Terrorism, Spoiling, and the Resolution of Civil Wars

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Civil war combatants use terrorism frequently, yet we understand little about terrorism's effects on war resolution. It is assumed that the primary combatants to a war hold a veto over resolution, but less attention has been devoted to whether the use of terrorism can derail peace agreements. We contend that even terrorism, a generally low intensity form of violence, can make civil war peace processes less likely to conclude in a peaceful, durable resolution. Using a new and large geographically coded database of terrorism in civil wars, we find that the use of terrorism can spoil peace processes by prolonging the duration of a war hastening the time until recurrence. Our argument and results add to the literature on civil wars by explicating the process linking terrorism to war duration and outcome. More generally, the results underscore the importance of investigating different varieties of political violence during civil conflict.

In civil wars throughout the world, achieving durable peace is difficult because of the role of leaders and groups that seek to 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 has 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. In recent years, a number of studies have appeared suggesting that spoiling could have dire consequences, but nearly all of them lack systematic evidence about the effects of violence in peace processes. By contrast, several arguments suggest that spoilers should not influence the peace because signatories to an agreement have already factored in potential spoiling when signing agreements (Nilsson 2008). Additionally, Kydd and Walter (2002) offer a formal model that suggests that instead of the tactics of the spoiler mattering, peace will endure depending on the perceived weakness of the moderates making the deal.

In this paper, we take a first step toward more complete and systematic tests of the effects of violence on the outcome of peace processes by considering how terrorism affects civil war resolution. We investigate why terrorism may have a negative impact on combatants' ability to reach an agreement and then, if signed, implement that agreement. A variety of motives underlie the use of terrorist violence during war, which we investigate, and regardless of motivation, such acts likely complicate moves toward peace. The case of Angola is illustrative.

In Angola, several peace agreements were signed in the early 1990s, but as the peace process ramped up, so too did terrorist violence by UNITA, the National Union for the Total Independence of Angola. Arguably the violence destabilized the other parties' (the Popular Movement for the Liberation of Angola and the National Front for the Liberation of Angola) commitment to the peace process as well. Figure 1*a* shows a

timeline of events from 1977 to 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 thus illustrate the possibility that terrorism in civil wars may have spoiled steps toward peace.

The case of Bangladesh offers a different perspective. The conflict 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 those in the Chittagong Hill
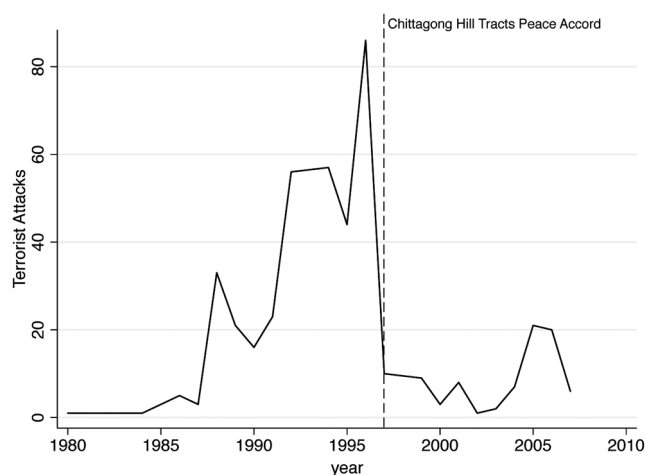
Tracts and some form of autonomy from the central government. After a lengthy peace process, the government and representatives for the rebels signed the Chittagong Hill Tracts Peace Accord. As figure 1*b* demonstrates, terrorism was common in the context of the conflict, but it did not spike during the period of peace agreement implementation. In fact, terrorism reached its apogee in 1996, then declined precipitously in the year 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, terrorist acts by the violent wing of the United People's party did not spoil an existing peace and civil war did not recur after the signing of the accord. Terrorist acts by this group, however, may have contributed to increasing the duration of the conflict, especially in the early 1990s.

