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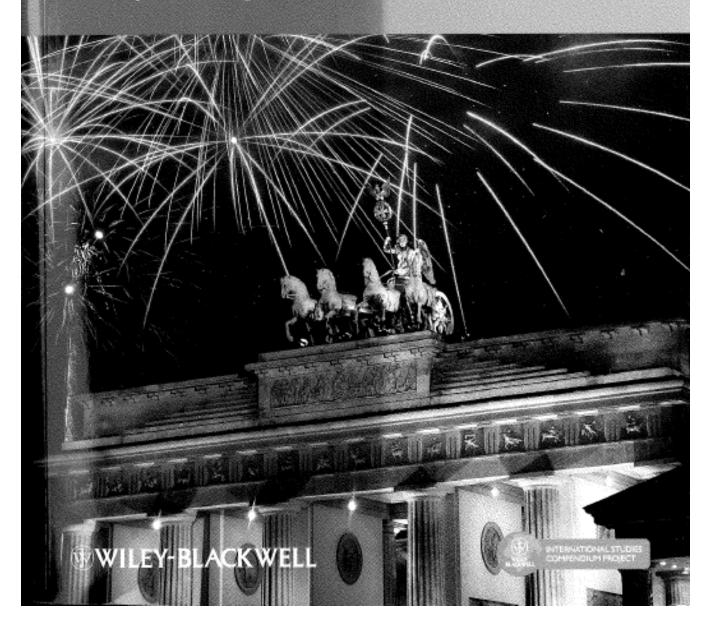# the Scientific
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Civil Wars

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Introduction

Over the past several decades, many countries have directly experienced the horrors of armed conflict, and no state is immune from the spillover effects of conflict elsewhere. While studies of interstate conflict largely dominated scholarship in the past, today an increasing number of researchers have turned their attention to understanding the causes and consequences of internal conflicts, including explaining the onset, duration, outcome and recurrence of civil wars. Much of this change in focus can be attributed to the changing nature of conflict itself. With the Cold War now at an end, the incidence of large-scale major power war has declined. According to the Uppsala/PRIO Armed Conflict data set, we saw a total of 128 conflict-years from 1989 to 2009, of which 93 were purely intrastate, 27 were intrastate with foreign involvement, and only 8 were interstate (Harbom and Wallensteen 2010).

The work on civil conflict is interdisciplinary, as major contributions have come from scholars taking psychological, economic, political, sociological, and geographic approaches (*inter alia*). Empirical analyses are equally as diverse, with large-N studies complementing field research, surveys, and detailed geospatial analyses. The purpose of this chapter is to give the reader an overview of the scholarship on civil war. We begin with a discussion of the problems associated with civil conflicts, and then discuss issues related to defining civil war. Next, we review the work on the onset, duration, outcome, and recurrence of civil conflicts, and conclude by pointing to promising avenues for future research.

The Consequences of Civil Wars

Civil wars are devastating for states experiencing them, their neighbors, and the entire global community. Collier and his colleagues (2003) provide an excellent review of the consequences of civil wars by referring to three "ripples," which represent the geographic spread of the damaging effects of civil conflicts. The first ripple includes the states that are directly experiencing civil wars. Indicators of social wellness, especially combatant and civilian deaths, provide the clearest harmful effects for civil war states. While interstate conflicts have killed around 3.33 million people since 1945 and last around three months on average, civil conflicts have caused over 16.2 million deaths and last around six years on average (Singer and Small 1994). Unfortunately, the vast majority of casualties resulting from civil wars are civilian, with estimates as

high as 90 percent (Cairns 1997). This is due in part to the heinous nature of civil conflicts, in which both rebel forces and the government's military have been known to deliberately target civilians (Azam and Hoeffler 2002). Recent research has disaggregated these casualties both during and following civil conflict, finding that civil war increases adult mortality (Guha-Sapir and Van Panhuis 2002), infant mortality (Hoeffler and Reynal-Querol 2003), and reduces years of healthy life due to long-term disability (Ghobarah et al. 2003). The use of rape as a tool of warfare has also recently received the attention of conflict scholars. Carballo and Solby (2001) estimate that at least 200 000 women refugees were raped during the Rwandan civil war alone. They suggest that rape has been used not only as a form of intimidation, but also as a means to transmit deadly diseases, such as HIV. Beyond physical injury, civil wars have been found to disrupt society by causing massive refugee flight (Moore and Shellman 2004), and by interrupting social programs such as education (Lai and Thyne 2007).

In addition to social indicators, scholars have recently shown that civil wars have a devastating effect on a country's economy (Stewart et al. 2001). Collier (1999) shows that the economic growth rate for civil war states is around 2.2 percentage points lower than states not experiencing civil wars. One reason for this decline is that governments often divert resources from social programs to military expenditures, which creates what Russett (1969) calls a "guns for butter effect." Civil wars also have negative impacts on a country's infrastructure as rebels work to disrupt the normal flow of economic goods (Canning 1998; Bruck 2001). Finally, wealth is often pushed abroad as frightened residents try to protect their assets (Collier et al. 2002). These problems are compounded by a severe drop in foreign investment (FDI) for states experiencing civil wars (Murdoch and Sandler 2002). Unfortunately, the negative effects of civil wars rarely end once the fighting stops, but continue long into the future, creating a "legacy effect" of civil violence (Collier et al. 2003).

