How Rebels Win (and Why They Lose)

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Abstract

What explains why some rebel groups are able to defeat the government or secure a favorable settlement, while other groups receive few concessions or see their organization destroyed? Recent work on civil war outcomes has argued that intrastate and interstate conflict are very different. While material factors such as military capability are important predictors of interstate conflict outcomes, non-military explanations (e.g., political and economic programs designed to win civilian allegiance) must be used to explain intrastate conflict outcomes. This paper pushes back against this prevailing wisdom by developing and testing a theory of material capabilities (government and rebel armed force size, and rebel access to shelter) as key drivers of how well—and how badly— a rebel group does in an intrastate conflict. Using original yearly data on government and rebel armed forces involved in fighting, as well as rebel access to secure shelter, we show that government and rebel military capabilities strongly predict whether or not a rebel is likely to win (or secure favorable concessions), or is likely to be defeated. This data covers the period 1975 to 2014 and includes 1,928 dyadic observations at the yearly level. These findings are robust to the inclusion of variables capturing competing explanations for rebel/government success, as well as restricting the analysis to only cases featuring an asymmetric technology of war. Our results suggest promise in re- "conventionalizing" the study of intrastate conflict by studying battlefield factors such as the ability to raise, use, sustain, and protect large military forces in the field.

1   Introduction

Following the March 2003 invasion of Iraq, the U.S. was challenged by a number of insurgent groups spanning the ideological and ethno-religious spectrum. None of these groups appeared particularly threatening and by May 2003 the Bush Administration declared "Mission Accomplished." Success proved fleeting with one group, al-Qaeda's affiliate in Iraq (AQI) rising above the rest. Domestic constituencies across Coalition member-states clamored for withdrawal from Iraq's lethal highways and block-by-block urban warfare, viewing the conflict as all but lost. And yet fighting deescalated dramatically after 2007 with all rebel groups terminating conflict, breaking apart, or entering a holding pattern of much reduced violence. By 2013, however, AQI metastasized and rebranded itself as the Islamic State in Iraq and Syria (ISIS) while launching an all-out bid to take Iraq (and later Syria).[1]

Halfway across the world another rebel group was locked in a bitter conflict. The Liberation Tigers of Tamil Eelam (LTTE), fresh from victory over their competitor groups and the vast Indian Peace Keeping Force, resumed their brutal and long-lasting insurgency for secession of the Tamil region of northern Sri Lanka in 1990. By 2001 the LTTE was negotiating for greater territorial autonomy and both sides had ceased open fighting. This ceasefire officially held until July 2006, when the government of Sri Lanka, citing the impossibility of a political solution, launched an all-out offensive. In the following three years the government gradually gained ground. By May 2009, the last remaining LTTE forces, surrounded by three divisions of the Sri Lankan army in the district of Mullaitivu, were annihilated in large-scale military operations. In just three years, the insurgency, which had been ongoing since 1989 and received de-facto concessions, was crushed.[2]

Rebel groups in Iraq and Sri Lanka serve as substantive examples that illustrate the core focus of this paper: What explains the dyadic outcomes of intrastate conflict? More specifically, why do some rebel groups secure favorable outcomes while others do not, and what explains variation in the success of a particular group over time? Of the four rebel groups (or coalitions) in Iraq, only AQI/ISIS avoided defeat or a draw. The fortunes of each individual rebel group also shifted over time. AQI/ISIS was on the verge of achieving major political and territorial goals in 2005/6 but these ambitions largely collapsed by 2008 only to be resurrected in 2012/13. Ansar al-Islam disappeared from fighting in 2007, but then returned to the stage in 2011 with major attacks against government troops. Similar variation occurred in Sri Lanka.

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[1] Much has been written about the Iraq War and the rise of ISIS by both news organizations and historians. Among other data sources see: Fisher, "In Rise of ISIS, No Single Missed Key but Many Strands of Blame," 2015; Kagan, *The Surge: A Military History*, 2009.

[2] Among other sources see: Hashim, *When Counterinsurgency Wins: Sri Lanka's Defeat of the Tamil Tigers*, 2013; Bhattacharji, "Backgrounder: Liberation Tigers of Tamil Eelam," 2009; Narendran, "Rise and Fall of the LTTE - An Overview," 2009.

Between 1995 and 2002 there was a gradual de-escalation of fighting that led to de-facto territorial concessions (a moderately favorable outcome); when fighting resumed in 2006, however, the LTTE was defeated relatively quickly (a highly unfavorable outcome).

Existing studies on conflict outcomes have focused on the impact of three broad factors: (1) rebel access to key resources such as external support or alluvial diamonds[3]; (2) state capacity measured as GDP/capita and military size[4]; and (3) the role of civilian-held information in relation to state counterinsurgency efficiency[5]. This literature produces a narrative in which access to resources matter for the rebel but not the state, while military capabilities (specifically how forces are used) matter a great deal for states but not for rebels. These findings, however, result in part from omission rather than commission. No empirical work has directly explored how or if rebel military capability matters to the dynamics and outcome of intrastate conflict. Instead, this finding is largely assumed as a result of the theoretical differences between conventional and irregular (or symmetric and asymmetric) conflict. When facing states with significant conventional military power, rebels must turn to hit-and-run attacks and hide from state forces by preventing critical civilian-held information from leaking. State capacity to win is limited only by the actionable information they have available and not by rebel military capability such as the size of its military forces.

This is unfortunate because there is good reason to believe that the dynamics of intrastate and interstate conflicts are similar in many ways. The process of coercive bargaining is the same in both situations: competing military actors demonstrate their military power (a function of the ability to launch costly attacks over time), which structures the bargaining space and ultimately the extent of concessions that will be offered. In other words, conflict outcomes are a function of the size and capability of combatant forces, and the ability of an actor to shelter those forces from the opponent's military activity over time. Throughout the paper we refer to these two components of a rebel's military capabilities as: (a) rebel armed force size; and (b) rebel access to secure shelter. Discussion of rebel force size is almost entirely absent in existing empirical work. In part this may be due to the "information-centric" contention that increasing force size has, at best, significant diminishing returns and at worst actually reduces rebel prospects.[6] The consequences of rebel access to in-country shelter has been studied, but it is viewed as a consequence of civilian-held information and thus correlates with government treatment of civilians.

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[3] For example, Humphreys & Weinstein, "Handling and Manhandling Civilians in Civil War," 2006; Record, *Beating Goliath*, 2007.

[4] For example, Fearon & Laitin, "Ethnicity, Insurgency, and Civil War," 2003; Hendrix, "Measuring State Capacity," 2010; Friedman, "Manpower and Counterinsrugency," 2011.

[5] For summaries of this argument see: Mikulaschek & Shapiro, "Lessons on Political Violence from America's Post-9/11 Wars," 2015; Berman & Matanock, "The Empiricists Insurgency," 2015.

[6] This perspective is discussed in detail in Fearon, "Economic Development, Insurgency, and Civil War," 2008.

Rebels, however, can acquire secure shelter in other ways. This broader variable—rebel access to all types of shelter—has not been systematically examined.

We develop an alternative military-centric explanation of internal conflict that puts rebel coercive military capacities at the fore. Rebel military capabilities—armed force size and access to secure shelter—influence country-wide battlefield dynamics that, in turn, lead to favorable, draw, and unfavorable conflict-level outcomes.[7] To test our argument we collect original yearly data on rebel and state force size, and rebel access to internal and external shelter. This data is paired with a modified version of the UCDP dyadic armed conflict dataset (1975-2014) identifying all ongoing state-rebel conflict years. We find strong support for our argument: access to more secure internal shelter strongly reduces the probability that a rebel will experience an unfavorable outcome, while rebel achievement of favorable outcomes is critically dependent on rebels having both secure internal shelter and larger armed forces. These findings are robust to inclusion of potentially confounding variables including: (a) government and rebel civilian targeting; (b) rebel access to external support; (c) rebel support from aggrieved co-ethnics; (d) rebel control over lootable resources; and (e) rerunning the analysis on a sample that only includes guerrilla conflicts.

Our work seeks to generate a number of theoretic and empirical contributions that build upon the existing literature on intrastate conflict outcomes and dynamics. In order to test our theory we collected original yearly data on insurgent and government military capabilities. This new data includes the size of all internal and external armed forces involved in conflict, and rebel access to internal and external shelter. We use this data to produce a new integrated set of findings that cut across a variety of types of civil wars instead of a focus solely on highly asymmetric conflicts. We also show that a small number of observable indicators of conventional military capabilities do matter in asymmetric conflicts. In this way we produce a theoretically parsimonious but empirically powerful explanation of the outcomes of all insurgency conflicts between 1975 and 2014.

This paper will proceed by first reviewing the existing literature discussing the role of military capability and shelter in insurgency. Particular attention is paid to the strongest consistent explanation of internal conflict dynamics, the "information-centric model." We then present our military-centric theory and the reasons why rebel force size and access to internal shelter are key explanations of the outcome of all types of intrastate conflicts—symmetric as well as asymmetric. We also discuss how problems of omitted variable bias are dealt with (the potential variables and how they are included in the empirical analysis).

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[7] A favorable outcome occurs when the government is replaced or provides concessions such as territorial autonomy or political appointments to the rebel. A draw occurs when neither side is defeated or provides explicit concessions but fighting ceases. An unfavorable outcome occurs when the rebel is defeated or is unable to continue fighting.

Discussion of the data we use (our original data as well as other variables) and the econometric analysis, with discussion of results follows. In the conclusion we review our findings, lay out the academic and policy implications of our findings in greater detail, and consider possibilities for future research.[8]

2 Literature review

Because many internal conflicts feature weak rebels and strong states, academic and non-academic literature alike stressed the non-conventionality of insurgency. Explanations of interstate conflict outcomes such as the balance of power, availability of weapon systems, warfighting strategy, and coercive bargaining, were set aside. The strongest coherent theory of insurgency outcomes that resulted from this research agenda is the "information-centric" model. The information-centric model has two principle features implications that we push back against: (1) rebel force is an unimportant predictor of internal conflict outcomes; and (2) shelter, which is an important predictor of outcomes, is purely a function of government access to civilian-held information. Below we explain the information-centric model in detail and explain our concerns.

2.1 The Information-Centric Model

The information-centric model is population-centric and state-focused. To quote one contemporary synthesis, "The organs of power belong to the government, but if the insurgency has popular support, or strikes fear into the people, that power may be difficult to wield…If guerrillas are swimming like fish in the waters of the citizenry, a nation must convince its people that they do not want to shelter them."[9] Attrition of rebel capabilities directly will not work because, absent access to information from civilians interacting with rebels, state power will be applied indiscriminately, which, at best will have no impact and at worst will drive more civilians to the rebel.[10] Civilian shelter leads to victory as long as the government can't win back the hearts and minds of the populace. Or, to quote another popular synthesis, "The guerilla army wins if he does not lose."[11] In other words, conventional government strength is ineffective when facing a rebel with popular support. If the government is unable to secure critical information about where the rebel is hiding from the population, the government will be unable to win, which will likely lead to concession to the rebel (a rebel favorable outcome). Agency thus belongs to the government and if it is used poorly the rebel will win.