While these examples deal with terrorism influencing the duration of conflict, spoiling could also be related to ending the peace and bringing about a new civil conflict. A deadly bombing in August 1998 by the Real Irish Republican Army, an IRA splinter group, for example, attempted to restart the civil conflict in Northern Ireland.[1] While the so-called *Troubles* occurred off and on for decades, peace was near. The more extreme R-IRA bombing had no effect, however, in spoiling the peace as the act was widely condemned and the Good Friday Agreements that effectively ended the *Troubles* was reached. These case discussions briefly illustrate the potential effects terrorism might have on the ending and recurrence of civil war. While there are some case examples of how terrorism might cause recurrence or not and of why terrorism might lead to a longer conflict or not, as with most of the literature, they are anecdotal. What we lack is a broader 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 between 1970 and 2002. We use data on terrorist events worldwide (LaFree and Dugan 2007) and map the data subnationally to civil war zones to isolate how localized terrorism affects peace processes. Most terrorist events worldwide are geocoded (geographic coordinates are coded), and we spatially join the terrorist events to geocoded data on civil war zones in order to identify events that relate to civil wars. All attacks against military and government targets are dropped to avoid capturing violence that is a regu-

Terrorist Attacks and Civil War in Angola

Dashed lines represent peace agreements
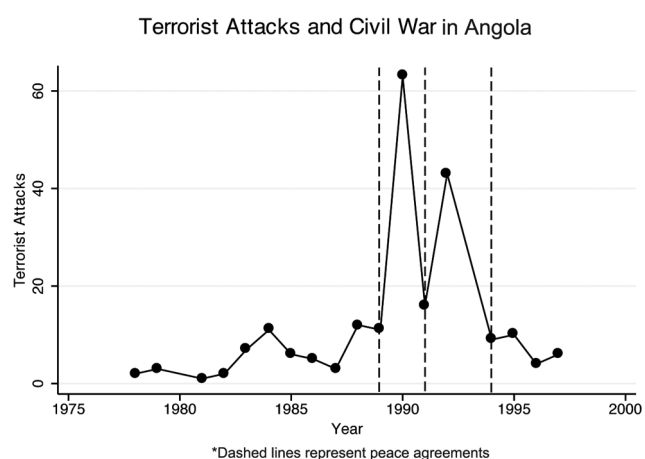
(a) Spoiling during the Angolan Peace Process

Chittagong Hill Tracts Peace Accord

(b) Lack of Spoiling following the Bangladeshi Peace Process

Figure 1. Peace and violence trajectories in Angola (*a*) and Bangladesh (*b*).

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1. The Uppsala Conflict Data Program codes the conflict as minor for most of the 1970s, 1980s, and early 1990s. They code this minor conflict ending in 1991, then a recurrence of conflict due to the Omagh bombing in 1998. See http://www.ucdp.uu.se/gpdatabase/gpcountry.php?id=163#.

lar part of the civil war. Using event-history models, we test the hypothesis that terrorism should lengthen the time until conflict ends and shorten the time until conflict recurs.

In what follows, we first examine literature on terrorism and spoiling during and after civil wars. Extant literature focuses primarily on the post-agreement period, and as such we develop other conceptual and theoretical arguments about the consequences of terrorist violence during and after wartime. The argument identifies testable expectations about the consequences of terrorist violence on the course of a peace process. Following this, we detail the research design and empirical tests, which evaluate the hypotheses and provide a number of implications for the civil war literature. A primary lesson that emerges from the analysis is that terrorism is a consequential means to spoil peace processes. Scholars and practitioners should thus be cautious about ignoring the potential destabilizing influence that terrorist violence can have.

TERRORISM AND SPOILING IN CIVIL WARS

Terrorism is used for a variety of reasons both in and out of civil war. With a few exceptions (e.g., Findley and Young 2012b; Kalyvas 2004; Sambanis 2008), very little work examines the role of terrorism during civil wars. Some have considered violence against civilians for purposes of inducing compliance (Balcells 2010; Kalyvas 2006), outbidding rival groups (Bloom 2005), facilitating bargaining with governments (Hultman 2007; Lake 2002), intimidating or outlasting other groups (Kydd and Walter 2006), as a substitute for guerrilla tactics conditional on state response (Carter 2015), and recruitment (Humphreys and Weinstein 2006).

While it has many purposes more generally, one key role of terrorism when used during war is to spoil attempts at achieving durable peace (Bueno de Mesquita 2005; Kydd and Walter 2002, 2006). Some actors may hope to stop the peace process and return to war, whereas others may not intend to cause the breakdown of peace but 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?

Spoilers and spoiling

A fundamental challenge to understanding the role of spoiling is to clarify (i) how to identify spoilers and (ii) 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 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 the outcome of the peace process.[2] Alternatively, because all combatants in a civil war use various violent strategies 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 combatant (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 postwar 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. With few exceptions, marginal groups are largely considered irrelevant, especially if they are 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 a single opposition group (e.g., Mason and Fett 1996; Walter 2002).