In addition to local effects, Collier and his colleagues (2003) provide evidence to suggest that all states are negatively affected by civil violence, which they refer to as the outer "ripple" effects of civil wars. The second ripple includes adjacent states. The most direct problem for adjacent states is the flood of refugees fleeing violence (Siverson and Starr 1991; Gleditsch 2007). At the beginning of 2011, the UN High Commission for Refugees (UNHCR) estimated the total number of refugees to be around 10.4 million. Refugees place a heavy burden on a state's ability to provide public services. They also advance the spread of infectious diseases, such as HIV and malaria (Montalvo and Reynal-Querol 2002) and raise the risk of civil war contagion (Salehyan and Gleditsch 2006). Additional evidence suggests that having a neighboring state at war severely disrupts a state's economy, which is often due to disrupted trade flows and decreases in FDI (Murdoch and Sandler 2002). Ultimately, both the strain on public services and a decline in economic growth work to destabilize neighboring states.

The final set of consequences from civil wars is global. The infectious diseases associated with civil conflicts rarely remain confined to the borders of the state experiencing the civil conflict. For example, Smallman-Raynor and Cliff (1991) trace the global epidemic of HIV to the Ugandan civil war in 1979, where rape and refugee flows allowed the disease to spread throughout the globe. Civil wars are also associated with the global spread of illegal narcotics because they provide territory outside the government's control, which enables the production and distribution of drugs. Around 95 percent of the global production of opium, for instance, is in civil war countries (Collier et al. 2003). Notably, Afghanistan produces around 90 percent of the world's opium. Likewise, the ongoing violence in Colombia has transformed over time to become less about class struggles and more about the production of cocaine (Collier and Hoeffler 2004). Finally, scholars are beginning to explore the links between civil

wars and international terrorism. Civil wars promote terrorism by providing a safe haven for people to organize outside the government's control. Illegal products from the conflicts, such as alluvial diamonds, also provide revenue for terrorist organizations such as Al Qaeda (Collier et al. 2003). Overall, whether it is a focus on the spread of diseases, drugs, or terrorism, there is a strong reason for all people to better understand how civil wars begin, continue, and end.

What Is a Civil War?

Agreeing on an operational definition for "civil war" is a difficult task. Gates (2004) provides a general definition of civil war that is common to the majority of civil war data sets, explaining that civil war is an armed conflict between representatives of the state and another organized domestic party over a contested political incompatibility resulting in a number of causalities exceeding a certain threshold for both parties. While few would disagree with Gates' definition at the conceptual level, attempts to operationalize these criteria have produced many data sets over the past decade. These can largely be grouped into two camps. First are data sets that closely relate to the Correlates of War data on intrastate war (e.g., Collier and Hoeffler 2004), which largely focus on "war," while the second derive from the Uppsala Conflict Data Program's Armed Conflict Dataset (hereafter ACD; Gleditsch et al. 2002), which is focused on "armed conflict" more generally. It is imperative that scholars have a clear understanding of the commonalities and differences across data sets to assure that their data most closely capture their theoretical concept.

Each data set attempts to conceptualize civil war as distinct from one-sided violence, organized crime, and communal fighting. First, definitions usually require both a political incompatibility and an organized opposition. The political incompatibility is usually characterized in terms of control over governmental institutions or secession (e.g., Gleditsch et al. 2002). Requiring an organized opposition separates civil conflicts from less organized forms of violence, such as violent riots and criminal activity. Given that rebel organizations frequently dissolve, merge, or change names, however, most civil war data sets favor the incompatibility aspect when coding a new civil conflict (i.e., code a new civil war when a new issue is under contention). Second, some civil war data sets attempt to differentiate civil wars from genocides and massacres with an "effective resistance" criterion. The COW definition, for example, requires that at least 5 percent of battle deaths be inflicted by the weaker party.

Civil war data sets also commonly make an effort to distinguish civil wars from other types of conflict, and to differentiate among types of civil wars. The most common distinction among civil conflicts is between efforts to overthrow the government or drastically change the political system, versus those concerning territory, where the rebel group's goal is secession or autonomy. Colonial or imperialist wars, which have largely become an artifact of history, also commonly are separated from civil conflict either by total exclusion or by receiving a separate category. Less common attempts to disaggregate civil conflicts have categorized coups, popular revolutions, sons of the soil, and contraband conflicts (e.g., Fearon 2004). Finally, scholars interested in the role of external actors during the conflict have commonly either provided their own additions to existing data sets (e.g., Regan 2002), or have considered the ACD's "internationalized internal armed conflict" category, which includes civil wars with intervention from other states.

The primary difference between data sets on civil conflict is the death threshold that must be crossed for a conflict to enter the data set. Most COW-based data sets focus on "war," which is defined as armed conflict with at least 1000 battle deaths for the entire civil conflict (Singer and Small 1994; Sarkees 2000; for similar COW-based coding, see

Doyle and Sambanis 2000; Fearon and Laitin 2003; and Collier and Hoeffler 2004). The ACD uses a much lower threshold for battle-related deaths (BRDs) in defining "armed conflict," differentiating between *minor* conflicts (>25 BRDs/year), *intermediate* conflicts (>25 BRDs, plus >1000 BRDs over the conflict's history), and *wars* (>1000 BRDs per year). Beyond the death threshold, data sets are inconsistent in deciding whose deaths should be counted. The COW data set includes civilian deaths, while the ACD does not. Compounding this discrepancy is the inherent difficulties in counting fatalities and correctly identifying who is or is not a soldier.