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[8] A future draft will also include a brief overview of the contributions this work intends to make in the introduction.
[9] Seavey, Wagner, & Hanson, "A Primer on Population-Centric Counterinsrugency," 2010
[10] Shultz, "Breaking the Will of the Enemy during the Vietnam War," 1978; Kalyas, "How 'Free' is Free Riding in Civil Wars?" 2007.
[11] Kissinger, "The Viet Nam Negotiations," 1969.

Unpacking this argument further we can identify its full, more careful, logic. The four core propositions are describe below.

1. Insurgents start with civilian support that is either normative or coerced.[12] This is demonstrated by their capacity to engage in activity that forces the government to react (and allows groups to cross fatality thresholds that warrant their inclusion in our datasets). If rebels didn't have civilian support they would be identified and destroyed by the government.

2. This civilian support is critical because it prevents information about insurgent activity from leaking to the government, which protects the rebel from stronger government military forces.[13] Government mistreatment of civilians through use of excess firepower or political discrimination further limits state access to information and makes government power even less effective.

3. As long as the insurgent is sheltered they will be able to gradually accumulate costs against the government through use of guerrilla/terror attacks that will lead to concessions.[14] Rebel military forces don't directly enable more effective control of a civilian population (and may make the force an easier target); more attacks against the government are also not necessarily beneficial. As such, the size of rebel military forces plays at best a secondary role. Costs are accumulated primarily through rebel demonstration of survival—longer conflict duration.

4. If the government wants to defeat a rebel it must either separate the insurgent from the broader population or secure important information about where the rebel is hiding. In rare cases it can separate the rebel from the civilian population using draconian measures such as mass killing and depopulation.[15] In most cases, however, the government must access information by wining civilian support through a combination of security, service provision, and political reforms.[16]

This logical chain—moving from shelter, to conflict duration, to conflict outcomes, is show in Figure 1 below.

[[Figure 1 about here]]

The information-centric model generates a number of specific implications about the dynamics of coercive bargaining in intrastate conflicts.

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[12] Gurr, *Why Men Rebel*, 1970. Kalyvas, *The Logic of Violence in Civil War*, 2006.
[13] Condra and Shapiro, "Who Takes the Blame?" 2012; Berman et al., "Buying Hearts and Minds?" 2010; Lyall and Wilson, "Rage Against the Machines," 2009.
[14] Arreguin-Toft, "How the Weak Win Wars," 2001; Mack, "Why Big Nations Lose Small Wars," 1975.
[15] Downes, "Draining the Sea by Filling the Graves," 2007; Valentino et al., "Draining the Sea," 2004.
[16] Enterline et al. 2013

1. The size of insurgent military forces does not matter to the outcome of an insurgency. Because the key to insurgent success is surviving over time, large forces may actually be problematic. In part this is because "adding more fighters raises the risk of detection and thus capture for all existing fighters."[17]

2. Sustained rebel access to shelter amongst a civilian population is, by itself, enough to produce a favorable outcome. Properly sheltered, a small rebel military force can hold out against a much larger government military force, which causes the government to seek to terminate the conflict by providing concessions to the rebel.

3. To do well a government (and by extension a rebel) must do two things: First, it must avoid causing harm to civilians—deliberate or otherwise. Second, it must focus on providing public goods such as security and services. Military victories against the insurgent—in contrast to providing benefits for the population—are unimportant and, due collateral damage, can be counterproductive.

In sum, civilian support is the key driver of the secure civilian-based shelter that leads to the rebels' victory. If the rebel can survive, government costs will build, which will eventually lead to concessions. Both state and rebel strategy therefore focuses on civilians. The state's military restraint prevents the rebels from sheltering among civilians while its focus on public goods reduces support for the rebel. The conventional wisdom seems to imply that the state does not need to directly fight the rebel or to prevent the rebel from building a large military force. Rebels too must avoid targeting civilians while building their support amongst the population. The rebels' restraint allows them to be sheltered, which gives them the capacity to hold off the regime's superior military forces until the government realizes that the only way to terminate conflict is to provide concessions. The rebels, also somewhat counterintuitively, therefore do not have to build their own large military force, because a small number of rebels who hold out against the state can break the state's resolve and eventually defeat it.

2.2   Challenges to the Information-Centric Model

Our research and theory building cause us to doubt the general applicability of the population-centric model as an explanation of internal conflict outcomes for several reasons.

First, our data shows that highly favorable outcomes are very rare. Most insurgencies end without any type of government concessions. By far the most common type of outcome is "low activity," which means that the rebel decided to stop fighting the government without being outright defeated. Insurgents require more than just shelter to achieve a favorable conflict outcome. Why continue fighting if the best you can hope for is a slow, dangerous defeat? The groups in our dataset that were able to do the best used

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[17] Fearon, "Economic Development, Insurgency, and Civil War," 2008.

a combination of conventional and guerrilla tactics, which enabled them to more effectively coerce the government. The Taliban, for example, took and held the town of Kunduz against American air power and Afghan government forces for fifteen days and have previously used massed assaults against US outposts; Hezbollah successfully used conventional defense-in-depth techniques to hold Lebanese territory against Israeli counterinsurgency operations in 2006. These larger operations which require significant forces are far more threatening to the government.

Second, we find no effect of civilian targeting on rebel ability to avoid defeat. Civilian targeting is a key indicator of how well governments treat civilians during wartime. States that show up in the data as deliberately killing civilians are unlikely to be trying to win over civilian support (or if they are it probably won't be very effective). This suggests that government treatment of civilians, by itself, is not the key variable predicting rebel success or failure. Only in very extreme cases did civilian targeting appear counterproductive. This leads us to believe that the correlation picks up cases of government desperation instead—an omitted variable that drives both conflict outcomes and targeting. Thus, a major tenet of the population-centric approach does not receive support.

Third, in our dataset we find that if an insurgency lasted at least a year (again, this is to filter out a prior finding by Brandt et al. [2008] that a portion of rebellions—about 45% in our case—win easily or are crushed[18]) the duration of the conflict had no impact on how favorable the conflict was. Time is not necessarily the ally of rebellion and conflicts themselves can have multiple critical junctures that change the fortunes of a group. The Tamil Tigers (LTTE), for example, appeared to be winning in 2002 and were even able to secure a favorable peace agreement from the government that granted greater autonomy to the Tamil region, only to be brutally crushed by large-scale government military offensives between 2006 and 2009. As with civilian targeting, other variables are needed to explain why a long-lasting rebellion may finally achieve victory—or terminate in defeat or low activity.

Although potentially instructive as a model of a subset of conflicts (highly asymmetric conflicts in which the rebel bases itself amongst a civilian populations that it cannot exert a monopoly on the use of force over) these findings together point to shortcomings in the information-centric model as a general explanation of insurgency. Maintaining shelter, by itself, is not enough to propel a rebel to victory. In order to produce adequate coercive capacity to secure favorable concessions a rebel should build capable military forces that can make holding territory and fighting extremely costly for the state. In addition, treatment of civilians is not a key factor in predicting rebel defeat. In other words, rebel ability to protect and use their forces does not depend primarily on government treatment of civilians. This suggests that

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[18] Brandt et al., "When and How the Fighting Stops," 2008.

rebels are, in actuality, able to access secure shelter in forms that do not depend on civilian support. A competing theory of insurgency outcomes should be able to explain these inconsistencies and present an alternative explanation for internal conflict outcomes. How, then, do we explain the outcomes of intrastate conflict?

3   Theory

Insurgency is a deadly and difficult activity and, unlike modern interstate war, often directly leads to group or regime extinction. Since the end of the Cold War, more than one million people have been killed as a direct result of military activity by states and armed non-state actors.[19] Estimates of the total number killed—direct and indirect—as a result of armed violence are difficult to get but one recent estimate put the total at 1.65 million just during the period between 2004 and 2009—or about 275,000 excess deaths every year as the result of activity by armed groups.[20] Effective insurgency is not the result of "accidental guerrillas" who take up arms only because of the ineptitude of the government[21], or bands of activists who are able to forge the antagonisms of a repressed polity into heroic guerrilla warriors. The Darwinian environment of intrastate conflict means that successful rebels are more likely to be competent military machines able to raise and arm large numbers of soldiers that can wage modern infantry combat as the al-Qaeda supported Taliban demonstrated in Afghanistan.[22] Insurgent groups, such as the Mujahidin in Afghanistan, Hezbollah in Lebanon, the Islamic State in Iraq, and various groups in Syria, even make use of highly advanced weaponry such as guided missiles.

Unlike the conventional wisdom, which focuses on theory building in cases where a weak rebel fights a strong state (through the use of guerrilla warfare) we start from the principle that intrastate conflicts span the spectrum of state strength and will to keep fighting. Compared to the conventional wisdom, which places civilian enabled shelter as the core of insurgency and counterinsurgency, we place rebel military forces—and the structures that must be put into place to build, train, arm, command, and maintain them—as the key to favorable conflict outcomes. Survival is a necessary but not sufficient condition for a favorable outcome. A rebel must also demonstrate the capacity to make continued insurgency highly costly for the government. The extent of coercive capacity depends on the ability to conduct large or numerous attacks up to and including taking and holding strategic objectives such as oil fields or large cities. Thus military forces are used to wage guerrilla and conventional war against strong and weak governments alike—using a mix of strategies over time and in different locations. By doing this we

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[19] Uppsala Conflict Data Program, "UCDP Battle-Related Deaths Dataset v.5-2015," 2015.
[20] Geneva Declaration Secretariat, "Global Burden of Armed Violence," 2011.
[21] For expansion of this argument see: Kilcullen, *The Accidental Guerrilla*, 2009.
[22] Biddle, "Allies, Airpower, and Modern Warfare," 2005.

follow a growing line of empirical scholarship that brings military capabilities back into the study of insurgency.[23] Given our focus on the material military capabilities that enable rebel-favorable outcomes to insurgency, a natural question is how these military forces are built or acquired by insurgent groups. We argue that a number of existing explanations of conflict outcomes are subsumed by our broader theory. Aggrieved co-ethnics, for example, lead to more favorable conflict outcomes because they are likely to contribute to larger and more secure rebel forces.[24]

Figure 2 below shows this full argument and the main connection between the availability of natural endowments, resource mobilization, rebel military capacity, and conflict outcomes.

[[Figure 2 about here]]

3.1   Military Power and Insurgency Outcomes

"Starting an insurgency is easy," write Metz & Millen, "a dozen or so dedicated radicals with access to munitions and explosives can do it. Building an effective insurgency, though, is difficult."[25] Only a small portion of rebel groups are able to avoid defeat and pose a military threat to an entrenched state. Why are some rebels able to build an "effective insurgency" while others are either unable to sustain violence or pose too little threat to produce meaningful concessions? Bargaining models of war—rooted in the study of conflict between states—argue that conflicts start because of information asymmetry over the balance of power or resolve and end because this information is revealed.[26] We further know that combatants can continue fighting despite ongoing disutility because of fears that peace will cause shifts in power that can be exploited—primarily by a government against a rebel.[27] During conflict, fighting between opponents provides information about capabilities as well as the ability to inflict and bear costs.[28]

Borrowing from coercive bargaining theory, we argue that the rebel power to hurt is critical to determining conflict outcomes.[29] We operationalize rebel military capacity as secure and capable armed

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[23] Lawrence, *America's Modern Wars*, 2015; Friedman, "Manpower and Counterinsrugency," 2011.