Recent work contends that we should look beyond two-actor models and incorporate a role for greater heterogeneity of combatants. Some have argued, for example, 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 neglects the possibility that less cohesive groups can have

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2. Asal et al. (2012) discuss a similar debate over focusing on actors involved in terrorism vs. terrorist acts and the implications for research on the topic. Also, on different conceptualizations of spoiling, Findley (2007) contends that spoiling may not just be violent but could include a range of nonviolent strategies.

an influence by other means. Third-party extremists, for example, could be weak structurally or in their capabilities yet still be able to have an influence over moderates or the government (Bueno de Mesquita 2005; Kydd and Walter 2002). 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 may not take an excessive number of people to engage in terrorist violence that risks spoiling the peace.

Empirical studies of spoiling

Theoretical and conceptual work on spoiling is abundant, with much research arguing that potential spoilers are dangerous to the peace process (e.g., Greenhill and Major 2007; Newman and Richmond 2006; Stedman 1997; Zahar 2003). Despite significant attention directed to potential spoilers, systematic empirical analysis is limited. The most prominent empirical studies are insightful but incorporate only brief empirical discussions, focusing on a limited number of cases (Greenhill and Major 2007; Johnston, n.d.; Newman and Richmond 2006; Stedman 1997). Other studies empirically analyze single cases, primarily referencing terrorism in the Israeli-Palestinian conflict and the Bosnian war (e.g., Braithwaite, Foster, and Sobek 2010; Kydd and Walter 2002).

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 2004a; Nilsson 2008). Nilsson (2008), for example, examines the duration of peace following civil war settlements between 1989 and 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 only deals including all potential spoilers should increase the likelihood that peace will last might not be accurate.

Nilsson's 2008 work is an important step toward 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 is unable to account for the peace agreements that did not happen when groups successfully prevented agreements from being signed in the first place. While Nilsson is doubtful that groups can derail peace when they are outside of an agreement, she (2008) finds that spoilers have no effect on the peace. Nilsson's 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.

Other studies have begun to consider the role of violence during peace processes more directly, but they are typically limited to smaller comparisons of cases (Darby and MacGinty 2003; Höglund 2008). Cross-country empirical analyses explicitly devoted to violence during peace processes have only begun to address the topic more directly. Ayres (2006) attempts a direct analysis using seven civil wars and measures 15 active potential spoilers; he finds preliminary support for the hypotheses that (i) rates of attacks and (ii) numbers of casualties may have an impact on whether groups "win." Although this is an important start, the study relies on a limited number of cases, does not examine multiple stages of the peace process, and does not move beyond a descriptive application of the data.

In sum, existing work makes important contributions to the study of spoilers, yet it also stimulates other possibilities for research. 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.

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. In each case the direct motives for terrorism varied,

but the terrorist violence had the effect of spoiling moves toward peace.

Why do groups use violence during peace processes?

Our primary motivation is to explain the effect of terrorist violence once undertaken. To understand this effect, 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 postwar settlement terms; military victory, however, is often the most difficult outcome to achieve (Bohrer and Hartzell 2005; Fortna 2004b). 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 and MacGinty 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 fundamentally threaten the group's interests, such as with Bosnian Serbs during the Vance-Owen peace process, who effectively derailed this push for peace. These groups thus use violence to undermine any serious discussion. Terrorism, in particular, has been used in a diverse set of conflicts to attempt to achieve these various goals.

Bargaining during wartime is a complex process full of uncertainties. Because of the uncertainties, as the peace process progresses and becomes more institutionalized, groups must repeatedly (i) attempt to shape the process, (ii) reevaluate whether they are obtaining their objectives, and (iii) stop the process if they are losing out in important ways. Terrorist violence can occur anytime during the entire process, and it is one means by which groups try to achieve their goals. Throughout the peace process, 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 (see, e.g., Darby and MacGinty 2003; Höglund 2008). 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 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.

The consequences of terrorist violence

This perspective raises the issue of what happens to the peace process when terrorist violence is used: does it result in spoiled peace? Kydd and 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.[3] 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. This should influence the duration of the conflict.

Terrorist violence by moderate or extremist factions may also provoke a harsh response 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 2002).

According to rationalist explanations of war, both of these processes create uncertainty about the distribution of capabilities, the resolve of the combatants, or the credibility of any commitments that parties negotiate with each other. As Mattes and Savun (2009) argue, agreements to end civil war need to provide commitment mechanisms to reduce fear and costs to noncompliance. Agreements that do not

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3. In the context of intragroup relations, violence actually could increase trust between parties, such as when groups use violence against subgroups 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.

resolve these commitment problems should then lead to an increased likelihood of recurrence. 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 more difficult to reach and implement a peace agreement. 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 and 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 that terrorism may be an effective 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.[4] Thus, we hypothesize the following:

H1. As terrorism occurs more frequently, the duration until a war ends should increase.

