypothesis 2 *As terrorism occurs more frequently, the duration of post-war peace should decrease*

Note that these hypothesis state expectations about what happens to the peace process when groups engage in terrorism. We expect that terrorism impedes progress, making wars longer and post-war peace shorter. The peace process might not be even-handed or optimal, and therefore the violence might be justified by the participants, but such questions are beyond the scope of this paper. In the following sections, we discuss the research design and accompanying empirical tests.

4   Research Design

To test the hypotheses on the consequences of violence, we consider two outcomes of interest. One dependent variable is the end of the war and the other is recurrence of the war, if ended. The end of a war is coded dichotomously as either (1) ended or (0) not ended in a given country month based on Cunningham (2006) and therefore a dichotomous dependent variable model is appropriate. Because I am interested in whether terrorist violence prevents the war from ending, which means that the war lasts longer, I use a duration model. Graphs of the baseline hazard reveal nonmonotonic hazards, which

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[5]We are claiming that terrorism, or a particular form of violence has a negative

suggests that a lognormal distribution is appropriate (as opposed to an exponential or Weibull, which assume constant and monotonic hazards). I expect that terrorist events will increase the duration until war endings.

In the second analysis (war recurrence) based on Collier, Hoeffler & Soderbom (2008), recurrence of war is coded dichotomously as (1) war recurred or (0) war did not recur in a given *year*. I am not aware of monthly data in post-conflict years so the temporal unit changes in this analysis to the country year. I also estimate a duration model with a lognormal distribution as discussed above. I expect that terrorist events will be associated with shorter durations until war recurrence.

4.1   Terrorism and Spoiling

I consider one very prominent form of spoiling — terrorism — based on the *Global Terrorism Database (GTD)* (LaFree & Dugan 2007). The GTD defines terrorism as "the threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious or social goal through fear, coercion or intimidation" (LaFree & Dugan 2007). The GTD contains approximately 60,000 terror events worldwide from 1970–1997 and an additional 7,154 from 1998–2004 collected separately (using a slightly different definition).[6] The data cover both domestic and transnational terrorist events perpetrated by a diverse set of opposition groups against a variety of civilian, military, and government targets. In order to avoid capturing normal wartime events, I drop any event directed at a military or government target from the two analyses. Compared to

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[6] The 1998–2004 data were collected using different coding rules than the 1970–1997 data. As such, pooling the two time periods might be problematic. Because I want to use both sets of data together, I take a couple of steps to be sure that the data are comparable. As a first cut, I estimate the models on both samples separately and note that the results are qualitatively similar (the coefficients are of the same sign and the results are statistically significant). This suggests that measurement differences are not fundamentally altering the results, but is by no means conclusive. I also conduct a "Chow test", which essentially tests whether coefficients estimated for two groups of data are the same, to demonstrate that the samples can, in fact, be pooled together. The results of these two steps offer support for the decision to pool the two potentially different samples.

other data sets on terrorism, the GTD contains at least five times as many events, making it the most comprehensive source of terrorism database available.[7]

Terrorist events occurring *in the context of war and peace processes* is one of the best measures of spoiling behavior, even if it does not capture all acts that groups could take that might spoil the peace. Kydd & Walter (2006, 72–76) make a compelling case that one of the primary strategies of terrorism is spoiling peace processes.[8] For them, peace processes dominated by moderates threaten extremist and terrorist goals creating incentives to stop the peace process. In this paper, I have contended that groups might be motivated to use violence for a variety of reasons, but the point remains that, regardless of motivation, the violence should have a negative effect. From Northern Ireland to Israel and Chechnya to Colombia, it is evident that groups engage in terrorist-type behavior in attempts to derail peace agreements.