[24] A second paper, currently in construction, takes up the challenge of explaining rebel force size and access to shelter.

[25] Metz & Millen, "Insurgency and Counterinsurgency in the 21st Century: Reconceptualizing Threat and Response," 2004, 5.

[26] Fearon, "Rationalist Explanations for War," 1995.

[27] Walter, *Committing to Peace: The Successful Settlement of Civil Wars*, 2002; Fearon & Laitin, "Civil War Termination," 2007; Reiter, *How Wars End*, 2009; Kirschner, "Knowing Your Enemy: Information and Commitment Problems in Civil Wars," 2010.

[28] Slantchev, "The Power to Hurt: Costly Conflict with Completely Informed States," 2003. Slantchev ("The Principle of Convergence in Wartime Negotiations," 2003) also argues that this battlefield information is supplemented at the negotiating table where combatants reveal information as a result of their offers and counter-offers.

[29] Reiter, *How Wars End*, 2010; Ramsay, "Settling it on the Field: Battlefield Events and War Termination," 2008; Wagner, *War and the State*, 2007; Slantchev, "The Power to Hurt," 2003; Slantchev, "The Principle of Convergence

forces. This has three specific components: (1) size, and (2) access to shelter. Capable rebel armed forces matter when the state is conventionally weaker such as Sub-Saharan Africa. We also contend, however that it plays a determining role in situations where the rebel faces conventionally much stronger governments such as Afghanistan, Israel, and Vietnam. Even in cases where a rebel is principally waging guerrilla warfare against an extremely competent military force such as the US, the UK or Israel (the type of insurgency most likely to favor the information-centric model), the contention that rebel military capacity doesn't matter strikes us as highly unlikely. Large and capable forces are better able to secure areas where the state struggles to project force, and larger forces allow more effective differential concentration against state assets.

To protect its military power a rebel must still have a place where it can train, plan, arm, and sleep. Whereas the conventional wisdom sees shelter amongst civilians we see multiple ways in which shelter can be secured. Civilian support is just one way to secure shelter. Rebels can also build infrastructure in areas that the government has difficulty getting to. A more general theory looks at all pathways to secure shelter. In addition, civilian support is an unconvincing explanation for the creation of large and capable forces. Small bands of terrorists can get by with a vanguard of supporters, but larger rebel groups need more sophisticated mobilization method that are able to raise and sustain larger armies, as well as substantial access to armaments. To source substantial military power (both offensive and defensive) a rebel is likely to use a variety of types of resources.

Without military capability in place that enables a rebel to substantially challenge government control over important territory or threaten regime survival, the government will not be willing to grant meaningful concessions—a favorable outcome. A rebel that is able to protect its forces but that has limited coercive capacity may be able avoid defeat and fight to a stalemate. Rebels that are unable to source large forces or to protect these forces (using secure shelter) are likely to terminate in defeat. To do well, then, a rebel must build large, effective, and secure armed forces from the resources that it has access to. More specifically, access to shelter is critical to avoiding defeat and to maintain fighting power. In order to get a favorable outcome, however, a rebel must both have large and capable military forces and secure shelter from which these forces can operate from and retreat to.

3.2   Force Size, Access to Shelter, and Conflict Outcomes

Unlike the large amount of work on military capabilities in the study of interstate warfare and conventional deterrence, identifying reliable indicators of combatant capability in irregular warfare has

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in Wartime Negotiation," 2003; Powell, *In the Shadow of Power*, 1999; Bennett & Stam, "The Duration of Interstate Wars, 1816-1985," 1996; Schelling, *Arms and Influence*, 1966

proven difficult.[30] When attempts have been made to directly measure rebel capability it has been as a dyadic measure of the estimated balance of state to rebel forces.[31] Although we believe it is important to control for the size of a state's forces we think it is less useful to use relative power measures for the study of outcomes in insurgency.[32] Due to the nature of asymmetric and low-level conventional warfare—high use of hit-and-run guerrilla attacks, a lack of decisive battles—state standing army size relative to rebel forces is not likely to be a good predictor of localized coercive bargaining dynamics[33]. The more forces a rebel has the more attacks it will be able to conduct and the larger those attacks will be. Better measures of rebel and state military capability—localized to conflicts and changing over time—is needed if we are to account for the role of military forces.[34]

War is costly, battles are often unfavorable, and forces can't always be in the field—they need a place to stay when not attacking. Thus to effectively use forces they need to be protected from disproportionate loss, rebuilt and rearmed away from the front-line, and provided safety from state attacks when not fighting. This is easier to do when a rebel has access to shelter. While the concept of shelter is recognized in the study of insurgency[35] its presence and quality within countries has been largely absent in quantitative empirical work. In order to defeat the state outright or get concessions a rebel must be able to project force against the state, engage in attacks that do damage to the state, and avoid taking too many casualties such that the pace of operations can be maintained. The greater the rebel's ability to do this the more casualties it will be able to inflict on the state in any given year and the longer it will be able to sustain offensive operations.

While the size of forces may dictate the number of attacks that a rebel is able to engage in—and how many favorable opportunities are available to it—a rebel also requires a base of operations to plan attacks, allow soldiers to rest and recuperate, and rebuild damaged forces following offensives.[36] Offensively,

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[30] The Correlates of War Project, for example, has identified robust indicators of state military capability in interstate war. For use of relative capabilities see: Huth, *Extended Deterrence and the Prevention of* War, 1988; Mearsheimer, *Conventional Deterrence*, 1983. See also Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle*, 2006 for a discussion of the interaction between material capability and how forces are employed on the battlefield.

[31] See, for example, the Non-State Actor Data assembled by Cunningham, Gleditsch, and Salehyan.

[32] See, for example, Goode, "A Historical Basis for Force Requirements in Counterinsurgency," 2009.

[33] See, among others, Lyall & Wilson, "Rage Against the Machines," 2009.

[34] In addition capabilities are likely to impact different outcomes to insurgency in different ways. These competing outcomes must be accounted for statistically. For recent work looking at competing outcomes to conflict see: Wood & Kathman, "Too Much of a Bad Thing? Civilian Victimization and Bargaining in Civil War," 2014.

[35] Although see Salehyan, *Rebels Without Borders: Transnational Insurgencies in World Politics*," 2009. See also: Byman et al., *Trends in Outside Support for Insurgent Movements*, 2001.

[36] One potential concern is that not all rebels fight and defend in the same way. Recent work, for example, has identified two different ways ("technologies of rebellion") in which sub-national conflicts are fought: a conflict can be irregular (also termed "guerrilla) or it can be symmetric nonconventional (SNC). An irregular conflict is one in which a rebel uses mobile hit and run attacks, avoids pitched battles, and escapes defeat by hiding or traveling into

shelter acts as a force multiplier—making militants more effective in conducting and sustaining operations. Defensively, shelter acts as an enemy force divider by making it difficult for the state to identify and concentrate against the rebel's leadership and organization and providing a place where forces can resupply and retreat to during offensive operations. Because of the important role played by distance in mediating the ability to project forces (and the possible difficulty of crossing borders that are likely to be secured) external bases should not be as effective in allowing the use of armed forces for military activity.

The size of a rebel's military forces—the number of armed men and woman under the command of rebel leadership—is a critical factor in determining how threatening a rebel force is. Because we conceptualize a favorable outcome as largely driven by rebel offensive activity there should be a strong relationship between size of rebel forces and the chance of receiving meaningful concessions. The more forces available the more attacks that can be conducted and the more likely the rebel is to be able to engage in favorable operations. Larger forces can also sustain operations despite taking losses. This same relationship is not likely to hold for defeat. Although large forces may allow a rebel to better defend if they are attacked they also provide a larger footprint for the state to identify and attack.

Two important testable hypotheses are derived from this theoretical examination:

H1   Greater rebel access to secure internal shelter, but not larger forces, will reduce the probability of experiencing an unfavorable conflict outcome.

H2   Larger rebel forces with greater access to secure internal shelter will increase the probability of experiencing a favorable conflict outcome.

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areas that are difficult for the state to operate in. Symmetric non-conventional conflicts, by contrast, are fought using conventional tactics (pitched battles, defended bases, etc.) but using unsophisticated weaponry and lacking an industrial. (Kalyvas & Balcells, "International System and Technologies of Rebellion," 2010) Both forms of warfare require the acquisition of war materials from non-industrial sources, require resolution of the collective action problem to raise manpower and secure shelter, and feature similar strategies for securing concessions from the state. At present we have dyad-level codings of strategy. Preliminary tests suggest that it does not play a role in mediating the impact of force size or shelter in producing outcomes—in large part because we believe that the distinction between these technologies of rebellion is quite fluid so groups shift between types of warfare based on what is likely to produce desirable results. Further analysis on this front is needed.

3.2   Accounting for existing arguments

Existing political science work has identified the general role played by state capacity in limiting rebel access to available resources[37], the availability of rebel financing[38], political exclusion of ethnic groups[39], and external military support[40] in the onset and duration of civil conflict. Once concern with this existing literature is that onset and termination hide significant variation. Some rebel groups get minor concessions or eventually cease activity—unable to sustain meaningful levels of violence against the state. Other rebel groups, as is the case with AQI/IS, produce vast amounts of violence and cause enormous and lasting damage. Yet it is precisely these capable rebels that are likely to be the most consequential, while smaller groups that achieve unfavorable outcomes—but may not be defeated outright—produce low costs that are practically white noise.[41]

Recent work on rebel organization also suggests that rebel access to resources do not play a straightforward role One qualification to this argument is that the rebel organization itself may enable—or prevent—the group from being able to utilize available resources.[42] This suggests that the availability of resources by themselves do not enable a rebel to achieve a favorable outcome. They must be translated into war-making power in order to have an impact on conflict outcomes. Existing work here is largely missing. Although broad correlations exist between resource sources such as diamonds or aggrieved co-ethnics and the onset and duration of internal conflict, existing work has not established the proximate mechanisms by which they actually produce outcomes.

Our main argument, as a part of our broader research agenda, is that the availability of capacity mobilization (CM) solutions to nascent rebels—aggrieved co-ethnic groups, loot-able resources (e.g., diamonds, drugs), use of civilian targeting by the state, and external support (e.g., weapons, money, logistics, training)—help the rebel produce larger forces and maintain access to more secure shelter.[43] It is

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[37] Hendrix, "Measuring State Capacity: Theoretical and Empirical Implications for the Study of Civil Conflict," 2010; Fearon & Laitin, "Ethnicity, Insurgency, and Civil War," 2003.

[38] Collier & Hoeffler, "Greed and Grievance in Civil War," 2004.