Another practical difficulty pertains to coding the beginning and end of conflict periods. Civil conflicts beginning with dramatic events, such as coups d'état, are fairly easy to code with precise start dates. However, most civil conflicts come about by rather slow escalation periods, which may cross over into new years. The convention across data sets is to code the onset of the conflict for the year (effectively January 1) in which the war crossed the minimal battle death threshold. Coding the end to a conflict is also difficult, and decision rules have major implications for studies of duration, outcome and recurrence. The easiest cases to code are those where one party obtains a decisive victory, such as Castro's victory in Cuba at the departure of Batista in 1959. Some conflicts end in formal peace treaties, though coders frequently have to make difficult decisions if a treaty breaks down or a faction continues fighting after the treaty is signed. A related problem comes with intermittent conflicts, which may drop below the defined battle death threshold during the course of the conflict. In these cases, the convention is to first consider the incompatibility. If the cause of a new conflict onset is appreciably different than the previous conflict, a new war is coded. Some data sets also consider the organizations involved. The ACD, for instance, would code a new conflict onset over the same incompatibility if the organization changed drastically (though this is rare). Finally, most data sets code a termination and new conflict onset if N (usually two, as in Doyle and Sambanis 2000) years pass without the conflict reaching the minimal death threshold.

Our critical point here is not that one approach is better than others, given that all necessitate at least some arbitrary coding decisions. Rather, it is to urge users of civil war data sets to pay close attention to how cases are coded and to make modifications to existing data sets to best capture their theoretical process of interest. Beyond making theoretically informed decisions, researchers should provide robustness checks across data sources. Finally, scholars should be careful in removing (or controlling for) events that do not capture their theoretical definition of a civil conflict. Studies interested in anti-state violence from the masses, for instance, often remove instances of bloody coup d'états from their data. Other studies show important differences in differentiating among war types, such as Sambanis' (2001) study of the causes of ethnic and non-ethnic civil wars.

What Causes Civil Wars?

Scholars have provided many logically sound and empirically supported theories to explain why civil wars occur. Theories come from a variety of perspectives, including economic, political, psychological, rational choice, and constructivism. These theories largely focus either on motivational factors (the objectives of the rebels), opportunity factors (the ability of rebels to successfully challenge the government), or both.

Rebel Motivations

Two primary theories have emerged to explain the initial motivations behind rebel behavior. We begin with psychological motivating factors, which have largely come to be

known as the "grievance" theory of civil war. In a foundational piece in this literature, Gurr (1970) argues that social discontent is a result of the discrepancy between the conditions in life that people inherently expect (value expectations) and the social conditions that limit what they are actually capable of achieving (value capabilities). These divisions, known together as "relative deprivation," come about due to economic, political and cultural factors that create inequities in terms of discrimination or repression, access to power, and economic inequalities. Individuals are inclined to engage in civil war in order to address these grievances, while state repression is likely to further inflame peoples' anger.

Empirical tests commonly attempt to capture grievances using some measure of income inequality, and few have found robust support (Hoeffler 2012). This may be because the theory is simply wrong, or due to a host of other factors. Poor availability and/or quality of cross-national data clearly harm analyses, for instance. Others provide more theoretically informed reasons and alternative approaches. MacCulloch and Pezzini (2007), for example, argue that while poverty likely incites frustration and anger, few aggrieved groups have the means to launch a rebellion. Others focus on the differences between "vertical" inequality (between individuals) and "horizontal" inequality (between groups). While evidence for vertical inequality causing civil wars is weak, studies focused on horizontal inequality have provided some evidence of a causal connection to the onset of civil conflicts (e.g., Murshed and Gates 2005).

A plethora of scholars have extended Gurr's work by focusing on the roles of democratic versus authoritarian regimes in providing both adequate social conditions and peaceful means by which people can express discontent (e.g., Hegre et al. 2001). These studies generally show mixed support for the grievance model. Studies examining structural political characteristics and discrimination, for example, have found support for the grievance model among subsets of civil conflicts (Sambanis 2000), for specific groups (Gurr 2000), or not at all (Collier and Hoeffler 2004). One of the most commonly studied paths in this vein looks for a relationship between democracy and the onset of civil war. Earlier studies used the Polity IV measure (Marshall and Jaggers 2007) and found no evidence of a linear relationship (Collier and Hoeffler 2004), but that civil wars are most likely among semi-authoritarian states (Fearon and Laitin 2003), and that political instability causes conflicts (Hegre and Sambanis 2006). However, Vreeland (2008) critiques this work, explaining that civil conflict is part of the Polity IV measure and, therefore, previous results were largely tautological. After removing the tautological components from the measure, he finds little evidence of any relationship between democracy and civil war onset.

In contrast to the psychological-motivational approach taken by the grievance model, economic theories take a cost–benefit perspective to explaining civil conflicts by focusing on the trade-off between fighting and accommodative behavior. For instance, Grossman (1999) considers civil conflict in a rational choice framework, modeling rebels as rent-seeking entrepreneurs (greed driven) rather than as victims of a repressive state or "out group" discrimination. Collier and Hoeffler (2004) extend Grossman's model with the claim that opportunity explains civil war better than grievances. From this perspective, rebels are largely indistinguishable from criminals, bandits or pirates, and will attack the state when it is deemed to be more profitable than peaceful alternatives. One major difficulty in testing the greed-based explanation is that motivation is not directly observed, and rebels inevitably couch their activities in terms of seeking justice. Moreover, Weinstein (2005) explains that even grievance-based rebellions are apt to morph into greed-driven enterprises when opportunities for large profits present themselves.