Clearly not all terrorism is related to civil wars. Terrorist events in the United States, for example, are not related to a civil war. Even terrorist events within a country engaged in a civil war might not be related to that war. Not all terrorist events in India, for example, are related to the conflict in Kashmir. Instead, many terrorist events can occur for other reasons such as the pursuit of limited policy change. This creates a problem of how to associate terrorist events with civil wars. In many cases, the groups perpetrating terrorism are identified in the data and I can determine whether they are also rebel groups engaged in a civil war. In other cases, however, the perpetrators are not coded. To compound the problem of group identification, multiple groups could carry out (or claim credit for) a single attack. A group that did not, in fact, perpetrate the attack

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[7]Like most data, this source of data needs to be accompanied by some caveats. According to LaFree & Dugan (2007), the 1970–1997 data were coded as terrorist incidents if they "substantially concur with the definition". Thus, the measurement is largely consistent with the operationalization, but leaves open a subjective element in the coding process. Second, each incident required only a single source to be coded, whereas it might be desirable to cross-check each source. Third, as LaFree & Dugan (2007) outlines, the 1993 data were lost, but the GTD project has recovered "marginal" estimates of the overall number of attacks. I use the marginals for 1993 in this paper. Despite possible concerns in the measurement and coding process, these data provide a useful means to test the hypotheses set forth above.

[8]See also arguments by Bueno de Mesquita (2005).

could also claim credit for the attack in an attempt to increase its status.

To identify which terrorist events are associated with civil war in a more systematic way, I use geographic coordinates for nearly all of the terrorist events in the GTD 1.1 (about 50,000 of the events).[9] The geo-coded terrorist events contain the latitude and longitude of each event based on the city in which the event occurred or the city to which the event was closest. Once geo-coded, I "spatially joined" the terrorist event codes with a database of geographically coded civil war zones as defined in the *ViewConflicts* software by Rød (2003). The terrorism data are precise to the daily level and the civil war coordinate data are precise at the monthly level, so there is a slight disconnect in the time periods.

In general, overlaying the data in such a way increases the likelihood that the terrorist events are indeed related to the civil war. This approach is actually fairly conservative, because terrorist events related to the civil war could occur outside of the civil war zone and my initial approach does not capture these events. The Moscow theater bombing and the Beslan school attack in Russia are both examples of terrorist behavior clearly related to the civil war in Chechnya, but both took place outside of the conflict zones. I also have distances from each event to the conflict zone and, although imperfect still, future analyses could incorporate distance as a way of accounting for other attacks such as these.

To illustrate the match between the civil wars and terrorist events, Figure 3 matches terrorist events and civil war geographically in Colombia. The darker-colored, background regions of Colombia represent the civil war zones and the dots represent the terrorist events. This figure demonstrates that a large proportion of terrorist violence occurs in the regions in which civil war is taking place. Although just one example, Colombia is

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[9]The GTD 1.1 database is available as study # 22541 from ICPSR at the University of Michigan: http://www.icpsr.umich.edu/cocoon/TPDRC/STUDY/22541.xml. The GTD provided preliminary geographic coordinates for a portion of the data set. I used many of these, but in conjunction with the coordinates I had independently coded. Also, I coded geographic coordinates for many more events than are in the GTD.

representative of many other civil war zones throughout the world.

[**FIGURE 3 ABOUT HERE**]

Because terrorist events are heavily skewed to the right (concentrated closer to zero, but have fewer large values), I log the value of terrorism for the model estimation. In the main analyses, I lag the logged terrorism measure by one period and also include a smoothed measure of terrorism in the previous and current periods. I include the current period in the smoothed estimate because the impact is dependent not only on events in the months or years preceding potential settlements, but also in the days immediately prior. As noted above, I exclude all events that occurred in civil war zones during the civil wars if they were directed against the military, police, or government in order to reduce the chance of capturing normal war-related violence such as battles.

4.2   Additional Measures

Because the samples are different (during vs. after wars), I estimated two sets of models. I included some similar control variables in both sets of models, but also some different covariates more appropriate to each stage. For sources and descriptive statistics, please see Appendix A. For the war stage, I include measures of the number of parties to the war, population (logged), the ethno-linguistic fractionalization index, a logged measure of battle deaths, the level of mountainous terrain, GDP per capita, the number of months in war, and the presence of a security guarantee. For the post-war stage, I include the ethno-linguistic fractionalization index, GDP per capita, population (logged), whether there is instability in the state, the average democracy score of neighbors, and whether a third-party force was present. I chose these various control measures because of interest in the literature as well as the findings of past research.

5 Empirical Analysis

The first step in my analysis is to consider whether and how terrorism affects the duration of war. Following, I consider whether terrorism increases the risk of war recurrence. These results show that terrorism makes wars last longer and increases the risk of war recurrence, if a war has ended. These results are robust across a wide variety of specifications, suggesting that terrorism is frequently responsible for spoiling peace processes in that the wars last longer.