[39] Cederman et al., *Inequality, Grievances, and Civil War*, 2013; Cederman et al. "Horizontal Ineqalities and Ethno-Nationalist Civil War," 2011.

[40] Fearon & Laitin, "Civil War Termination," 2008; Balch-Lindsay et al., "Third-Party Intervention and the Civil War Process," 2008; Gent, "Going in When it Counts: Military Intervention and the Outcome of Civil Conflicts," 2008; Gleditsch, "Transnational Dimensions of Civil War," 2007; Record, *Beating Goliath: Why Insurgencies Win*, 2007; Balch-Lindsay & Enterline, "Killing Time: The World Politics of Civil War Duration," 2000.

[41] Weinstein & Imai, "Measuring the Economic Impact of Civil War," 2000.

[42] See: Humphreys & Weinstein, "Handling and Manhandling Civilians in Civil War," 2006; Johnston, "The Geography of Insurgent Organization and its Consequences for Civil Wars: Evidence from Liberia and Sierra Leone," 2008; Sinno, *Organizations at War in Afghanistan and Beyond*, 2009; Staniland, *Networks of Rebellion: Explaining Insurgent Cohesion and Collapse*, 2014.

[43] See, Aronson, Lichbach, and Huth, "Solving the Rebel's Dilemma: Collective Action and Military Capabilities," 2015.

then larger armed forces and access to more secure shelter that allows effective military activity against the state to be sustained and, by consequence, a more favorable conflict outcome. Our expectation, then, is that CM solutions work through our identified military capabilities and do not have a strong independent impact or reduce the effect of our key variables.

4   Empirical strategy

In order to test our hypotheses about the role of material capability in producing conflict outcomes, we assemble a dyad-year dataset of all insurgencies active between 1975 and 2014. Each observation is a single year of fighting between a government and a rebel group in which battle-related fatalities (deaths due to fighting between government and rebel) exceeds 25. This time frame was chosen as it encompasses both Cold War and post-Cold War rebellions (and a combination of symmetric and asymmetric internal conflicts) and allows full data collection for our key independent variables as well as a host of important control variables. A description of the dataset we employ—including independent variables, controls and dependent variables—is below. Summary statistics of all of our variables can be seen in Table 1.

[[Table 1 about here]]

To test our hypotheses we rely on a multinomial logit with three competing conflict outcomes and a base category of "ongoing", which just means that the conflict continued in the subsequent year. The coefficients show the chance of an outcome of interest occurring relative to the base category of ongoing. Positive coefficients indicate that the outcome of interest is more likely to occur, while negative coefficients indicate that the outcome is less likely to occur. Robust standard errors clustered on dyad are used to account for the panel nature of the data (observations are likely to be correlated for each rebel group). These outcomes are roughly ordered with ongoing conflict sitting between a favorable outcome and a draw. A rebel would prefer a favorable outcome over ongoing conflict, ongoing conflict over a draw, and a draw over an unfavorable outcome. Although ordered, the move from one category to the next is not proportional (i.e., moving from a draw to ongoing conflict is not roughly equivalent to moving from ongoing conflict to a favorable outcome). This lack of proportionality, identified using a Hausman specification test, prevents use of an ordered logit model.

For each of our outcomes (unfavorable, draw, and favorable) we run three separate models. The first model for each outcome (1, 4, and 7) is our base model using our full dataset but without potentially confounding variables. The second model for each outcome (2, 5, and 8) runs our base model but with the inclusion of confounding variable. The third model for each outcome (3, 6, and 9) restricts analysis to just cases of guerrilla war—situations where our military capability variables, according to the information-centric model, should matter least. We identify guerrilla conflicts based on a combination of our own

research and Kalyvas's coding typology for the technology of war.[44] Guerrilla war is defined as any conflict in which the rebel used only man portable weaponry, engaged primarily in hit-and-run attacks, and the government had access to heavy weaponry.

4.1   Core dataset and the dependent variable

The core of our dataset is a modified version of UCDP's dyadic armed conflict dataset from 1975-2014. Two key changes were made to the UCDP dataset so that it could be better used to test our theory about conflict outcomes for particular rebel groups. First, several dyads/dyad-years were removed because the groups identified by UCDP as combatants were not engaged in conflict against a state in that state's territory (e.g., al-Qaeda vs. the United States from 2001-present). Second, dyad IDs were modified to take into account group merges, alliances and name changes (e.g., the Chechen Republic of Ichkeria— involved in fighting with Russia since 1994—becomes the Caucuses Emirate in 2007 with no change in fighting; in UCDP these are separate dyads, in our dataset these are now the same dyad). By making this change we are able to track conflict variables from a group's first year of conflict to termination (or ongoing if fighting extends past 2014). Once these steps have been taken we identify 247 distinct rebel groups involved in 389 different conflict periods. These low-level conflict periods short of sustained civil war have a median duration of four years and 75% are over within ten years (some continue on as sustained civil wars).

Following work on interstate conflict outcomes (see, for example, Stam 1999[45]) we break intrastate conflict outcomes into three separate categories: unfavorable (defeat or inability to sustain fighting), draw (cessation of fighting without concessions by the state), and favorable (cessation of fighting with concessions by the state).[46] If a dyad-year does not have an outcome it is considered to be ongoing, which means that both parties survived to fight in the following year, this fighting resulted in at least 25 battle-related fatalities, and no party signed a final peace agreement[47] or declared a ceasefire. In order to identify dyad outcomes we draw on three main sources—the UCDP conflict encyclopedia, which provides detailed conflict narratives, the UCDP peace-agreement dataset, which lists all peace agreement from 1975-2010, and the UCDP database, which provides yearly information on conflict outcomes—as well as independent research. These three sources are merged (with original research conducted to fill in incorrect outcomes or missing information through 2014) to identify all outcomes that occurred during out time

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[44] Kalyvas & Balcells, "International System and Technologies of Rebellion," 2010.
[45] Stam, *Win, Lose, or Draw: Domestic Politics and the Crucible of War*, 1990.
[46] Hausman and Small-Hsiao tests suggest that these three outcomes are independent and should not be further combined.
[47] Peace process agreements (see: Hogbladh, "Peace Agreements 1975-2011", 2012) are not included—we count final agreements only.

period. We collect this yearly outcome information instead of relying on the UCDP conflict termination data because many outcomes occur prior to dyad termination.[48] Our three outcomes are coded as follows:

1. <u>Unfavorable</u>: Conceptually an unfavorable outcome captures situations in which the rebel is not able to continue fighting against the government. This can occur most directly if the rebel's organization and leadership is destroyed as a result of military activity. An unfavorable outcome may also occur if the group's leadership and personnel surrender themselves and their weapons en masse to another combatant. Finally, an unfavorable outcome can occur if the rebel's organization is significantly weakened due to military activity and the group is unable to engage in at least 25 battle-related fatalities in the following year. To identify these cases of unfavorable low activity we conducted additional research on every occurrence of low activity. If news or secondary sources indicate that the rebel group was significantly weakened or unable to operate (based on statements by the group or intelligence officials) we code the case as being unfavorable. If sources did not clearly indicate that the group suffered major damage we do not code the outcome as unfavorable.

2. <u>Draw</u>: Conceptually a draw outcome captures situations in which both sides decide to stop fighting but the government provides no explicit concessions to the rebel. The key difference between an "unfavorable" outcome and a "draw" is that the rebel loses its ability to maintain violence in an unfavorable outcome while it maintains this capacity in a draw. This can occur when both sides formally sign a ceasefire or settlement without any political, territorial, or judicial concessions as identified by UCDP (the Peace Agreement dataset was used for agreements between 1975 and 2011; agreements between 2012 and 2014 were additionally coded using the same criteria). A draw may also occur when both sides decide to stop fighting (fighting does not surpass 25 battle-related fatalities in the following year) and both sides still have the capacity to continue fighting but no formal or verbal agreement is reached. These implicit ceasefires are coded as all cases of low activity that are not explicitly identified as unfavorable (see the above discussion for short description of how unfavorable low activity is identified).

3. <u>Favorable</u>: Conceptually a favorable outcome captures situations where both sides terminate conflict and the rebel either defeats the state or is able to coerce significant concessions. Thus, we capture both favorable military and political outcomes to a conflict. A favorable outcome can occur if the rebel defeats the government (government forces are destroyed or the government is replaced by the rebel). This military outcome is straightforward to measure but rare. A favorable outcome can also

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[48] An example of this concern is how UCDP codes rebel groups in Afghanistan. Mujahideen groups such as Hizb-I-Islami are identified as having only one terminating event in 1995 with continuous conflict since 1980. A review of the wars in Afghanistan suggest that a more accurate coding would see a termination in 1992 to reflect the end of the Soviet-Afghan War and defeat of Communist Afghanistan, and a termination in 1995/1996 once the Taliban defeats the new Mujahideen government. These are two distinct conflicts against different side As.

happen if the government provides explicit concessions to the rebel through a formal peace agreement (the government provides political, territorial, or judicial concessions). Finally, a favorable outcome can occur implicitly if the government concedes control of territory to the rebel without a formal settlement and both sides stop fighting (the rebel takes de facto control over a portion of the country without government interference).

4.2 Independent variables

Our two main independent variables are rebel force size and shelter. Both of these are based on original research from openly available information. All count variables (force sizes and yearly one-sided violence) are logged.

4.2.1 Force size (state and rebel)

While we are primarily interested in rebel force size we also generate yearly estimates of state force size since this is an important constraint on rebel ability to produce outcomes. Data for the rebel is collected at the dyad-year level while data for the state is collected at the conflict-year level because it is difficult to differentiate the forces committed against particular groups in a larger conflict. We record only the military forces belonging to the state (including its paramilitary or militia forces) or a particular group. External troop supporters are recorded separately (see the later discussion of external support). Pro-government militias (PGMs) fighting against rebels (such as the United Self-Defense Forces of Colombia [AUC]) are recorded separately as "paramilitary forces" but included in the final tally of government force size committed to a conflict.[49] Because their leadership is distinct from the state they are treated as separate groups that may be involved with conflict against the rebel (if they fight the rebel they are coded as contributing to infighting between the rebel and other non-state actors).

