

## **Introducing ROLE: A database of rebel leader attributes in armed conflict**

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### **Abstract:**

Existing literature on civil wars relies predominantly on state- and organization-level variables to understand conflict dynamics and outcomes. In this article, we propose that rebel leaders' personal backgrounds and experiences are also key to explaining the behavior of the organizations they lead. Just as scholars have long highlighted the importance of state leaders' biographical characteristics in interstate war and diplomacy, we argue that the attributes of rebel leaders affect their organizations' decisions and actions in civil war. To substantiate our claims, we introduce the Rebel Organization Leaders (ROLE) Database, which contains a wide range of biographical information on all top rebel leaders in civil wars ongoing between 1980 and 2011. We first describe the contents of the database and present a number of novel descriptive findings about rebel leaders. To illustrate its utility, we then examine the influence of rebel leaders' attributes on their organizations' use of terrorism in civil war. Ultimately, our work encourages—and enables—a new research agenda that goes beyond rebel organizations and campaigns as units of analysis and brings individual leaders more fully into modern conflict and peace studies.

**Key words:** armed conflict, rebel organizations, leader attributes, original data, terrorism

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Do rebel leaders' personal beliefs, backgrounds, and life experiences matter in armed conflicts? Would the fight for South Sudanese independence have unfolded differently had someone other than John Garang led the secessionist rebel organization? Would the Lord's Resistance Army (LRA) exist without Joseph Kony? How central were Gulbuddin Hekmatyar to the turn of events in the Afghan civil war in the 1990s or Yasser Arafat to the Israeli-Palestinian conflict?

A large body of political science scholarship asserts that individual leaders' attributes, life experiences, dispositional traits, and beliefs influence their decisions during their time in office, thus affecting the course of political events (Saunders, 2011; Kertzer & Rathbun, 2015; Gift & Krmaric, 2017). In their book on state leaders, Horowitz, Stam, and Ellis (2015: 11) write, 'the formative experiences of political leaders influence everything from the way they evaluate the costs and benefits of using force to the types of military grand strategies they view as most likely to be successful.' Yet, in contrast to rich evidence about how individual differences matter among states leaders, few studies systematically examine how the range of personal backgrounds and life experiences of *rebel* leaders affect world politics.

In this article, we introduce a new database of rebel leader attributes that will enable the kinds of studies of armed nonstate leaders in civil war that scholars have conducted on state leaders in international politics. The Rebel Organization Leaders (ROLE) Database contains a gamut of biographical information for 488 cases of rebel leadership (425 unique individuals) from civil wars ongoing between 1980 and 2011. Below, we first explain our impetus for creating this database. We then describe the data construction process and the types of information ROLE provides. Next, we present a number of novel statistics on rebel leaders to demonstrate ROLE's descriptive potential. Finally, we use the database to investigate how rebel leaders' attributes shape their organizations' use of terrorism, illustrating its ability to help explain key conflict dynamics. Ultimately,

these data allow scholars to bring the ‘first image’ of international politics (Waltz, 1959) more fruitfully into the study of modern conflict.

### **Leaders, wars, and politics**

Recent studies of violent conflict seek to understand how the features of rebel organizations, such as their origins, troop size, mobilization capacity, funding sources, goals, ideology, and governance affect their use of violence, receipt of external support, conflict outcomes, and postwar trajectories (Asal & Rethmeyer, 2008; Salehyan, Siroky & Wood, 2014; Stanton, 2016; Huang, 2016; Wood & Thomas, 2017; Acosta, 2019; Braithwaite & Cunningham, 2020). Much of this literature has been fueled by a wealth of new data that enabled scholars to conduct systematic cross-national studies of rebel behavior and state-rebel dyadic interactions. Yet, these studies rarely examine whether and how rebel *leader* characteristics matter for explaining political outcomes. The implicit assumption is that state attributes, rebels’ organizational features, and situational imperatives override any idiosyncratic differences in leader traits across conflicts.

However, scholarship on the role of state leaders in world politics suggests this assumption may break down upon closer scrutiny. Rather, the effect of rebel leader attributes on civil wars is likely an area in which a lack of systematic data led scholars to eschew asking certain kinds of questions, while the availability of organization-level data encouraged scholars to privilege certain kinds of arguments. Consequently, conflict scholarship largely sustains a blind spot regarding how differences in rebel leaders’ individual characteristics affect outcomes such as rebels’ use of terrorism, ability to govern, willingness to negotiate, or likelihood of victory.

For instance, studies of state leaders show that American presidents held different beliefs about the origins of threats, which shaped their respective military intervention strategies during

the Cold War (Saunders, 2011); that past military (but not combat) experience makes state leaders more likely to use force (Horowitz, Stam & Ellis, 2015); that a history of interactions between two heads of state influence how they settle later crises (Goemans, Gleditsch & Chiozza, 2009); that leaders vary systematically in their social preferences, affecting how they bargain with other states (Kertzer & Rathbun 2015); and that prior experiences of state leaders shape their pursuit of democratization (Gift & Krcmaric 2017). These findings motivate us to ask whether personal backgrounds and experiences also influence the decision-making processes of rebel leaders in violent conflict. Ample case-based evidence suggests they do (e.g. see Reno, 2011; Derluguian, 2003), yet scholars have thus far lacked comprehensive individual-level data with which to examine such questions.