H2. As terrorism occurs more frequently, the duration of postwar peace should decrease.

Note that these hypotheses state expectations about what happens to the peace process when groups engage in terrorism. We expect that terrorism impedes progress, making wars longer and postwar peace shorter. The peace process might not be even-handed or optimal, and therefore the vi-

olence might be justified by the participants, but such questions are beyond the scope of this paper.

These hypotheses suggest that terrorism is a strategy by an opponent to achieve an objective, either continuing a conflict or bringing about a new one. Abrahms (2006, 2012) suggests that terrorism is a losing strategy and thus attempts to achieve even these process goals are likely self-defeating. By contrast, others contend that terrorism is successful (Pape 2005). Among them, Thomas (2014), using data from African civil wars, finds that terrorism can be an effective tool to gain concessions from the state and to get a seat at the negotiation table. Still others might argue that when the government and moderates reach an agreement, then terrorism may occur concurrently with long wars as the government works with moderates to slowly outlast the violence, which would be consistent with hypothesis 1 but for different reasons. While our tests cannot resolve the debate over the relevance and effectiveness of terrorism, they should provide evidence that will begin to address the underlying mechanisms. In the following section, we discuss the research design and accompanying empirical tests.

RESEARCH DESIGN

To test these hypotheses on the consequences of terrorism, we consider two outcomes of interest. One dependent variable is the time to the end of the war. 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). Because we are interested in whether terrorist violence prevents the war from ending, which means that the war lasts longer, we use a duration modeling approach. The unit of observation in these models is the civil war–month. Our spatial domain is all countries experiencing civil war, and the temporal domain includes all months during these conflicts from 1970 to 2002.[5] Again, we expect that increases in terrorism events will increase the time to the end of a civil war.

The second dependent variable is time to recurrence of war once a previous civil war ended. In this second analysis, we use data from Collier, Hoeffler, and Söderbom (2008) on recurrence of war, which is coded dichotomously as (1) war recurred or (0) war did not recur in a given year. Because of a lack of monthly data in postconflict years, the unit of observation for these data is the country-year for a

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4. Terrorism can also occur from pro-government groups and thus reduce the credibility of the state to comply with peace agreements.

5. We are limited by the available terrorism data to this time period. We do not expect, however, that our inferences would change if we were able to extend the data back to 1945. Prior to World War II, as Kalyvas and Balcells (2010) suggest, international factors may influence the patterns of internal violence in different ways. Once terrorism data are geographically coded from 2002 to the present, future research should consider whether the patterns change in the post-9/11 period.

state that has previously experienced a civil war. Our spatial domain again is all countries that have experienced the ending of a civil war. The number of observations is necessarily limited as compared to the first analysis, as we include observations once a war has ended and do not include observations for countries that have never experienced a civil war. Our expectation is that more frequent terrorist events will lead to shorter durations until war recurrence.

Graphs of the baseline hazard rates for each reveal nonmonotonic hazards rates. In other words, the baseline hazard rate may increase or decrease at different periods of time. We estimated this in two ways. First, we used a routine that estimates the baseline hazard without covariates. Second, we used Carter and Signorino's (2010) code for predicting these baseline hazards, using a discrete hazard model with the full set of covariates set at the mean. Each graph confirms our expectations (see the online appendix).

Given these nonmonotonic baseline hazards, we use three approaches to estimate the time to war ending as well as the time to war recurrence. First, we use a parametric model that can take into account nonmonotonic hazards. The log-normal model can model this process well (Cleves et al. 2008). Second, we estimate Cox proportional hazard models. These models do not assume any functional form for the baseline hazard. Their use is common in the social sciences, especially where we lack strong theory predicting what the baseline hazard should look like (Box-Steffensmeier and Jones 2004). They are less efficient, however, than properly parameterized duration models. Third, we estimate a discrete time model in a logistic regression framework. In sum, the dependent variable is either war ending or war recurrence. A variable that counts the years since war began or since the end of the previous civil war is included. Additionally, squared and cubed versions of this counter are included to provide a flexible way to model the hazard of failure (Carter and Signorino 2010). This way of estimating a duration model is analogous to a Cox implementation as using a cubic form of time allows for nearly any shape for the baseline hazard of failure.[6] The main results reported here utilize the parametric, log-normal regression technique, but the results are not sensitive to this estimation choice.