Empirical studies of the greed model produce mixed findings. Collier and Hoeffler (2004) provided the seminal work on the relationship between lootable resources and civil war onset by operationalizing lootable resources as primary commodity

exports divided by GDP, arguing that local rents help finance and motivate rebellions. While these results provide support for the greed model, further tests showed much weaker results (e.g., Fearon and Laitin 2003). Subsequent work takes issue with the greed findings both theoretically and empirically. Fearon and Laitin (2003), for example, find that oil-producing states have a high risk of civil war, but attribute this not to greed as a motivating factor, but to the government's weaker institutional capacity. De Soysa and Neumayer (2007) attempt to parse out this distinction by differentiating between resources that provide finance and motive (e.g., minerals) versus those that weaken state capacity (e.g., the energy sector), siding strongly with the state capacity argument. However, this stands in contrast to Lujala et al.'s (2005) sub-national study, which finds a relationship between the location of conflict and the location of secondary diamonds used to fund conflict. Dozens of other articles seeking to find both direct and indirect relationships between resources and civil wars disaggregate both the independent and dependent variables, and frequently look at fewer cases and sub-national data.[1] Ultimately, much work is left both theoretically and empirically to parse out the relationship, though most recent studies find at least some support for the greed argument.

A third account of rebel motivations focuses on the role of ethnic identities, though the role of ethnicity cuts across theoretical perspectives to such a great extent that it is difficult to summarize a purely "ethnic theory" of civil conflict. One approach considers ethnicity as a critical source of group cohesion. For example, Frye (1992: 607) provides an explanation of the primordialist view of civil conflict, explaining that ethnic groups satisfy an individual's primal need to belong to a group in an anarchic "Hobbesian" world. These divisions can lead to civil war, especially when a large ethnic minority is discriminated against (Horowitz 1985; Connor 1994). Others take a more rationalist perspective on the role of ethnicity, arguing that ethnicity provides mechanisms for coordination and enforcement even in the absence of primordial inter-ethnic animosity. For instance, Bates (1983) argues that costs of organizing a rebellion decrease with shared customs and languages, while Fearon and Laitin (1996) add that ethnic social networks allow leaders to sanction shirkers and exclude outsiders from pubic goods produced through conflict. Finally, modernization theories suggest that exclusion from social and political power during the process of economic modernization can spur civil conflict (e.g., Gellner 1983).

Attempts to find an empirical link between ethnicity and civil war onset have produced mixed findings. Most studies rely on data from either Atlas Narodov Mira (1964) or Alesina et al. (2003) to capture ethno-linguistic fractionalization. Tests from Ellingsen (2000) find a positive relationship, while Collier and Hoeffler (2004) find a negative relationship, and Hegre et al. (2001) present null findings. This leads Hegre and Sambanis (2006) to conclude that there is no robust relationship between ethnic diversity and civil war onset. Toft (2003) furthers the discussion by considering geography as a potential conditioning factor, arguing that ethnic groups concentrated in rural areas are likely to rebel. Others focus not on diversity, but ethnic dominance or polarization. Both Collier and Hoeffler (2004) and Hegre and Sambanis (2006) find that states where the largest ethnic group comprises between 45 and 90 percent of the population are apt to have more conflicts, though Henderson and Singer (2000) find no relationship.

Opportunity Structures

A second viewpoint focuses on political opportunities to challenge the state rather than motives. While not entirely disregarding the importance of motivational factors, scholars in this vein argue that they are so common throughout the world that conflict is better explained by aggrieved peoples' opportunities to successfully challenge the

state. Scholars taking this viewpoint largely take one of two approaches. The first attempts to explain how rebels overcome collective action problems. The second focuses on the characteristics of states that provide opportunities for civil conflict.

We begin with a large body of work that considers the collective action problems associated with rebellions. If rebel objectives are public goods, meaning that one's enjoyment of having achieved rebel goals – whether they be controlling the state, secession, autonomy, democratization, or redistribution – does not depend on one's having contributed to the cause, it is puzzling that individuals would choose to risk the immediate and severe costs of joining a rebellion. Olson's (1965) early discussion of this issue claims that the collective action problem can be overcome by either coercing participation or offering selective incentives to only those who participate. While some work considers coercion to promote participation (e.g., Beber and Blattman 2008), most focus on the latter mechanism, arguing that revolutionaries successfully encourage rebel participation by offering material benefits to individuals contingent on their participation (e.g., Popkin 1979; Lichbach 1995). A close link can also be made here with the greed-based approach to rebellions, as loot can be considered a selective incentive available only to participants (e.g., Collier and Hoeffler 2004).

Others counter the selective incentive idea, arguing that guerrillas frequently prefer to offer collective goods, which largely mimics public provisions commonly granted by the state (Skocpol 1979; Goodwin and Skocpol 1989; Wickham-Crowley 1992). This approach allows for the consolidation of revolutionary movements by giving the population under rebel control incentives to both join and support the rebel movement. Extending this approach, several scholars have considered protection from government forces to be a critical material benefit provided by revolutionary forces, particularly in cases where government violence is indiscriminate (Mason and Krane 1989). In these cases, state violence often leaves peasants "no other way out" than joining the insurgency (Goodwin 2001). A final approach considers how pre-existing social networks play a conditioning role in rebel attempts to overcome the collective action problem. From this viewpoint, shared norms and frequent contact among culturally homogenous communities make it easier to impose high costs for non-participation in rebel movements (Taylor 1988). Moore (1966) argued that these strong horizontal networks are necessary for rebel mobilization, while Scott (1976) focused on the erosion of vertical relations between landlords and the peasants to explain revolutions.

The second perspective focuses on factors that affect the viability of rebellion. Some elements considered here change very slowly (or not at all), and speak to a potential rebel group's general capacity to successfully challenge the state (Tilly 1978). For example, rough terrain provides rebels with opportunities to hide from the government forces, lessening the power imbalance between the two. Large populations are also harder to monitor or govern effectively. Other factors change more rapidly, which opens windows of opportunity for rebel groups. Political instability, either in dramatic transitions or coups d'état, for example, can make rebellions more feasible.