For the rebel the force size variable indicates the best estimate of the number of militants who were armed and under the command of a rebel group, i.e., that were mobilized and could be used to fight state forces. This estimate exceeds what could be considered the rebel "vanguard"—those hardcore militants who form the core cadre around which a rebel organization is built—but is far less than the number of a rebel group supporters—who are often unarmed and may be supporters in name only. In order to generate this estimate we attempted to triangulate as many sources as possible and then generated a best estimate (taking into account how forces fluctuated over the course of a conflict). For the state we took care to

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[49] Pro-Government Militias (PGMs) have recently become a more focused topic of study. See, for example, Carey, Mitchell, and Lowe ("A New Database on Pro-Government Militias," 2009) for information on the type and capability of these groups. Well organized militia forces confirmed as operating on the side of the state are likely to influence state capability estimates. Unfortunately data limitations on the presence and capability of PGMs limit their inclusion in this paper.

identify the number of military and police forces who were actually mobilized and committed to a fight. This is a marked contrast from existing datasets (e.g., the Non State Actor Dataset) that just look at total army size available to a state.[50] By looking at mobilized and committed manpower we take into account the number of state forces that can actually be used to fight or defend against a rebel group.[51] When a rebel group first starts (and is usually seen as a criminal problem by the state) the amount of committed forces is often very low—and usually involves local police units. As time goes on military forces are mobilized and committed to fighting the rebel, which increases state force size and capability.[52]

This original data was first generated using the UCDP database, the International Institute for Strategic Studies (IISS) yearly military balance reports, the Stockholm International Peace Research Institute (SIPRI) force estimates, and the Non State Actor Dataset. Extensive additional research was undertaken to correct and expand this data to focus on accurate yearly estimates using Keesings, various think-tank and NGO reports, and other news sources. Our research prioritized the collection of data for the start and end of dyads/conflicts, and all inflection points—years in which an identified drop or gain in forces occurred. All available point estimates were included to produce a reasonable estimates of force size over time. Because estimates of forces committed to a conflict by the state or under arms and control for a rebel can vary significantly we also spent a great deal of time attempting to count for disparate estimates for the same actor or conflict.

When yearly point estimates were missing and there was no indication of a substantial change in force size the missing data was linearly extrapolated from the closest available data points. Given the state of the available sources of information on rebel forces there are undoubtedly errors in the data collected as well as missing entries that had to be interpolated. Nevertheless, this data collection effort represents a significant advance over data that just records low and high force size ranges for groups as a whole since these estimates miss how a rebel's capabilities change over the course of a conflict and are thus unable to accurately link force size with conflict outcomes. In our data force size does vary significantly over the course of a conflict (from increasing over time due to rebel recruitment, to decreasing over time due to

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[50] For many African conflicts—where government forces are modest in size—the total number of soldiers available to the state is a reasonable estimate of the number of forces actually committed to a conflict (although care needs to be taken for states fighting multiple conflicts). For more established states (e.g., Pakistan, India, Thailand) the total number of forces available to the military often differ dramatically from the number of forces committed to a particular conflict over time.

[51] Conflicts in India provide an example of why this coding methods is important. The Indian Armed Forces are huge (1.3 to 3.3 million depending on how reserves are counted) but the actual number of forces committed to fighting in a particular conflicts are much smaller (15-100k depending on the conflict).

[52] As observed by Huth (*Extended Deterrence and the Prevention of War*, 1988) the local balance of forces is a very important for attacker prospects. This also has implications for government ability to deny rebel military success.

losses, to more complicated curves that features peaks or troughs during the course of fighting). By accounting for growth, loss, and change, we can see if these shifts are related to outcomes of interest.

4.2.2   Access to shelter

The second key measure of a rebel's core capability that we record is yearly access to shelter.[53] Shelter can come from both internal and external sources. Internal access to shelter measures the extent to which a rebel had bases (or safe houses or any form of shelter) in the country where insurgency is occurring. These bases may look different from rebel to rebel (some rebels rely on safe houses, others develop sophisticated quasi-conventional bases). The availability of information limits our ability to identify the type of shelter that was used. All we seek to do is identify whether or not a rebel has shelter, and if it does have shelter whether or not that shelter is challenged by the state or another group. This measure is theoretically distinct from force size (large rebel forces should not cause secure shelter) and a quick test of correlation shows little relationship (a coefficient of 0.28). A three point scale is used to measure a rebel's access to internal shelter:

1. A value of "0" means no secure shelter was identified. This particular rebel group has no permanent military bases, mountain hideouts, or control of population centers. At best the rebel has temporary encampments and no permanent infrastructure or safe locations from which a rebel can operation. At this coding the rebel is moving from location to location to avoid state detection. This value is coded only when there is available evidence that rebels were kicked out of population centers they inhabited or that bases were overrun.

2. A value of "1" means the group had some form of permanent shelter in the form of bases, hideouts, or villages but this shelter was militarily contested by the state or another group (fighting over control of a village where a group is sheltered or military bases that are under constant bombardment). Contestation can involve both direct military assaults against defended bases as well as state offensives designed to separate rebel from civilian. Contestation is only coded if there is evidence that important bases are under attack (e.g., a group's main headquarters) or if shelter throughout the conflict area is under attack.

3. A value of "2" means the group had access to military bases, mountain hideouts, or population centers that were largely uncontested. The rebel could operate out in the open with little fear of large-scale attack. This value is coded when there is evidence that a group has some form of shelter that it

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[53] We use shelter instead of territorial control (e.g., as available through the Nonstate Actor Data) because territorial control doesn't capture a capability necessary for a rebel to produce coercion against the state. Territorial control is more likely to proxy for the scope of state control or for success in more conventional conflicts. Existing measures of territorial control are also only available at the dyad level and don't adequately capture yearly variation. For completeness we also try a specification that includes territorial control and find that our core findings are robust.

relies on and there is no evidence that state activity was able to undermine this shelter (e.g., if a state is mainly defensive or if there is fighting between both sides but not over bases, safe houses, or population centers where the rebel resides).

An example help to illustrate this coding scheme. During the US-Iraq War, Sunni Insurgent groups were able to establish uncontested bases in the Sunni Triangle and launched attacks in 2004. Insurgents had rudimentary weapons industry and could train and operate in cities across the mid and south with limited fear of US intervention (a value of "2"). Starting in late 2006, and having a practical impact in 2007 and 2008, the US was able to flip Sunni tribes supporting the insurgents and instituted a strategy of systematically separating the rebels from their civilian shelter (a core part of "The Surge"). During this period rebel shelter was contested (a value of "1") and remained contested throughout the remaining period of US involvement. Had there been evidence that insurgents were fully kicked out of Sunni areas and could no longer reside in populated areas (a possibility had the US remained and the Iraqi government strengthened its control over the country) the shelter variable would be coded as "0". Instead, shelter control returned to a "2" in 2011 after US forces left the country and Iraqi force were unable to systematically contest rebel shelter throughout the country.

4.3   Control variables

We rely on four sets of variables to measure potentially confounding variables rebel's access to resources: aggrieved co-ethnics, external support, lootable resources, and government and rebel use of civilian targeting. Aggrieved co-ethnics measures the presence of co-ethnics who have reason to support the rebel at low cost—the rebel can rely on hate towards the state or informal institutions to mobilize this resource. External support identifies the presence of various types of external support—military and non-military— to the rebel. This type of support doesn't require the rebel to have mobilized large numbers of supporters or even established secure shelter. It is provided to weak and strong rebel alike with the purpose of increasing the capability of the rebel to mobilize large armed forces and establish secure areas to wage war from. As with aggrieved co-ethnic and external support, lootable resources act as critical resources for rebels seeking to build their military capacity. Civilian targeting is a proxy for combatant treatment of civilians. Greater civilian targeting implies poor treatment of civilians, with corresponding reduction in access to civilian-held information.

4.3.1   Aggrieved co-ethnics

A rebel's aggrieved co-ethnic connections are identified based on an updated version of the ACD2EPR dataset (it has been updated to record data for all dyads in our dataset). This data records two key variables for each rebel in a dyad: (1) whether or not a rebel claims to politically represent or fight on

behalf of an ethnic group (a rebel can fight for more than one ethnic group); and (2) recruitment from an ethnic group by state, rebel, or both (this variable can take on a value of no recruitment, only rebel recruitment, or both state and rebel recruitment). If a rebel has an ethnic connection we then identify the ethnic group's characteristics as well as spatial overlap between where in a country a rebel group is fighting and operating and where in a country an ethnic group is. Data on spatial characteristics is pulled from the PRIO Grid dataset (v1.01). (An update is currently in progress to add spatial data to several groups not in the PRIO Grid dataset.) We also record an ethnic group's size, settlement patterns, and access to government power. Groups that live in rebel territory, are large as a portion of a country's population, have concentrated settlement patterns (regionally based), are restricted in their access to power (separatist autonomy, powerless, and discriminated), and only have recruitment by the rebel are likely to provide the most significant low-cost support to a rebel group. This specialized subset is referred to as "aggrieved co-ethnic support." If a rebel has support from aggrieved co-ethnics in a particular year the variable has a value of "1" and "0" otherwise.

4.3.2 External support

External support data is based on the UCDP External Support Dataset. This data, which only extends to 2009, was supplemented with original research and information gathered from the UCDP database in order to create a list of all external support to both rebels and states from 1975 to 2012. Both proven and alleged support is recorded and marked accordingly. External support takes two forms: (1) aid to a state or rebel group; and (2) specific capabilities. Aid encompasses the following types of support: access to military or intelligence infrastructure, weapons, materiel/logistics, training/expertise, funding, and intelligence. Specific capabilities can be of the following types: troops on the ground, joint operations, and access to territory (bases). For each type of support the data records whether or not support was provided in a particular year and who provided the support. When inserted into the models, these values are aggregated to create a count of the occurrence of weapons, material or funding support (e.g., if a rebel has all three types the variable would have a value of "3", if just two types are present the variable would have a value of "2", etc.).

4.3.3 Lootable resources

We define lootable resources as precious gems, diamonds, and drugs that can be collected through artisanal mining (small-scale mining using hand tools). These three resources have been identified in the existing literature as having very low barriers to entry and high profitability—both essential characteristics of lootable resources. Both timber and oil are other possible resources that have been mentioned in the literature. Based on preliminary research, oil was not identified as a lootable resource that could be used to easily solve the CA problem. It is difficult to produce using non-industrial

techniques, i.e., it would be of no assistance to a rebel group seeking to build up its initial capabilities.[54] The location, type, and quantity of gems, diamonds, and drugs were derived from Lujala.[55] Only secondary deposits (deposits near the surface that can be mined using artisanal techniques) for precious gems and diamonds were recorded. Drugs recorded includes: opium, cocoa, and cannabis. Dates of cultivation and first extraction were also recorded. If a rebel group is operating in an area where a lootable resources is located and in a year following first discovery it is recorded as having access to a particular lootable resource.

4.3.4 One-sided violence

In order to capture the impact of one-sided violence as an inadvertent collective action solution for the rebel[56] we rely on UCDP's One-Sided Violence dataset, which records all yearly instances of government-initiated targeting of civilians and the magnitude of this violence. Recent research posits a curvilinear relationship between targeting of civilians and conflict outcomes in which some violence enables increased coercive control over civilians while too much leads to commitment problems and the inability to settle conflicts.[57] The count of civilians killed by the state as well as the squared version of this variable are included.

4.3.5 Additional controls

For each model we also include a variable recording the number of years since the start of the conflict. Time has been shown to have a strong relationship to intrastate conflict outcomes because it indicates government capacity to quickly end a conflict. The longer a conflict lasts the less that the state will be to defeat the rebel. To match our internal measures of force and shelter we also record the number of external troops fighting on behalf of the state or the rebel, and rebel access to external bases. External troops include all military forces provided by external states to fight for/alongside a particular combatant—incumbent state or rebel. The yearly occurrence of foreign troop intervention is identified using the UCDP database. Original research was conducted to identify the number of combat forces that actually engaged in fighting. The same criteria that was used to identify incumbent government and rebel forces committed to fighting was used when identifying foreign forces. Currently, external bases records the presence of sanctuary in a foreign state provided explicitly by an actor not involved in the current

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[54] The recent example of the Islamic State, in many ways, is the exception that proves the rule: only once they had access to other resources and were able to grow in power could they take and exploit fuel refineries. The only other mention we found of rebels harvesting and exporting oil were groups that were larger, well established, had firm control over territory in which oil was present, and owned—or conquered—industrial extraction equipment.