Terrorism and spoiling

While spoiling could occur in different ways, we consider one very prominent form, terrorism (Kydd and Walter 2006), based on the *Global Terrorism Database* (GTD; LaFree and 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 and Dugan 2007). The GTD contains approximately 60,000 terror events worldwide from 1970 to 1997 and an additional 7,154 from 1998 to 2004 collected separately (using a slightly different definition).[7]

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, we drop any event directed at a military or government target from the two analyses. Compared to 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.[8]

Even if terrorist violence does not capture all acts that groups take that might spoil the peace, these events occurring in the context of war and peace processes are one of the best measures of spoiling behavior. Targeting civilians rather than combatants is a signal that unrestrained violence may continue.

Kydd and Walter (2006, 72–76) make a compelling case that one of the primary strategies of terrorism is spoiling peace processes.[9] For them, peace processes dominated by moderates threaten extremist and terrorist goals, creating incentives to stop the peace process. In this paper, we con-

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6. A simple time counter assumes some monotonic increase or decrease, whereas a cubic term implies a quadratic form.

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7. The 1998–2004 data were collected using different coding rules than the 1970–97 data. As such, pooling the two time periods might be problematic. Because we want to use both sets of data together, we take a couple of steps to be sure that the data are comparable. As a first cut, we 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. We 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.

8. Like most data, this source of data needs to be accompanied by some caveats. According to LaFree and Dugan (2007), the 1970–97 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 and Dugan (2007) outlines, the 1993 data were lost, but the GTD project has recovered "marginal" estimates of the overall number of attacks. We 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. We also estimated models without these 1993 marginals, and the results are substantively the same.

9. See also arguments by Bueno de Mesquita (2005).

tend that groups might be motivated to use violence for a variety of reasons. Regardless of the motivation, however, 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, such as the Fort Hood shooting or the Oklahoma City bombing, are not related to a civil war.[10] 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 or the pursuit of some status quo (e.g., Klan violence in the American South during Reconstruction). 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 we 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 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, we follow recent practice (Findley and Young 2012b; Nemeth, Mauslein, and Stapley 2014) and use geographic coordinates for nearly all of the terrorist events in the GTD (about 50,000 of the events).[11] 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, we 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 temporal 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 fairly conservative, because terrorist events related to the civil war could occur outside of the civil war zone and our 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.[12]

To illustrate the match between the civil wars and terrorist events, figure 2 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 representative of many other civil war zones throughout the world.

Because terrorist events are heavily skewed to the right (concentrated closer to zero, and they have fewer large values), we log the value of terrorism for the model estimation. In the main analyses, we lag the logged terrorism measure by one period and also include a smoothed measure of terrorism in the previous and current periods. We 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, we 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 traditional war-related violence such as battle deaths.[13]

Control variables

Because the samples are different (during vs. after wars), we estimate two sets of models. We included some similar control variables in both sets of models but also some different covariates more appropriate to each stage.[14] In general, we include common measures from studies of recurrence and

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10. Sambanis (2008), e.g., argues that one of the distinguishing characteristics of civil war relates to it being a form of violence that exceeds a given threshold. Definitions and conceptualizations of terrorism never include a death threshold (Weinberg, Pedahzu, and Hirsch-Hoefler 2004; Young and Findley 2011).

11. The GTD 1.1 database is available as study no. 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. Findley and Young (2012b) used many of these in conjunction with the coordinates they had independently coded. Thus, they coded geographic coordinates for many more events than are in the GTD. Because it is the most comprehensive and contains over time information, we use the Findley and Young (2012b) data in this paper.

12. We estimated models using all terrorist events rather than those only in civil war zones. The results are similar qualitatively, but not identical. In all but one case, the size of the effects decreases, likely due to the inclusion of many unrelated events. Moreover, the *p*-values attenuate in comparison to the main results reported in the paper, though all but one case is still statistically significant at conventional levels.

13. Because our argument is not precise enough to operationalize terrorism in a single way, we also estimated models using alternative measures of the terrorism concept. Whether we use an indicator of attacks, lagged attacks, logged attacks, lagged and logged attacks, or smoothed attacks over different time periods, the results are consistent.