Empirical tests largely find support for the opportunity argument. Rough terrain has been found to be associated with the onset of civil war, as have large populations and oil dependence (Fearon and Laitin 2003). Other findings in support of the argument fall prey to ambiguous causal interpretations, however. While some argue that low income per capita inhibits state capabilities, for instance, others argue that the same factor lowers the opportunity costs for people to join a rebellion or proxies grievances.

International Dimensions

A growing body of work looks beyond intrastate variables to explain the onset of civil conflict. Some early work in this vein considered how external actors influence interactions

between the government and the opposition, including Moore (1995) and Gleditsch and Beardsley (2004), who provide evidence that third parties can alter levels of conflict among domestic adversaries. Others focus on how a state's neighbors impact the likelihood of civil conflict. Hegre and Sambanis (2006) consider the contagion of conflicts, for instance, while Salehyan (2009) studies how neighboring conflicts and refugee communities serve as breeding grounds for cross-border rebel movements. External financing of potential rebel groups has also drawn much attention, including Gleditsch's (2007) study of support from trans-border ethnic groups and Collier and Hoeffler's (2004) focus on diasporas. Cetinyan (2002) and Thyne (2009) take an even broader approach in studying external actors within a bargaining framework, arguing that easily anticipated responses from external actors should matter less than unexpected actions in explaining the onset of civil conflict.

Civil War Duration and Outcome

As opposed to research on civil war onset, studies of the duration and outcome of civil war are relatively recent. While civil wars break out for a variety of reasons, once they begin the internal dynamics of violence can lead to a variety of outcomes. Some conflicts are short-lived and end decisively, such as Bangladesh's war for independence in 1971. Other wars, such as the conflicts in Southern Sudan, Sri Lanka, and Afghanistan, rage on for years. Protracted wars are often bloodier, cause more displacement, have long-term negative macroeconomic effects, and erode social trust. Therefore, it is essential to understand why conflicts persist. Yet, eventually civil wars do come to an end and can result in a decisive victory by the government or rebel side, or a negotiated settlement between the parties. Thus, this body of literature asks: why do some civil wars last so much longer than others? As a related question: what explains the mode of conflict termination?

William Zartman (1989) offered one of the earliest and most influential theories of civil war duration and termination. He argued that conflicts persist until neither side believes that it can achieve unilateral victory and continued fighting is costly. Under these conditions – a "mutually-hurting stalemate" – the civil war is "ripe for resolution" and both sides seek a way out of costly violence. Through a formal model, Wittman (1979) also focuses on the costs of continuing to fight versus negotiating. Empirical support for this theory has been mixed, however. Mason and Fett (1996) find that while the duration of conflict – a proxy for stalemate — is positively associated with negotiated settlements, the costs of war, measured by the number of battle deaths, does not explain settlement (see also Mason et al. 1999).

As another test of the "ripeness" hypothesis, Greig and Regan (2008) examine mediation attempts in civil wars. If a mutually hurting stalemate inclines actors to begin negotiations, then belligerents should be more likely to accept external mediation the longer the conflict has endured. However, their empirical analysis shows that the relationship between duration and mediation acceptance is curvilinear: as conflicts persist, belligerents are more likely to accept mediation, but after roughly 22 years of fighting, conflicts become more resistant to mediation.

In a refinement of Zartman's theory, Barbara Walter (2002) persuasively argues that even when a mutually hurting stalemate emerges, credible commitment problems make civil wars difficult to resolve. As opposed to an international war, in which actors maintain their armies after a peace agreement, civil wars require one or both combatants to disarm and reintegrate into society. This presents a Prisoner's Dilemma-like problem: even though both sides would be better off accepting a deal, fears of reneging and victimization make it difficult for actors to lay down their weapons. Walter offers a solution to this credible commitment problem: external

security guarantees. Her empirical analysis demonstrates that peace agreements that are enforced by third-party peacekeepers are far more likely to succeed than those without.

While the work discussed above is mainly concerned with the preconditions for negotiated settlements, other scholars have focused squarely on the duration of the conflict itself. Collier et al. (2004) present a series of early findings with respect to conflict duration. They demonstrate that civil wars last longer in countries that are poorer, have a high degree of income inequality, and have a moderate degree of ethnic diversity. Conflicts are shorter when the price of primary commodities decline and when there is external intervention in favor of the rebels. Fearon (2004) offers a theory of civil war duration based on the government's inability to commit to a peace deal. Empirically, he shows that "sons of the soil" conflicts – where indigenous minorities in the periphery oppose migration to their region – are more likely to endure because the state cannot commit to ending the offending policy. Yet many of these models tacitly assume that civil wars are contests between governments and a single rebel actor. Cunningham (2006) challenges this assumption by observing that many civil wars involve multiple parties that serve as "veto players" during conflict negotiations. Bargaining becomes more difficult as each actor has an incentive to hold out as long as possible to get a better deal. In a related theory, Stedman (1997) argues that extremist opposition groups often act as spoilers by attempting to scuttle peace negotiations, thus prolonging war. Cunningham's empirical analysis reveals that civil wars with multiple veto players last considerably longer than those with only two parties.

In one particularly noteworthy article, DeRouen and Sobek (2004) combine the analysis of civil war duration and outcome in a single study. This approach is theoretically more satisfying than looking at conflict duration separately from outcome and treating all modes of conflict resolution as the same. They adopt a competing risks survival analysis to determine the probability that a civil war ends in a rebel victory, government victory, truce, or negotiated treaty. Among their variables are a set of indicators of regime type and state strength. Interestingly, they show that while an effective bureaucracy reduces the likelihood of a rebel victory, the size of the government army only has a modest effect on government victory, and political democracy does not appear to significantly favor the state. Thus, the nature of the regime has several dimensions that may work in different ways.