[55] Lujala, "The Spoils of Nature," 2010.

[56] Kalyvas & Kocher, "How 'Free' is Free Riding in Civil Wars? Violence, Insurgency, and the Collective Action Problem," 2007.

[57] Wood & Kathman, "Too Much of a Bad Thing? Civilian Victimization and Bargaining in Civil War," 2013.

conflict. This actor may be the foreign state itself or a rebel group in that foreign state (e.g., Pakistani Taliban provision of sanctuary for Afghani Taliban forces). To proxy government military quality we rely on infant mortality rate—a lower rate implies greater technological sophistication. A count of the number of yearly irregular leader changes for both the government and the rebel is also included.[58] Finally, because our data is dyadic and we need to account for other challenges the government is facing, we also include the summed size of all other rebel forces currently fighting the state in the same conflict[59] (a conflict involves one or more dyads where each rebel is fighting against the government for the same categorical purpose—over territory or replacement of the government).[60]

5   Results

Our full results are reported in table 2. As described previously, each of our three outcomes contains three models: the first is our base model, the second includes state strategy/rebel resource variables, and the third subsets our data so our base model is run only on cases of guerrilla conflict. Each model is a multinomial logit with a base category of ongoing conflict. Positive and significant coefficients mean that the outcome of interest is more likely to happen; negative and significant coefficients mean that the outcome is less likely to happen. The impact of our variables should be interpreted simultaneously across all three outcomes in order to substantively understand what is going on. A particular variable may have a negative coefficient across all three outcomes, which means that the rebel is less likely to exit in any manner in a given year—in other words the conflict is more likely to continue. Variables may have an impact on only one outcome or on several at the same time. A variable that increases the chance of a favorable outcome but not an unfavorable one means that the rebel has increased its chances of getting concessions but has the same chance of exiting in an unfavorable outcome.

[[Table 2 about here]]

Because we use a complicated interaction term between rebel access to internal shelter, rebel access to external shelter, and rebel armed force size it is not possible to interpret the coefficients of these variables independently. In order to ease interpretation we generate the linear combinations for force size and shelter. We first show the change in the probability of experiencing a particular outcome when moving from no shelter to uncontested shelter at low (10th percentile), medium (50th percentile), and high (90th

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[58] See, for example, Prorok, "Leader Incentives and Civil War Outcomes," forthcoming; Tiernay, "Killing Kony," 2013; Johnston, "Does Decapitation Work?" 2010; Jordan, "When Heads Roll," 2009.

[59] We choose to control for other activity in the same conflict between we record government capabilities at this level. It is possible that the government is involved in more than one conflict but this will be reflected in how it chooses to disperse its military forces among these competing threats.

[60] In a future draft we also plan to account for rebel ideology (communist, ethnic, religious, political militia, etc.) as well as the rebel's goal (to replace government or to acquire autonomy for a particular territory).

percentile) rebel force size on our three conflict outcomes. Next, we show the corresponding impact of moving from low to high rebel force size across our three categories of access to internal shelter: no shelter, contested shelter, and uncontested shelter. The reported values are changes in probability. For example, a value of "0.15" means that the probability of experience an outcome is 15 percentage points higher (e.g., moving from 30% change of experiencing an outcome to a 45% chance). These results are shown in table 3 below. The first model for each outcome (1, 3, and 5) is the result for our base model run on all internal conflicts—guerrilla and non-guerrilla. The second model for each outcome (2, 4, and 6) is the result for just guerrilla/asymmetric conflicts. The effect of government and rebel civilian targeting (moving from no targeting to the 90th percentile of targeting), drawn from our model including the full set of controls, is also reported.

[[Table 3 about here]]

Looking at the impact of moving from low to high forces on unfavorable outcomes we can see little effect when shelter is not present, a significant and negative effect when a rebel has contested shelter, and an even larger impact when the rebel has uncontested shelter. The impact of increasing force size across levels of shelter is similar for a draw outcome: in both contested and uncontested shelter larger rebel forces decrease the probability of a rebel group exiting in a draw. Similarly, larger rebel forces have no statistically significant impact on favorable outcomes at low levels of shelter, but have large and significant impacts when the rebel has access to contested or secure shelter. These results provide very strong evidence for H1. Access to shelter—but not larger forces—helps a rebel avoid an unfavorable outcome. The larger the rebel's forces when shelter is present—even if it is contested—the greater the probability of achieving a favorable outcome. For all three outcomes the impact of force size is larger when a rebel has more secure access to shelter, providing strong evidence that rebel forces are more effective in their military duties—offensive and defensive—when they can operate from secure basing areas. When a rebel has larger forces, increasing the level of shelter means that it does not need to try to settle for a draw, it can try to push on for a chance at concessions. At small forces, increasing shelter reduces the chance of defeat but there is still little hope of getting concessions, which ultimately makes a draw a more attractive outcome. The need for a rebel to have both secure shelter and large military forces in order to increase the probability of experiencing a favorable outcome provides strong evidence for H2. These results can also be visualized in Figure 3 below.

[[Figure 3 about here]]

Turning now to the second model for each outcome we see that, while the statistical significance is slightly different (likely, in part, due to the much reduced sample size) the substantive significance is

mostly unchanged. Increasing rebel forces size continues to reduce the probability of an unfavorable outcome and a draw when the rebel has access to shelter, and to increase the probability of a favorable outcome when the rebel has access to shelter—especially uncontested shelter. Similarly, the impact of increasing access to secure shelter continues to reduce the probability of an unfavorable outcome (regardless of force size), and to have a conditional relationship with force size to draws and favorable outcomes. Increasing access to shelter has a larger negative impact on the probability of a draw occurring as rebel force size increases, and a larger positive impact on the probability of a favorable outcome as rebel force size increases. Overall this means our findings are robust to the inclusion of potentially confounding variables.

Looking back to Table 2 we can also investigate the impact of these controls as well. Ethnic support, controlling for material capabilities, appears to have no independent relationship to conflict outcomes. External support has an independent negative impact on unfavorable outcomes, which suggests that our material capability indicators are not fully capturing the effect of this important type of resource. Access to lootable resources reduces the probability that the conflict will terminate in a draw as opposed to continuing but otherwise has no independent impact. Overall, this suggests that our capability variables do largely capture the impact of rebel access to resources.

Turning back to table 3, we can examine the effect of government and rebel treatment of civilians. If a state moves from low to high levels of one-sided violence, the chance of the conflict terminating in an unfavorable outcome is unchanged. This suggests that controlling for military capabilities, increasing use of one-sided violence, surprisingly, is not detrimental for the state. When governments target civilians there does appear to be substitution between a rebel experiencing a draw and a rebel experiencing a favorable outcome. Greater civilian targeting reduces the chance of a draw and increases the chance of a favorable outcome. Although this finding warrants further study, this does suggest that governments are more likely to target civilians in particularly challenging conflicts.[61] Aside from reducing the chance of a draw, rebel targeting of civilians has no meaningful impact on a conflict. Both of these findings on the impact of civilian targeting challenges the idea that treatment of civilians play a critical independent role across all types of internal conflict.

5.1   Rebel and state capability and conflict trajectories

It is useful to think about what effect, in total, force size and shelter have on outcomes to low-level conflict. Figure 4 below shows the outcome that a rebel is most likely to exit in (not including ongoing) in a year across all values of rebel force size and access to shelter. This helps visualize how a rebel's force

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[61] See, for example, Valentino et al., "Draining the Sea," 2004.

size and shelter work together to shift the relative probabilities of experiencing various outcomes. Because ongoing conflict is removed this just shows the relative probability of exiting in a particular outcome.

[[Figure 4 about here]]

We can also track the course of three different types of rebels that correspond to real-world examples: (a) small rebels with mostly secure shelter; (b) medium sized rebels with mostly contested shelter; (c) strong rebels with mostly secure shelter; and their poor counterpart, (d) weak rebels struggling to secure shelter. Type (a) typifies rebels such as the MFDC in Senegal or Hamas in Gaza—relatively small but largely outside of the reach of sustained state military activity. Type (b) typifies rebels such as ISIS in Iraq before the US exit or the RUF in Sierra Leone—moderate sized and challenged with a systematic military campaign designed to root out and destroy the group. Type (c) typifies rebels such as ISIS in Iraq post-US withdrawal or UNITA in Angola. Finally, type (d) typifies the troubled Tripura National Volunteers in India during the later stages of their movement as well as the Lord's Resistance Army in later years when it was caught between encroaching Ugandan and DRC forces.

In any given year, type (a) rebels have a roughly 3% chance of a favorable outcome, a 69% chance of conflict continuing, a 17% chance of a draw, and an 11% chance of an unfavorable outcome. These conflicts, if not ended with a draw will be long unlikely to end with concessions from the government. Type (b) rebels have an 8% chance of a favorable outcome, a 64% chance of conflict continuing, a 13% chance of a draw, and a 15% chance of an unfavorable outcome. This type of rebel is more than twice as likely as its smaller counterpart to achieve a favorable outcome but also far more likely to be defeated outright or unable to continue fighting. As a result, these types of conflicts are more deadly but also likely to be shorter. Compare this to type (c) rebels who are by far the most lethal and robust: a 15% chance of a favorable outcome, a 76% chance of conflict continuing, a 5% chance of a draw, and a trivial 4% chance of an unfavorable outcome. These types of conflicts are likely to be bloody and, if they don't end in rebel victory, long and costly civil wars. Finally, type (d) rebels have a 6% chance of a favorable outcome, a 17% chance of conflict continuing, a 26% chance of a draw, and a massive 52% chance of an unfavorable outcome. These rebels find it extremely difficult to continue the fight and are either about to be defeated, or will go into hiding in order to attempt to rebuild their capabilities.

6   Conclusion

As we theorize, larger rebel forces and access to more secure shelter are robustly associated with a greater probability of achieving a favorable outcome and a reduced probability of terminating in an unfavorable outcome. More specifically, in order to avoid defeat a rebel needs access to areas in a country—harsh

terrain, controlled civilian populations, anonymity, fortified bases—that allow them to build, maintain and use their military forces. Without access to secure internal shelter rebels are very likely to experience an unfavorable conflict outcome. Contrary to the information-centric model, the key to rebel shelter is not a civilian population unwilling to share information with the state. Rebels can maintain shelter in situations where rebels mistreat civilians but states do not and situations where rebels treat civilians well but states do not. To achieve a favorable outcome a rebel needs access to internal shelter and large military forces. To secure a favorable outcome, rebels need to be able to engage in significant coercion against the state—absent this ability to engage in significant coercion, conflicts are likely to be ongoing or end in a draw.