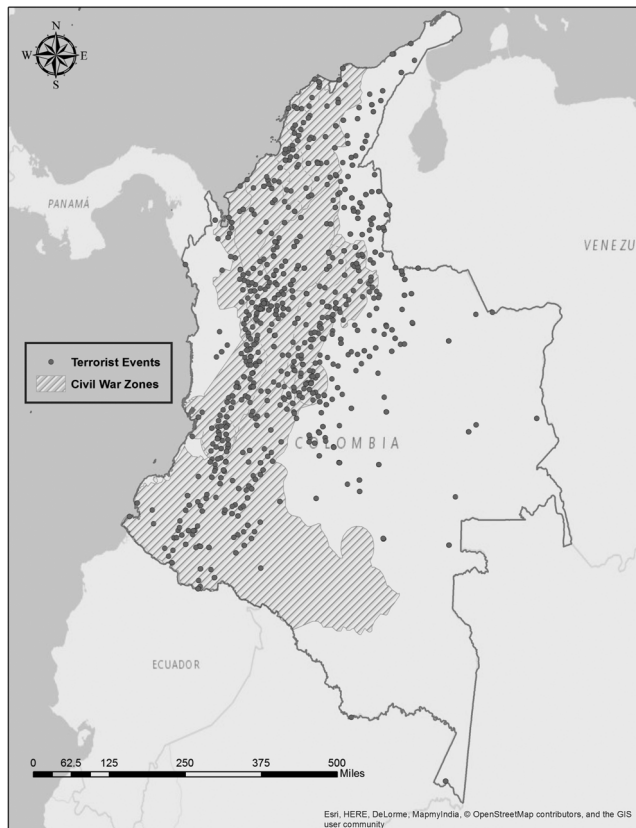14. For sources and descriptive statistics, see the appendix.

Figure 2. Terrorist events and civil war in Colombia. This figure shows the country of Colombia with terrorist events plotted onto civil war zones. The darker background shades on the western side of Colombia represent the main area of civil war. As is evident, most terrorist events occur in the civil war zones.

civil war duration (Collier, Hoeffler, and Söderbom 2004; DeRouen and Sobek 2004). To maintain a relatively parsimonious model, we concentrate on control variables that might influence terrorism and the duration of the conflict (Achen 2005; Ray 2005).

For the duration of war models, we include measures of the number of parties to the war, as this could lead to changes in the amount of terrorism (Bloom 2005; Findley and Young 2012a), and population (logged), as it covaries with both terrorism and civil war duration (Collier et al. 2004; Li 2005; Young and Findley 2011).[15] The ethnolinguistic fractionalization index has an uncertain relationship with each, but this is often included to attempt to explain both civil war duration and terrorism. We include a logged measure of battle deaths to avoid the possibility that the terrorist attacks are simply measures of traditional civil war battles. Gross

domestic product (GDP) per capita has been used as a proxy for many different concepts in civil war and terrorism research, such as poverty, state capacity, and effective counterinsurgency (Fearon and Laitin 2003; Findley and Young 2011; Sambanis 2004). Regardless, GDP may correlate with both terrorism and the duration of wars. Difficult terrain, or the percentage of mountainous terrain in a country, is correlated with duration and may also influence rebels' abilities to use violence, such as terrorism (Collier et al. 2004). Finally, the presence of a security guarantee (Walter 2002) may lead to an incentive for using terrorism while reducing the duration of the war.

For the civil war recurrence models, we again include the ethnolinguistic fractionalization index, GDP per capita, and population (logged). We also include a measure of whether there is instability in the state, as this instability could lead to both terrorism and recurrence of war. A control for the average democracy score of neighbors is included to control for the influence of the stability of the region on both forms of conflict. Finally, whether a third-party force was present might influence both terrorist attacks and war recurrence.

EMPIRICAL ANALYSIS

The first step in the analysis is to consider whether and how terrorism affects the duration of war. In the following, we consider whether terrorism increases the risk of war recurrence. To preview, these results show that terrorism makes wars last longer and increases the risk of war recurrence once a war has ended. These results are robust across a wide variety of specifications, suggesting that terrorism is frequently responsible for spoiling peace processes by increasing the duration of war or hastening the time until war recurrence.

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 and Jones 2004). Thus, the results show that as the amount of terrorism increases, the duration of war also increases, which is consistent with hypothesis 1.

Although model 1 suggests a strong relationship between terrorism and longer civil wars, arguably the logged/lagged measure is not the best indicator of the concept. 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

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15. We also used a more stringent measure of the number of actors, namely, "veto players." The results for terrorism reported in the paper hold with or without the inclusion of the veto players measure.