5.1 Spoiling War Ending

Table 1 shows the results of two models estimating the relationship between terrorism and the duration of wars. Model 1 contains the results in which terrorism is lagged by one month. Because the model is estimated in accelerated failure-time form, a positive coefficient indicates "longer durations" (Box-Steffensmeier & Jones 2004). Thus, the results show that as the amount of terrorism increases, the duration of war also increases, which is consistent with Hypothesis 2.

Although Model 1 suggests a strong relationship between terrorism and longer civil wars, arguably the simple lagged measure is not the most appropriate. Numerous events in the Israeli-Palestinian peace process, for example, illustrate that groups use terrorism not only in the months prior to proposed agreements, but also in the days immediately preceding. The level of terrorism in the current period, therefore, might be most appropriate for estimating when civil wars end. Using only those events could be problematic, however, because events could occur after an agreement is reached, suggesting that terrorism is not affecting the duration of the war.

Because of these concerns, I use a smoothed measure of terrorism in Model 2 (Table 1, which weights terrorism in the previous month with terrorism in the current month. While this does not solve the problem of events occurring after an agreement, it allows

me to consider the current month while not being overly reliant on it. The results for the smoothed measure in Model 2 indicate that spoiling is again associated with longer durations at a statistically significant level.

[**TABLE 1 ABOUT HERE**]

To aid substantive interpretation, I considered predicted changes in the hazard of war ending by differencing the logged values of terrorism three different ways. In doing so, I generate predictions when all other variables are set at their means and medians and the shift in terrorism is (1) less than one standard deviation below the mean to less than one standard deviation above, (2) one standard deviation below the mean to one standard deviation above, and (3) more than one standard deviation below the mean to more than one standard deviation above. The predicted changes in the hazard of war ending are substantial, ranging from 40 to 90% decreases. The second set of predictions shows the predicted effects for the smoothed measures of terrorism and the results are qualitatively similar to the one-period lags with hazards decreasing by 30 to 80%. These results indicate that terrorism can have strong negative effects on reaching a settlement to the war.

5.2   Spoiling the Implementation of Peace

Table 2 shows the results of two models estimating the duration of peace until war recurrence. Model 3 shows the results in which the measure of terrorism is lagged by one year. The results show that as the amount of terrorism increases, the duration of time until the war recurs decreases, which is consistent with Hypothesis 2. Because the temporal unit of analysis is the year, using information from the current year is very important in these analyses in order to capture events preceding settlements by days or months. As with Model 2, I use a smoothed measure over the current year and one previous year. Using information from the current year shows that the results are substantially stronger.

[**TABLE 2 ABOUT HERE**]

To aid substantive interpretation, I again considered predicted changes in the hazard of war recurrence by differencing the logged values of terrorism three different ways. In doing so, I generate predictions when all other variables are set at their means and medians and the shift in terrorism is (1) less than one standard deviation below the mean to less than one standard deviation above, (2) one standard deviation below the mean to one standard deviation above, and (3) more than one standard deviation below the mean to more than one standard deviation above. The predicted changes in the hazard of war ending are even greater in most cases, ranging from 13 to 176% increases. The second set of predictions shows the predicted effects for the smoothed measures of terrorism and the results are qualitatively similar to the one-period lags with hazards increasing by 46 to 383%. Taken together, these results suggest that terrorism can be detrimental and hasten the time to war recurrence.

I also estimated Models 1–4 with and without controls as well as with a variety of different control variable specifications and the results are robust. I also include the *change* in war related terrorism over time. Presumably both the levels and changes ought to have an effect on the duration of the war. Increases in terrorism should make wars longer (and time-to-recurrence quicker), whereas decreases in terrorism should make war shorter (and time-to-recurrence longer). As with levels of terrorism, I also calculated the smoothed changes in terrorism over two months and the results are robust to including earlier changes. The results attenuate some, suggesting that the more proximate changes have a greater effect, however.

Models 1–4 include a variety of control variables thought to affect the duration of war and, if ended, the subsequent duration of peace. The results for the control variables are, qualitatively, what we would expect based on past research. Thus, although the results suggest that terrorism is a very important factor, it is not the only one nor is it necessarily

the most important. Including terrorism complements other explanations and is robust across a diverse set of alternative factors. In all of these analyses, the results show that terrorism makes civil wars more difficult to resolve, which supports the argument made in this paper.