Also using a competing risks framework, Brandt et al. (2008) demonstrate that governments are more likely to win early when they have large armies, but that time to government victory increases when they are faced with secessionist rebels and when external parties are involved. On the other hand, higher GDP per capita shortens the time to rebel victory and negotiated settlements. Yet, both DeRouen and Sobek (2004) and Brandt et al. (2008) portray conflict as a contest between a government actor and a single "rebel" actor, which is an important limitation.

Taking this observation as a point of departure, Cunningham et al. (2009) disaggregate the rebel side and look at conflict duration and outcome in particular rebel-government dyads. For instance, in the Philippines while the Moro National Liberation Front signed a peace treaty with the government, other Mindanao rebels did not. Thus, it is important to account for differences in outcome *by group*.[2] They find that the likelihood of a government victory falls steeply with time, indicating that governments typically win early or not at all. They also show that relatively strong rebels fight conflicts that look more like conventional wars and are more likely to end quickly. Rebels that have control over a territory make all outcomes less likely, and those that have a recognized political wing tend to fight shorter wars.

Some of the most important studies of civil war duration and outcome emphasize how international variables, such as outside intervention, affect the prospects for peace. Balch-Lindsay and Enterline (2000) were among the first to quantitatively

assess the impact of international variables on civil war duration. Contrary to their expectations, they find that external intervention does not shorten conflict duration; rather, government support, rebel support, and balanced interventions all increase the duration of wars. Neighboring civil wars are found to increase the duration of conflict, while militarized interstate disputes in the affected country as well as in neighbors shorten wars.

Several others have confirmed that external interventions prolong civil wars rather than putting an end to them (Elbadawi 2000; Regan 2002). To explain this finding, Cunningham (2010) argues that external actors are simply another veto player whose interests must be satisfied. Regan and Aydin (2006) offer additional nuance to the intervention literature. They argue that military and economic interventions only affect the balance of power between groups and are not designed as conflict management efforts. External mediation, on the other hand, attenuates informational and credible commitment problems during bargaining and reduces conflict duration.

Focusing on interventions and civil war outcomes, Gent (2008) presents a formal model and empirical test showing that external interveners will only support governments that face a real chance of losing; otherwise, they will not waste their resources. Moreover, stronger rebels are more likely to attract foreign support since additional help can tip the balance in favor of the opposition. This implies that interventions in favor of the government appear to be ineffective in securing an incumbent victory – a regime needing help is probably weak to begin with – but rebel support make outcomes favoring the opposition more likely.

In addition to external intervention, the surrounding neighborhood can also exert an important effect on conflict duration. Salehyan (2007; 2009) argues that rebel groups with access to external sanctuaries are more difficult to defeat and make the bargaining environment more complex, thereby prolonging civil wars. Similarly, Buhaug et al. (2009) demonstrate that civil wars that are fought at a distance from the capital and along international borders tend to last much longer.

Sustaining the Peace

In addition to the duration of war, scholars are also interested in the duration of peace after civil conflict. In the aftermath of war, economies are often in shambles, social trust is lacking, and political institutions are unstable. For these reasons, the likelihood of another round of conflict is quite high. Yet, while some civil wars – such as in Nicaragua and Mozambique – have not flared up again, in other cases countries are mired in cycles of recurring violence.

One emerging consensus in the literature is that peacekeeping works (Fortna 2008). After the end of the Cold War, with the deadlock in the UN Security Council broken, the number of peacekeeping operations has significantly increased. Some early failures – such as Somalia and Rwanda – generated skepticism that the international community could help resolve conflict; nonetheless, the overall track-record of international peacekeeping attempts has been fairly good. Doyle and Sambanis (2000) examine 124 civil wars and show that multilateral peacekeeping is associated with a reduced risk of conflict recurrence as well as a greater likelihood of democratic improvement. They argue that international assistance can significantly augment local resources and capacities to contain renewed fighting.

A series of additional findings are important to note. Quinn et al. (2007) confirm that peacekeeping works, but further show that rebel victories are less likely to result in civil war recurrence and that higher GDP per capita makes civil war less likely to recur. Indeed, others have also shown that decisive victories tend to be more stable than negotiated settlements, even if they are associated with future human rights violations

(Licklider 1995). Interestingly, Quinn et al. (2007) did not find democracy to be a significant variable in their model of civil war recurrence. Walter (2004) confirms the expectation that positive development indicators reduce the likelihood of a renewed war and shows, in some models, that democracy can have a palliative effect. However, the literature has not reached a firm conclusion on post-conflict democratization as a pacifying factor. Although he does not provide a statistical test, Paris (2004) makes a strong case that the post-civil war environment is too fraught with uncertainties and that rapid democratization efforts are likely to provoke renewed instability. Instead, it is better to focus on the economy and rebuilding infrastructure before political reforms are attempted.

Related to debates about democracy, other studies have looked at power-sharing institutions after civil wars. It may not be democracy per se, but the particular institutional arrangement that is most important in promoting peace. Following Lijphart's (1977) consociational model of democracy in multiethnic settings, some argue that peace treaties that implement power-sharing schemes in the executive and legislature, federalism, and related institutions are more likely to secure long-term peace (Hartzell et al. 2001; Hartzell and Hoddie 2003). Yet this approach is thoroughly critiqued in a volume edited by Philip Roeder and Donald Rothchild (2005). The editors argue that power-sharing agreements, particularly in the context of ethnic conflicts, are not stable in the long-run because they tend to solidify and reinforce the cleavages that led to the civil war in the first place. Instead, the overall message of the book is that power-dividing mechanisms – separating powers between different institutions and branches of government – can help foster flexible multiethnic coalitions.