Table 1. Log-normal Survival Models of War Ending and Recurrence

| | Hazard (War Ending) | | | | | |
| | Model 1 | | | Model 2 | | |
	$\hat{\beta}$	SE	p	$\hat{\beta}$	SE	p
War-related terror (log/lag)	.369	.188	.049			
War-related terror (log/smooth)				.566	.222	.011
Population (log)	.369	.116	.001	.363	.120	.002
Ethnic fractionalization	−.499	.783	.524	−.255	.781	.744
GDP (log)	−.194	.177	.272	−.237	.179	.187
Number of actors	.776	.192	.000	.857	.190	.000
Battle deaths (log)	.126	.095	.183	.115	.095	.224
Mountainous terrain	.002	.006	.731	.000	.006	.976
Security guarantee	−6.097	2.734	.026	−6.310	2.716	.020
Constant	−.660	1.903	.729	−.429	1.946	.826

Results in accelerated-failure time form; Years = 1970–2002;
Number of subjects = 119; Total war endings = 63

| | Hazard (War Recurrence) | | | | | |
| | Model 3 | | | Model 4 | | |
	$\hat{\beta}$	SE	p	$\hat{\beta}$	SE	p
War-related terror (log/lag)	−.501	.122	.000			
War-related terror (log/smooth)				−.609	.121	.000
Population (log)	−.075	.160	.641	−.059	.145	.683
Ethnic fractionalization	.783	.661	.237	.706	.604	.242
GDP/capita (log/lag)	.622	.281	.027	.681	.265	.010
Instability	−.953	.391	.015	−1.004	.367	.006
Democracy in region	.127	.054	.018	.127	.050	.012
No third-party peacekeepers	−.841	.489	.086	−.843	.457	.065
Constant	10.871	2.601	.000	10.865	2.375	.000

Results in accelerated-failure time form; Years = 1970–99;
Number of subjects = 60; Total recurrences = 30

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, we use a smoothed measure of terrorism in model 2 (table 1) that 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 us to consider the current month while incorporating the weight of the recent past. The results for the smoothed measure in model 2 indicate that spoiling is again associated with longer durations of civil war.

To aid substantive interpretation, we calculated the predicted hazard of war ending. We generate predictions when all other variables are set at their means and medians and the shift in terrorism is from the mean to one standard deviation above the mean. A standard deviation increase in the logged/lagged version of the variable leads to, on average, an expected decrease in the risk of civil war ending by 52% (model 1, table 1). A standard deviation increase in the logged, smoothed version of the variable leads to, on average, an expected decrease in the risk of civil war ending by 86% (model 2, table 1).

Figure 3a plots these predicted hazards and shows that for average (mean) levels of terrorism, the risk of war ending is higher than it is when there are greater numbers of terrorist events. Put differently, the less terrorism that occurs the more likely it is the war ends sooner. The more terrorism there is, the risk of war ending goes down (the war is longer). These results support hypothesis 1 and indicate that terrorism can have strong negative effects on reaching a settlement to the war.

Spoiling the implementation of peace

Table 1 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 1. 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, we thus use a smoothed measure over the current year and one previous year. Using information from the current year shows that the results are stronger.

To aid substantive interpretation, we again considered predicted changes in the hazard of war recurrence. We generate predictions when all other variables are set at their means and medians and the shift in terrorism goes from the mean to one standard deviation above the mean. A standard deviation increase in the logged, lagged version of the variable leads to, on average, an expected increase in the risk of civil war recurrence by 55% (model 3, table 1). A standard deviation increase in the logged, smoothed version of the variable leads to, on average, an expected increase in the risk of civil war recurrence by 60% (model 4, table 1).

Figure 3b displays these predicted hazards and shows that for average levels of terrorism the risk of war recurrence is lower than it is when more terrorism occurs. Put differently, the more terrorism that occurs, the higher the risk of civil war recurrence. Taken together, these results support hy-
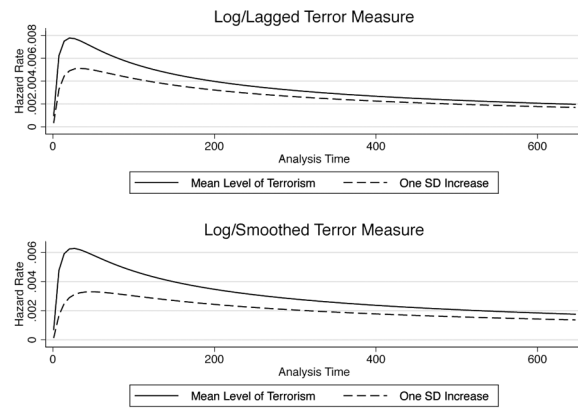
(a) Predicted Hazards of War Ending Given Changes in Terrorism
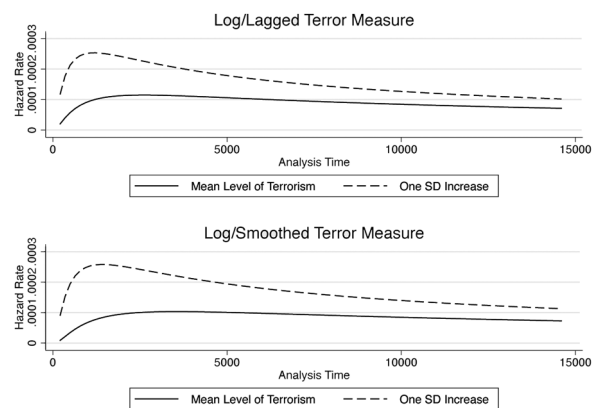
(b) Predicted Hazards of War Recurrence Given Changes in Terrorism