6   Conclusion

This paper makes a case that terrorism matters in important ways and results in making wars more difficult to resolve. Though many scholars discount the role of potential spoilers as marginal or fringe actors, these results show that even low-level terrorist-type violence during peace processes can have a powerful effect on the outcomes of the war. The results are robust across a variety of specifications.

These results offer insights for several different literatures. First, the general literature on civil war resolution mostly considers only the two main actors to the war: a government and opposition (e.g., Mason & Fett 1996, Walter 2002, Smith & Stam 2003). These results suggest that even smaller third and fourth parties can have an important impact on war outcomes. Second, the spoiler literature has argued that spoiler groups could affect whether wars recur (e.g., Stedman 1997, Greenhill & Major 2007), but has not provided systematic empirical tests of the hypothesis. This study provides a test not only for the post-war phase, but also for the negotiation phase. A number of theoretical works have appeared making similar arguments about the possible effect of extremist groups (e.g., Kydd & Walter 2002, Werner & Yuen 2005), and my analysis offers direct empirical insights into these processes.

Further research on this topic needs to address at least a few areas. First, it might be the case that specific targets (or tactics) are chosen in attempts to spoil. As a first cut, I have aggregated all terrorist events on the logic that they all are relevant to the peace process, but disaggregation would likely create some important insights about which

targets and tactics work best and when. Second, there is most likely a feedback effect in that terrorism affects the outcome of the war, which affects whether more terrorism is used, which in turn affects whether wars recur. Uncovering how the sequence of events motivates behavior is an important next step.