Perhaps one of the most hotly contested conflict resolution proposals pertains to partition or separation. Advocates argue that despite the international community's distaste for secession, splitting the country apart is sometimes the best bet for peace. Kaufmann (1996) makes a strong case for partition after ethnic conflict, arguing that when ethnic hatreds and distrust run deep, it is better for groups to go their separate ways by splitting the country in two. In a critique, Sambanis (2000) presents a series of empirical models showing that partitions do not promote ethnic peace or democratic transitions. Moreover, Tir (2005) provides evidence that while violent ethnic partitions may end civil wars they often lead to renewed fighting between states. For instance, the India–Pakistan partition has led to decades of instability. Chapman and Roeder (2007) provide a rebuttal to skeptics of partition by arguing that scholars have not adequately specified the range of institutional options available after civil war. They compare partition, de facto separation, regional autonomy, and unitarism and find that compared with partition, the other alternatives are less likely to produce peace and are less amenable to democratization.[3]

New Directions in Civil War Research

The dominant way in which scholars have analyzed the onset, duration, and resolution of civil war has been to examine country-years as the unit of analysis (each country, per year) with some form of event history modeling – typically a binary indicator denoting a particular outcome (e.g., war onset). This has revealed many important findings, but also comes with several drawbacks and limitations. First, calendar-years may be too coarse as a period of observation, since conflict events can unfold very rapidly. Second, it may be misleading to code an entire state as being "at war" when only a small share of the country's territory is affected. Third, organized, armed violence against the state is only the extreme end of a spectrum of social conflict behavior which includes events such as protests and riots. Typically, data sets of civil war code Norway and Kenya as both being zeroes ("no war"), although Kenya has had a troubled history of violent riots.

Finally, other research designs can tell us important things about conflict behavior that event history analysis cannot. These include surveys, event count models (e.g. number of attacks), and experimental research. Although space does not permit an extensive review, among the most promising directions for future research are: (1) geospatial analysis; (2) survey research; and (3) computational/agent-based modeling.

Geographic Disaggregation

There has been a growing movement toward "disaggregating the study of civil war" (e.g., *Journal of Conflict Resolution* Special Issue, 53(4), 2009), or employing units of analysis below the country level. This approach allows analysts to avoid invalid inferences across space as it accounts for intrastate variation in key variables. For instance, although states rich in oil and/or diamonds may be more prone to civil conflict, fighting may or may not occur in resource-rich areas (Buhaug and Lujala 2005). This research is aided by impressive new sub-national data sets on armed conflict zones and battle events which can be analyzed with Geographic Information Systems (GIS) software (Buhaug and Gates 2002; Raleigh and Hegre 2009).

A pioneering study by Buhaug and Gates (2002) looks at both the geographic area of the conflict and the distance from the capital. Among their key findings are that conflict zones tend to be located along state boundaries. Natural resource availability broadens the scope of the conflict, while secessionist insurgencies are fought away from the capital. Expanding on these findings, Buhaug and Rød (2006) focus on conflicts in Africa and use 100×100 km grid cells as their units of analysis. Intriguingly, they find that conflicts are not likely to be fought in mountainous areas. Rather, territorial/secessionist conflicts tend to be fought away from the capital, near border zones, and in sparsely populated areas while conflicts to seize the government occur in densely populated areas, near the capital city, and in regions with diamonds. Thus, by looking at sub-national units of observation, they are able to find evidence for and against common arguments about civil war dynamics at a micro level.

In addition to physical geography, others have examined social geographies in greater detail to study ethnic violence. For example, rather than using composite indices of ethnic fractionalization or polarization, Buhaug et al. (2008) look at ethnic conflict in a dyadic framework and measure the relative size of dominant versus excluded groups, their geographic distance, and the presence of rough terrain. They find that large, powerful groups that are excluded from the government are more likely to launch civil wars.

Weidmann (2009) focuses on ethnic group concentration. Using georeferenced data on settlement patterns, he shows that ethnic groups that are geographically concentrated and have greater opportunities for collective action are more likely to engage in violent behavior. Groups that are fragmented across space are less likely to rebel. Cunningham and Weidmann (2010) look at the ethnic mix in sub-national administrative regions. They present evidence that ethnic diversity per se is not the most important driver of ethnic violence, but that districts that are dominated by one ethnic group, but also contain sizeable minorities, are most conflict-prone. Finally, Østby et al. (2009) use GIS data combined with household surveys in Africa to construct a measure of regional inequality, which serves as a proxy for unequal status between ethnic groups. Regions with high levels of depravation relative to others, intraregional inequality, and natural resources are most likely to experience violence.

While these studies compare a large number of countries, other studies analyze the geospatial dimensions of particular conflicts. Although these are now too numerous to discuss in detail, scholars have analyzed the conflicts in Liberia (Hegre et al. 2009), Nepal (Murshed and Gates 2005), Chechnya (Lyall 2010), Greece (Kalyvas 2006) and Vietnam (Kalyvas and Kocher 2009), among others. Kalyvas' (2006) work has been

especially influential. He develops a theory of violence during civil wars and, using evidence from the Greek civil war, demonstrates that violence is particularly high in areas of contested rebel/state control. Other studies examine the local determinants of counterinsurgency success. Lyall (2010) conducted an impressive study of counterinsurgency in Chechnya and presents evidence that areas in which ethnic Chechens rather than Russians were used to conduct sweep operations were less likely to experience subsequent violence. Kocher et al. (2011) examine US aerial bombing raids in Vietnam as a tool of counterinsurgency. These tended to increase the rate of civilian casualties, and consequently, shifted control in favor of the Viet Cong.