We think these findings make valuable contributions to several areas. First they advance our understanding of the outcome of intrastate conflict. The literature is relatively underdeveloped on when and why rebel groups are able to defeat governments or avoid being defeated themselves. Second, on the data side, while they have their limitations, the new data we collect on force size and access to shelter provide useful indicators of rebel and government capabilities that are not currently available. In this process we also show that information-centric models are a subset of insurgency cases by examining the type of fighting that occurs (guerrilla vs. conventional) and the role played by civilian targeting. We thus contribute to realist thinking about civil war outcomes. In addition, our findings provide strong evidence that studying rebel military capacity is important to understanding intrastate conflict dynamics. In sum, our model addresses several significant gaps in the literature and makes important theoretical and empirical contributions to studies of insurgency and civil war.

In future work we seek to disaggregate and further theorize about the relationship between specific collective action solutions (e.g., logistic support, discriminated co-ethnics) and rebel capabilities. Another area of future work is to improve our measure of shelter, both by including information about the type of shelter a rebel relies on (among populations, in harsh terrain, or in militarized bases) and also improving our measure of external bases to account for military contestation as well as external sanctuary that is not explicitly provided.

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Table 1: Summary statistics

Statistic	N	Mean	St. Dev.	Min	Max
Force size (gov.)	1,928	55,531.090	49,702.500	150	348,300
External troops (gov.)	1,928	7,285.713	26,200.010	0	180,000
Force size (rebel)	1,928	7,763.580	11,190.080	30	97,000
External troops (rebel)	1,928	374.222	3,751.509	0	100,000
Internal shelter (rebel)	1,928	1.460	0.666	0	2
External shelter (rebel)	1,928	0.215	0.411	0	1
Conflict is symmetric	1,928	0.102	0.302	0	1
Total rebel forces in conflict	1,928	6,412.418	16,307.070	0	143,000
Irregular leader change (gov.)	1,872	0.061	0.240	0	1
Irregular leader change (rebel)	1,872	0.082	0.367	0	2
Infant mortality rate	1,922	1.169	0.627	0.0929	3.0320
Ongoing interstate conflict	1,928	0.087	0.282	0	1
Time	1,928	9.005	8.975	1	54
Aggrieved co-ethnics (rebel)	1,805	0.305	0.461	0	1
External material support (rebel)	1,805	0.843	1.100	0	3
Civilian targeting (gov.)	1,124	222.500	4,735.759	0	166,700
Civilian targeting (rebel)	1,125	89.370	900.395	0	30,110
Lootable resources (rebel)	1,685	0.269	0.443	0	1

Table 2: Military capability and intrastate conflict outcomes

	Unfavorable (1)	Unfavorable (full) (2)	Unfavorable (guerrilla) (3)	Draw (4)	Draw (full) (5)	Draw (guerrilla) (6)	Favorable (7)	Favorable (full) (8)	Favorable (guerrilla) (9)
Access to internal shelter (rebel)	-1.18^	-2.00*	0.41	0.11	-0.56	1.40^	-2.56**	-2.03^	-3.14*
	(-2.84, 0.32)	(-4.30, 0.06)	(-1.75, 2.53)	(-1.47, 1.75)	(-2.31, 1.27)	(-0.41, 3.39)	(-4.75, 0.00)	(-4.71, 0.96)	(-6.13, 0.31)
Force Size (rebel)	-0.23^	-0.41*	0.00	-0.14	-0.18	-0.10	-0.19	-0.20	-0.21
	(-0.55, 0.02)	(-0.90, -0.04)	(-0.40, 0.35)	(-0.47, 0.18)	(-0.57, 0.19)	(-0.48, 0.29)	(-0.60, 0.34)	(-0.75, 0.41)	(-0.73, 0.46)
Internal shelter * force size	-0.02	0.11	-0.26*	-0.07	0.01	-0.25*	0.32*	0.28^	0.40**
	(-0.22, 0.21)	(-0.18, 0.41)	(-0.58, 0.04)	(-0.29, 0.14)	(-0.22, 0.24)	(-0.52, -0.01)	(0.00, 0.60)	(-0.08, 0.63)	(-0.01, 0.76)
Access to external shelter (rebel)	-5.79**	-10.11**	-1.77	-5.32^	-6.61^	-8.54*	-14.15**	-9.75***	-30.29*
	(-11.93, -0.51)	(-21.23, -2.22)	(-9.42, 4.94)	(-13.27, 0.92)	(-16.45, 0.66)	(-18.34, -1.01)	(-32.12, -5.76)	(-18.05, -2.54)	(-64.20, -3.56)
External shelter * force size	0.55^	1.14*	-0.04	0.60^	0.77^	0.98*	1.59**	1.10*	3.39*
	(-0.12, 1.30)	(0.05, 2.49)	(-0.90, 0.85)	(-0.20, 1.54)	(-0.20, 1.96)	(0.03, 2.11)	(0.53, 3.47)	(-2.87, 2.04)	(-2.71, 7.01)
Internal shelter * external shelter	4.21**	5.76*	0.64	4.19^	4.16	6.73*	8.04**	5.30**	14.69*
	(0.45, 8.49)	(0.56, 13.50)	(-4.27, 5.59)	(-1.60, 10.64)	(-2.45, 12.90)	(0.34, 16.89)	(2.67, 17.70)	(0.83, 10.48)	(-0.97, 30.79)
External * internal shelter * force size	-0.42*	-0.67^	0.12	-0.54^	-0.54	-0.87^	-0.90**	-0.61*	-1.70*
	(-0.96, 0.04)	(-1.65, 0.04)	(-0.51, 0.71)	(-1.37, 0.14)	(-1.74, 0.26)	(-2.30, -0.04)	(-1.93, -0.28)	(-1.20, 1.41)	(-3.41, 1.58)
Civilian targeting (gov.)		0.70***			0.51*			0.03	
		(0.29, 1.22)			(0.07, 1.05)			(-0.23, 0.34)	
Civilian targeting (gov., squared)		-0.13***			-0.14**			0.02	
		(-0.23, -0.05)			(-0.25, -0.05)			(-0.03, 0.06)	
Civilian targeting (rebel)		-0.45			0.42^			-0.18	
		(-1.10, 0.66)			(-0.06, 1.05)			(-0.68, 0.18)	
Civilian targeting (rebel, squared)		0.03			-0.17**			0.03	
		(-0.25, 0.15)			(-0.33, -0.07)			(-0.04, 0.11)	
Aggrieved Co-ethnics		0.39			-0.198			-0.27	
		(-0.29, 0.75)			(-0.54, 0.80)			(-0.288, 0.81)	
External support		-0.48**			-0.07			0.02	
		(-0.81, -0.04)			(-0.35, 0.28)			(-0.27, 0.28)	
Lootable Resources		-0.24			-0.75***			0.176	
		(-0.78, 0.23)			(-1.21, -0.28)			(-0.37, 0.61)	
Force Size (gov.)	-0.18*	-0.13	-0.16^	-0.19**	-0.08	-0.08	-0.70****	-0.62****	-0.69****
	(-0.37, 0.02)	(-0.39, 0.11)	(-0.39, 0.07)	(-0.38, -0.02)	(-0.29, 0.12)	(-0.29, 0.13)	(-0.89, -0.53)	(-0.88, -0.41)	(-1.01, -0.46)
External intervention (gov.)	-0.09**	-0.07^	-0.11**	-0.07*	-0.01	-0.07*	-0.17****	-0.09*	-0.27*
	(-0.17, -0.02)	(-0.24, 0.02)	(-0.24, -0.03)	(-0.15, -0.01)	(-0.13, 0.07)	(-0.17, 0.00)	(-0.26, -0.11)	(-0.21, -0.01)	(-1.77, -0.15)
Irregular leader change (gov.)	-0.28	0.18	-0.20	-0.24	-0.42	-0.66	0.88***	0.71*	0.77^
	(-1.40, 0.47)	(-1.27, 1.09)	(-1.51, 0.71)	(-1.46, 0.47)	(-2.10, 0.45)	(-10.38, 0.33)	(0.27, 1.45)	(-0.10, 1.51)	(-0.51, 1.67)
Irregular leader change (rebel)	0.79****	0.74***	0.83****	0.34^	0.14	0.20	0.56*	0.66**	-0.22
	(0.43, 1.14)	(0.28, 1.21)	(0.40, 1.27)	(-0.15, 0.74)	(-0.61, 0.63)	(-0.52, 0.75)	(-0.18, 1.06)	(-0.01, 1.22)	(-15.83, 0.76)
Infant mortality rate	0.41	0.26	0.70*	0.74**	0.62*	1.42****	1.72****	1.19***	2.00****
	(-0.29, 1.12)	(-0.53, 1.09)	(-0.07, 1.60)	(0.14, 1.39)	(-0.02, 1.33)	(0.62, 2.27)	(0.99, 2.53)	(0.46, 2.10)	(0.98, 3.19)
Rebel infighting		0.06			-0.03			-0.11	
		(-0.20, 0.23)			(-0.28, 0.15)			(-0.32, 0.05)	
Ongoing interstate conflict	0.10	-0.47	0.11	0.13	-0.11	0.23	-0.91	-0.87	-0.57
	(-0.70, 0.69)	(-1.83, 0.35)	(-0.71, 0.74)	(-0.53, 0.66)	(-0.90, 0.58)	(-0.48, 0.82)	(-13.36, -0.03)	(-11.14, 0.20)	(-10.46, 0.36)
Force size (other rebels in conflict)	0.06**	0.03	0.07***	0.03^	0.01	0.04*	0.07***	0.06*	0.03
	(0.01, 0.10)	(-0.04, 0.09)	(0.02, 0.13)	(-0.01, 0.07)	(-0.05, 0.06)	(-0.01, 0.09)	(0.02, 0.12)	(0.00, 0.12)	(-0.05, 0.12)
Conflict duration	-0.10***	-0.06*	-0.10***	0.03	0.02	0.05^	0.08**	0.12**	0.13**
	(-0.16, -0.04)	(-0.13, 0.00)	(-0.17, -0.03)	(-0.03, 0.08)	(-0.03, 0.09)	(-0.01, 0.12)	(0.02, 0.17)	(0.05, 0.22)	(0.03, 0.27)
Conflict duration (squared)	0.00***	0.00	0.00***	0.00	0.00	0.00	0.00**	0.00**	0.00**
	(0.00, 0.00)	(0.00, 0.00)	(0.00, 0.00)	(0.00, 0.00)	(0.00, 0.00)	(0.00, 0.00)	(-0.01, 0.00)	(-0.01, 0.00)	(-0.01, 0.00)
(Intercept)	3.33**	4.36**	1.32	1.05	1.11	-1.15	4.23**	3.58^	3.65^
	(0.66, 6.04)	(0.96, 8.59)	(-1.68, 4.77)	(-1.57, 3.65)	(-2.09, 4.31)	(-4.42, 1.97)	(0.06, 7.61)	(-1.67, 8.34)	(-1.56, 7.84)
N	1,866	1,182	1,400	1,866	1,182	1,400	1,866	1,182	1,400

Two-tailed p-value: ^ p < .2, * p < .1, ** p < .05, *** p < .01, **** p < 0.001.