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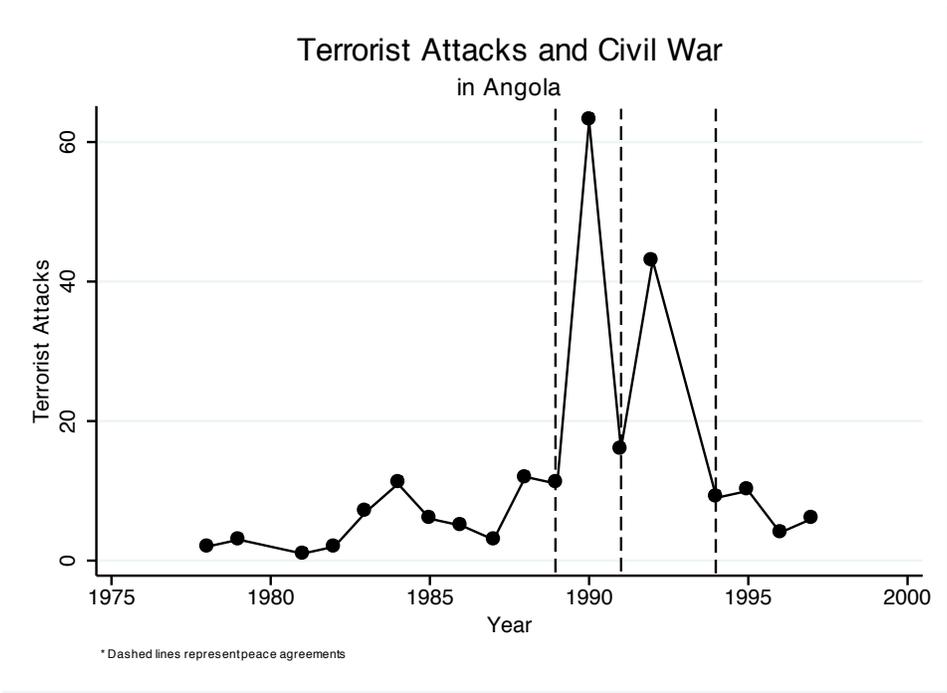
Figure 1: Spoiling during the Angolan Peace Process
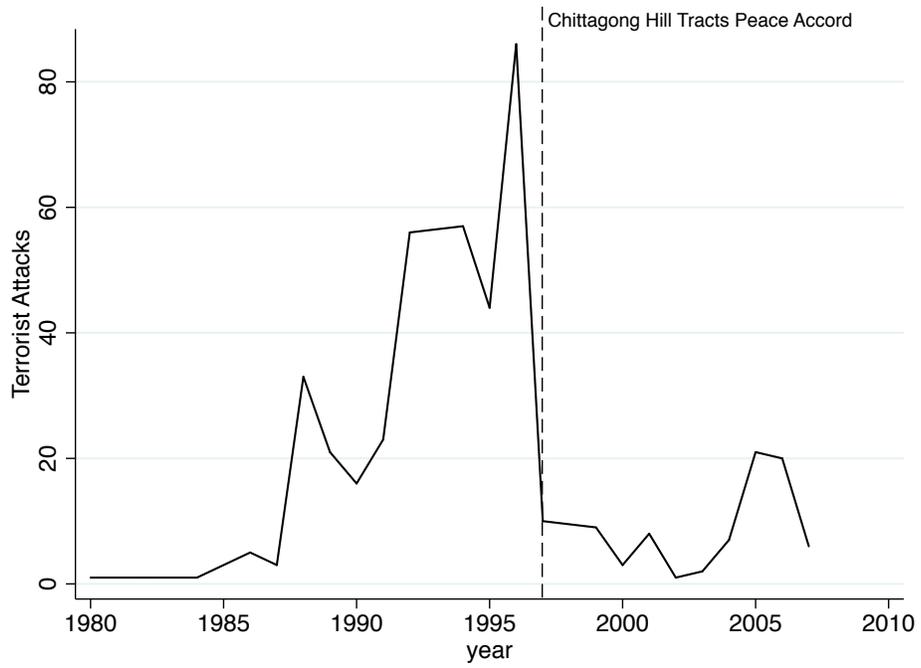
Figure 2: Lack of Spoiling during the Bangladeshi Peace Process
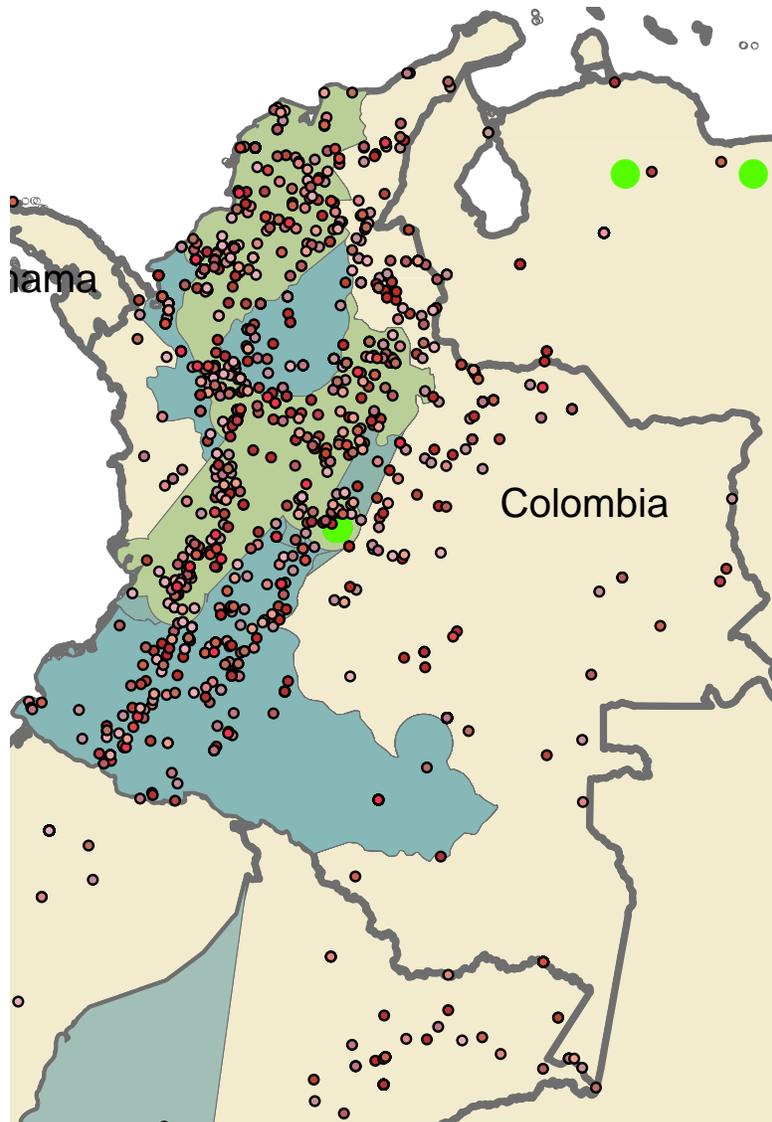
Figure 3: Terrorist Events and Civil War in Colombia