Such studies are at the cutting-edge of conflict research. Employing GIS software and geospatial analysis promises to significantly expand the frontiers of civil conflict research. As more data become available, particularly on independent variables such as physical geography, economic conditions, and local political configurations, insights about the local processes of civil war will help to enrich our understanding of conflict behavior.

Survey Data

Although survey data are a staple of social science research, such data have rarely been applied to the study of civil conflict. This is understandable given the logistical difficulty of conducting surveys in unstable environments. However, a growing number of scholars have made use of survey data to look at individual-level attitudes and decisions with respect to civil conflict.

MacCulloch (2004) analyses data from the World Values Survey and the Eurobarometer. He looks at individual attitudes toward revolt and actual participation in dissident behavior. His empirical results shed light on debates about the impact of income on opposition behavior. In particular, he shows that both higher aggregate GDP per capita and individual-level income reduces an individual's propensity to support revolutionary behavior.

Humphreys and Weinstein (2006; 2007; 2008) have published a series of papers making use of surveys of demobilized fighters in Sierra Leone. Their 2006 study looks at the abusiveness of combatant factions and finds that factors negatively associated with internal discipline in units – ethnic fragmentation, reliance on looting, and lack of punishment mechanisms – are significantly related to the extent of civilian abuse. Their 2007 study shows that participation in an abusive faction is correlated with a low likelihood of successful reintegration after demobilization campaigns. Among their other findings, they show that wealthier and more educated respondents had a harder time reintegrating, and that participation in internationally funded programs had little effect on reintegration success. Finally, Humphreys and Weinstein (2008) look at the individual-level determinants of participation in political violence. Most importantly, they show that "grievance"-related factors – poverty and lack of education – predict participation in *both* rebel *and* government factions.

Others have looked at ethnic conflict and attitudes toward in-groups and out-groups. Analyzing data from Bosnia and the Caucasus region of Russia, Bakke et al. (2009) present some interesting findings. Contrary to conventional wisdom, they do not find sharp attitudinal difference among groups, indicating that ethnic groups – even after intense conflict – are alike on more dimensions than not. Finally, using survey data from Uganda, Deininger (2003) examines the predictors of victimization in conflict as well as its economic consequences. People in remote, rural locations were more likely to be victimized as were households in coffee-growing regions – a proxy for expropriateable wealth. Poverty and lack of education also predicted victimization. Being a target of politically motivated violence was also associated with a decline in investment-related activities.

Computational Modeling

The final methodological advance in conflict research is the use of computational models – also known as agent-based models (ABM) – to create artificial worlds. ABMs make use of computer simulations in which hundreds, or potentially thousands, of "agents" interact with one another according to theoretically informed micro rules of behavior, producing macro-level outcomes of interest. One influential, early use of computational models was presented in Robert Axelrod's *Evolution of Cooperation* (1984). In it, people submitted computer routines for playing Prisoner's Dilemma games in a tournament setting. Cooperative strategies that also punished defection – notably tit-for-tat – performed better in his tournaments than "nasty" ones. Thus, very simple rules of local interaction in a purely abstract world were able to produce interesting systemic outcomes that were not predictable ex-ante.

Computational models of civil conflict range from very simple, heuristic tools, to complex artificial worlds with their own physical terrain, cultural traits, and actor types (Cioffi-Revilla and Rouleau 2010). They also differ to the degree with which they are purely abstract representations versus ones designed to capture the dynamics of particular empirical cases. Epstein (2002) begins with a relative simple, abstract model of agents with potential political grievances and police forces who punish dissent. He gradually builds in more complexity by adding an ethnic dimension to social actors. Bennet's (2008) model of counterinsurgency is also relatively simple, but produces important insights with real-world policy relevance. He shows that counter-insurgent forces are more successful in the long-run if they avoid collateral damage rather than trying to punish as many insurgents as possible. Lustick et al. (2004) present a more complex model in their own artificial world called "Beita." They present a multiethnic space with a variety of agent types, including several tiers of government officials, and by altering key parameters they derive novel results pertaining to secession. In particular, they show that while repression can deter separatism in the short-run, power-sharing is a more effective strategy.

While these models are purely artificial, others are designed to capture essential features of particular cases. Bhavnani and Backer (2000) attempt to account for differences in ethnic violence in Rwanda and Burundi; Geller and Alam (2010) construct a model incorporating culture, economic factors, and patterns of violence in Afghanistan; Bhavnani et al. (2011) look at three-way interactions between Israel and Palestinian factions to examine Kalyvas' (2006) hypotheses about the location of violence. Building on these approaches, Weidmann and Salehyan (2010) construct a model of insurgent violence and ethnic segregation in Baghdad during the Iraq War. Using real-world, georeferenced data to both initialize their model and test the parameters underlying it, they look at the endogenous relationship between migration patterns and conflict. While violence causes people to move into ethnically homogenous neighborhoods, this process of ethnic segregation reduces conflict. They also test assumptions about the effectiveness of policing and augmented troop levels (the "surge") in reducing levels of violence and ethnic cleansing.

Computational modeling promises to significantly expand our understanding of conflict behavior. They are similar to game-theoretic models in that they start with assumptions about actors, their choices, information sets, and so on. But while game theorists typically model the behavior of two or three actors, computational models can incorporate many more actors in addition to properties of the system, such as physical terrain. However, given the skill-set needed to construct the computer simulations, the barriers to entry can be quite steep. This calls for increased interactions between social scientists and computer scientists interested in modeling social behavior.

Notes

1 See Ross (2004; 2006) for excellent summaries.
2 Others have also examined particular rebel actors in civil wars. See, Harbom et al. (2008). For an application to civil war settlements, see Nilsson (2008).
3 The debate rages on. Sambanis and Schulhofer-Wohl (2009) present a refined empirical analysis and present findings that partition does not work.

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