Figure 3. Predicted hazards of war ending (a) and recurrence (b) given changes in terrorism.

pothesis 2 and suggest that terrorism can be detrimental and hasten the time to war recurrence.

We also estimated models 1–4 with and without controls as well as with a variety of different control variable specifications, and the results are not sensitive to these changes in specification. We 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, we 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.

Models 1–4 above 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 an important factor, it is not the sole factor 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 demonstrate that terrorism makes civil wars more difficult to resolve.

Robustness

To probe the robustness of the results to different specifications, alternative measures, and ways to better isolate the potential impact of terrorism on civil war duration and recurrence, we estimate a series of models in an appendix.[16] In sum, we find unqualified support for hypothesis 2, or that terrorism tends to increase the likelihood that war recurs, across many different models. Our support for hypothesis 1, or that terrorism tends to increase the duration of civil war, is generally supported. We do find that the inference becomes less stable when implementing different estimators for the survival analysis and when including controls for state violence. With that said, the majority of the models provide support for this hypothesis.

CONCLUSION

Our argument and results suggest that terrorism influences civil war processes and results in making wars more difficult to resolve and more likely to recur. Although 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 and Fett 1996; Walter 2002). Our results suggest that other peripheral parties can have an important impact on war outcomes. Although we do not examine a more micro-level analysis of this process, we expect that looking at a particular dynamic interaction between a state and a main insurgent group and violence from tertiary actors would provide an extension and direction for future research.[17] Second, the spoiler literature has argued that spoiler groups could affect whether wars recur (e.g., Greenhill and Major 2007; Stedman 1997) but has not pro-

vided systematic empirical tests of the hypothesis. This study provides a test not only for the postwar phase but also for the negotiation phase and offers new empirical insights about the possible effects of extremist group violence.

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 venture into this domain, we have aggregated all terrorist events on the logic that they all are relevant to the peace process. Disaggregation, however would likely create some important insights about which targets are chosen and which tactics are most useful in spoiling the peace. Notably, the intensity of the attack or its symbolic value may have differential impacts. Suicide terrorism is one version of spoiling, which could have its own logic (Pape 2005) or may be utilized in constrained sets of circumstances (Bloom 2005). Second, there could be 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 but challenging next step. To sort out possible endogeneity, this area faces significant challenges in identifying instrumental variables and other randomization strategies. That said, we conjecture that there could be natural experiments that could be leveraged in order to take advantage of the benefits of randomization. The prerequisite would be to identify terrorism that is used as-if at random and then identify the differential effects of areas with and without terrorism. While these empirical findings are solid, the mechanisms for why spoiling can succeed or fail are not fully identified here or elsewhere. In the future, work that can sort among potential claims and examine more micro-level data could help develop a more complete picture of this process of violence. Finally, once terrorism data are geographically coded for the most recent decade, this question should be considered again for possible post-9/11 differences. Although scholars have identified some post-9/11 effects, it is not straightforward that patterns within civil war zones would change in this most recent era.

In conclusion, much of the recent work on civil war and terrorism treats these forms of political violence as distinct phenomena worthy of independent analysis.[18] If they are both types of contention that are utilized when states and dissidents cannot resolve disputes through institutional means, then considering how they interact, overlap, and relate is an important path of inquiry. Related, many of these violent interactions develop out of initially nonviolent interactions be-

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16. See www.michael-findley.com and https://dataverse.harvard.edu/dataverse/jyoung for the appendix and replication materials.

17. See Phillips (2015) for a discussion about focusing on terrorist groups as the unit of observation.

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18. Findley and Young (2012b) and Sambanis (2008) are exceptions.

tween and among societal actors. Recent work has renewed interest in nonviolent dissent (Stephan and Chenoweth 2008) and should be integrated with the study of larger processes that lead to political violence to help explain why some tactics are primarily utilized in certain conflicts while others are largely ignored.

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