Table 1: Lognormal Survival Model of War *Ending*

Covariate	Model 1			Model 2		
Hazard (Lognormal)	$\hat{\beta}$	S.E.	P	$\hat{\beta}$	S.E.	P
War Related Terror (log/lag)	0.697	0.254	0.006	—	—	—
War Related Terror (log/smooth)	—	—	—	0.821	0.275	0.003
Population (log)	0.354	0.132	0.007	0.316	0.130	0.015
Ethnic Fractionalization	−0.215	0.801	0.788	−0.343	0.786	0.663
GDP / capita (log/lag)	−0.206	0.077	0.007	−0.230	0.078	0.003
Number of Actors	0.885	0.244	0.000	0.886	0.240	0.000
Battle Deaths (log)	0.175	0.096	0.069	0.144	0.094	0.125
War Months	−0.001	0.004	0.738	−0.001	0.004	0.799
Mountainous Terrain	0.006	0.006	0.341	0.007	0.006	0.269
Security Guarantee	−7.265	3.418	0.034	−6.999	3.301	0.034
Constant	−2.402	1.572	0.127	−1.832	1.537	0.233

Years: 1970–1999; Num Subjects = 125; total war endings = 65
Results in Accelerated-Failure Time Form

Table 2: Lognormal Survival Model of War *Recurrence*

Covariate	Model 3			Model 4		
Hazard (Lognormal)	$\hat{\beta}$	S.E.	P	$\hat{\beta}$	S.E.	P
War Related Terror (log/lag)	−0.605	0.130	0.000	—	—	—
War Related Terror (log/smooth)	—	—	—	−0.684	0.129	0.000
Population (log)	−0.036	0.150	0.808	0.002	0.142	0.989
Ethnic Fractionalization	0.756	0.622	0.224	0.652	0.586	0.265
GDP / capita (log/lag)	0.741	0.273	0.007	0.748	0.256	0.003
Instability	−0.993	0.375	0.008	−1.004	0.355	0.005
Democracy in Region	0.092	0.049	0.061	0.108	0.047	0.020
No Third Party Peacekeepers	−0.250	0.485	0.606	−0.436	0.440	0.321
Constant	10.093	2.433	0.000	9.760	2.300	0.000

Years: 1970–2002; Num Subjects = 60; total recurrences = 31
Results in Accelerated-Failure Time Form

A Control Variables and Descriptive Statistics

Terrorism: measures the number of attacks against non-military targets as measured by the Global Terrorism Database (LaFree & Dugan 2007). Note that I include only the terrorist events located in civil war zones during ongoing civil wars.

Number of actors: measures the number of combatants as measured by the Uppsala Conflict Database (Uppsala 2006).

Population logged: measures the size of the population as reported in Cunningham (2006).

Ethno-linguistic fractionalization index: is a measure of the ethnic heterogeneity of a country as reported in Cunningham (2006).

Battle deaths logged: measures the total number of battle deaths over the course of a conflict as reported in Cunningham (2006).

GDP / capita: measures the wealth of a country by its population as reported in Fearon & Laitin (2003).

Mountains: is a measure of the terrain in a country as reported in Cunningham (2006).

War months: is a count of the number of months a particular war has been ongoing as reported in Cunningham (2006).

Security guarantee: is a measure based on Walter (2002) and captures whether a third-party has guaranteed to uphold the peace process (from Cunningham 2006).

Instability: is a measure of whether the Polity IV regime index changed by more than three or more units in the three years prior to the year in question as reported in Hegre & Sambanis (2006).

Democracy in region: captures the median Polity IV score of contiguous neighbors as reported in Hegre & Sambanis (2006).

Third-party peacekeepers: is a measure of whether peacekeepers were present in the post-war period as reported in Collier, Hoeffler & Soderbom (2008).