Lower and upper bounds in parentheses (95% confidence interval).

Table 3: Change in conflict outcome probability

	Unfavorable		Draw		Favorable	
	(1)	(2)	(3)	(4)	(5)	(6)
Low to high forces						
No Shelter	0.16*	0.02	-0.02	-0.04	-0.01	-0.01
	(-0.02, 0.33)	(-0.22, 026)	(-0.12, 0.11)	(-0.14, 0.12)	(-0.05, 0.06)	(-0.05, 0.03)
Contested	-0.08***	-0.08**	-0.07**	-0.11***	0.03^	0.03^
shelter	(-0.14, -0.03)	(-0.14, -0.01)	(-0.12, -0.01)	(-0.17, -0.05)	(-0.00, 0.09)	(-0.00, 0.07)
Uncontested	-0.04**	-0.05**	-0.09***	-0.16***	0.10***	0.08***
shelter	(-0.07, -0.01)	(-0.09, -0.02)	(-0.15, -0.03)	(-0.25, -0.09)	(0.05, 0.15)	(0.03, 0.13)
No shelter to uncontested shelter						
Low forces	-0.32***	-0.30***	-0.01	-0.04	-0.01	-0.02
	(-0.42, -0.22)	(-0.42, -0.18)	(-0.10, 0.07)	(-0.07, 0.16)	(-0.06, 0.03)	(-0.06, 0.02)
Med. forces	-0.26***	-0.35***	-0.06*	-0.06^	0.04**	0.03*
	(-0.36, -0.16)	(-0.49, -0.22)	(-0.13, 0.01)	(-0.14, 0.01)	(-0.01, 0.07)	(-0.01, 0.05)
High forces	-0.22***	-0.37***	-0.08^	-0.08^	0.10***	0.08***
	(-0.36, -0.09)	(-0.59, -0.17)	(-0.20, 0.01)	(-0.22, 0.01)	(0.02, 0.15)	(0.02, 0.13)
Other control variables						
Civ. targeting	0.00		-0.11***		0.07***	
(gov.)	(-0.05, 0.05)		(-0.14, -0.07)		(0.02, 0.12)	
Civ. targeting	-0.01		-0.10***		0.02	
(rebel)	(-0.07, 0.04)		(-0.15, -0.05)		(-0.03, 0.08)	

^p < 0.2; *p < .1; **p < .05; ***p < .01

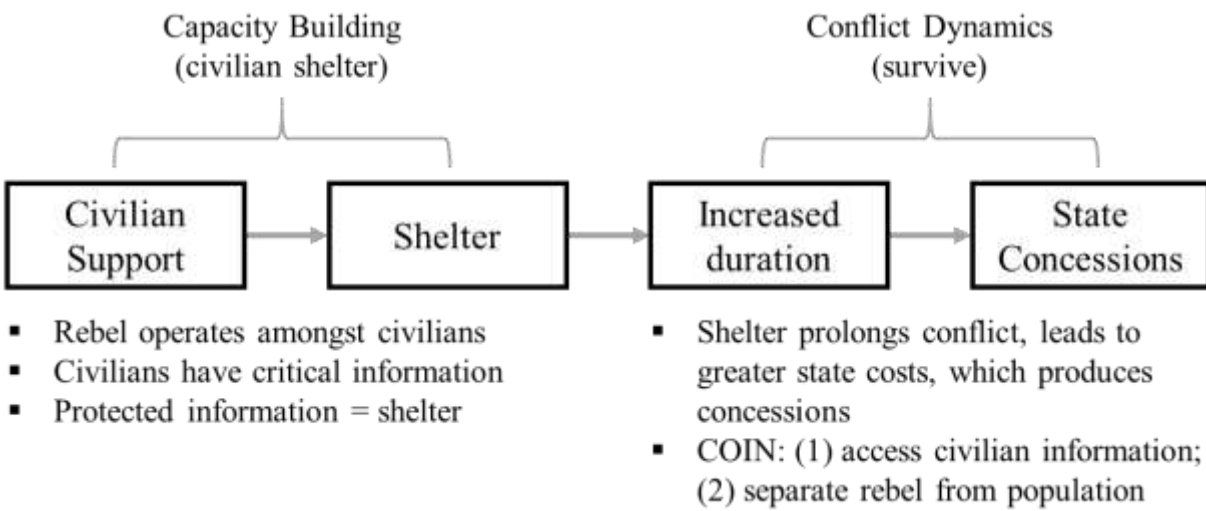# Figure 1: Information control, rebel survival, and conflict outcomes

Capacity Building
(civilian shelter)

Conflict Dynamics
(survive)

| Civilian Support | → | Shelter | → | Increased duration | → | State Concessions |

- Rebel operates amongst civilians
- Civilians have critical information
- Protected information = shelter

- Shelter prolongs conflict, leads to greater state costs, which produces concessions
- COIN: (1) access civilian information; (2) separate rebel from population

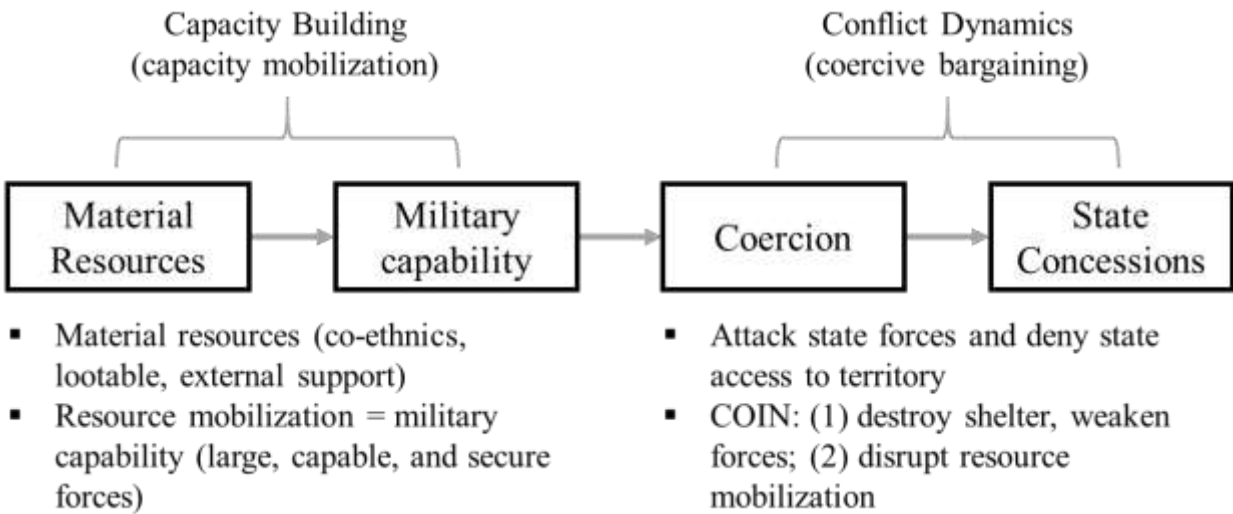# Figure 2: Capacity building, military capabilities, and conflict outcomes
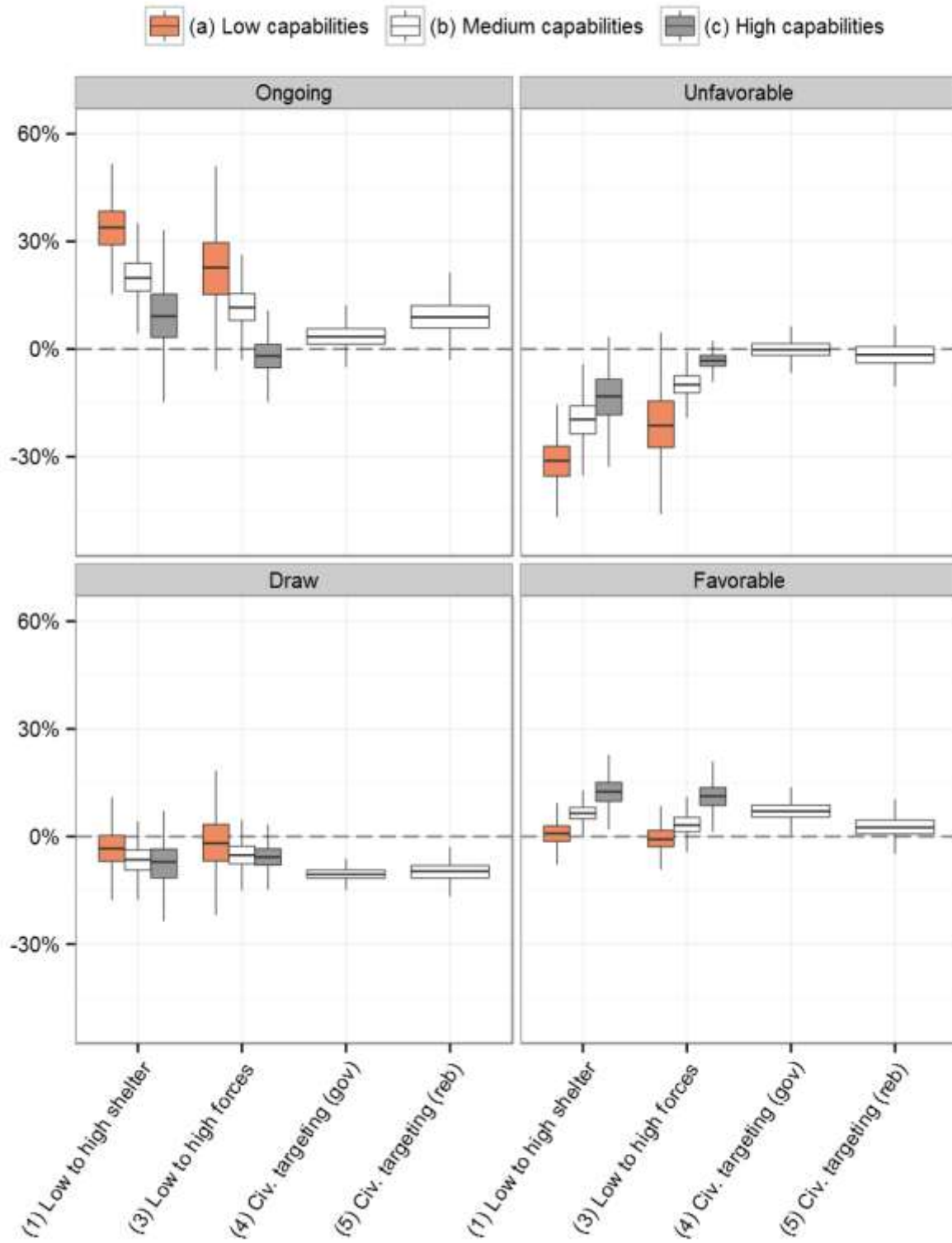
Figure 3: Impact of selected variables on conflict outcomes

Figure 4: Relative probability of exiting in an outcome