Existing research certainly recognizes the importance of rebel leaders and theorizes about their incentives. For example, in a study of rebel recruitment of female fighters, Wood and Thomas (2017: 33) assert, ‘women are present [in rebel organizations] only when an organization’s leadership makes the explicit decision to openly recruit women.’ Similarly, a study of rebels’ use of terrorism in civil war by Fortna, Lotito, and Rubin (2019: 783) maintains that it highlights ‘rebel leaders’ agency in the choice of terrorism.’ Nevertheless, empirically, these and other studies assess the effect of rebel groups’ *organizational* attributes—rather than any feature of rebel leaders—on outcomes, suggesting a potential mismatch between theory and empirics. In other works, scholars examine the effects of rebel leader selection processes (Cunningham & Sawyer, 2019), rebel leadership change (Lutmar & Terris, 2019), and leadership removal (Abrahms & Potter, 2015) on the course of conflict. Yet, these studies do not look at who rebel leaders are *as individuals* and how their personal biographies bear on their conduct in war.<sup>1</sup> And while a growing literature on

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<sup>1</sup> See Appendix Table A1 for a comparison of ROLE with other recent datasets on rebel organizations and leaders.

the micro-foundations of civil war offers theories about individual fighters and civilians (e.g., Silverman, Kaltenthaler, and Dagher, forthcoming), the decision-making of rebel leaders remains under-explored.

Two recent studies break new ground. First, Prorok (2016, 2018) examines the influence of rebel (and state) leaders' war culpability—whether they initiated or inherited a conflict—on their willingness to continue the fight. Second, Doctor (2020) uses original data on rebel leaders' military and political experiences to explain rebel fragmentation in civil wars. ROLE advances research in a similar direction, providing a far more comprehensive set of biographical data including leaders' family, educational, professional, political, and other backgrounds and experiences. The database thus opens up numerous possibilities for innovation in the 'personal biography approach' (Krcmaric, Nelson & Roberts 2020) to conflict and peace studies.

### **The Rebel Organization Leaders (ROLE) Database**

To enable new research on how rebel leader attributes shape war dynamics and outcomes, we developed the Rebel Organization Leaders (ROLE) Database. ROLE marks the first database of its kind, providing a wide range of information on the personal biographies associated with 488 cases of rebel leadership (by 425 unique individuals) during major anti-state wars ongoing between 1980 and 2011. ROLE's list of rebel leaders derives from Prorok's dataset (2016), which identifies the top leaders of all rebel organizations in the Non-State Actors in Armed Conflict Dataset (NSA) (Cunningham, Gleditsch & Salehyan, 2013).<sup>2</sup> Following Prorok (2016: 76), we define a rebel organization's *top leader* as 'the individual who exerts ultimate decision-making authority over major group policies,' identifiable as such either because they formally held the organization's highest

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<sup>2</sup> Appendix Section 2 explains how we modified Prorok's list to arrive at ROLE's list of leaders.

position or sources agree that they held the foremost power within the organization. ROLE can be structured into multiple units of analysis, including a static version (aggregated), a dynamic version (unique entries by year), or combined forms depending on research needs and foci. For the study at hand, we operationalize the unit of analysis at yearly intervals for each case of leadership. We thus have information on 488 rebel leadership cases for their respective durations, culminating in 2,072 *rebel-leadership years* (rows).

Given its origins, ROLE readily aligns with the widely used UCDP/PRIO family of conflict datasets (Gleditsch et al., 2002), combining easily with existing information on conflict intensity and outcomes, peace agreements, external intervention, international peacekeeping, and more. Additionally, with future substantive and temporal expansions in mind, we designed the database for compatibility with other key conflict datasets such as the Revolutionary and Militant Organizations Dataset (REVMOD) (Acosta, 2019).

ROLE contains data on rebel leaders' family, educational, and occupational backgrounds; paths to power; physical and mental health; and political, military, and international experiences.<sup>3</sup> Table I displays summary statistics of the variables included in ROLE.<sup>4</sup> As a reference point for deriving a theoretically meaningful and empirically feasible set of leader characteristics, we used the Leader Experience and Attribute Descriptions (LEAD) dataset (Horowitz, Stam & Ellis 2015), the most comprehensive dataset of heads of state, to develop many of our variables.<sup>5</sup> This

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<sup>3</sup> Most of the variables in ROLE are measured *pre-leadership*. This measurement strategy had several rationales. First, it helps ensure that our variables are not caused by war dynamics since they are measured prior to leadership. Second, it facilitated data collection at scale across a wide range of leader attributes. Third, it circumvented the difficulty of observing year-to-year changes in our variables.

<sup>4</sup> Summary statistics represent the static version of ROLE. We also constructed a dynamic-annual version.

<sup>5</sup> Our codebook elaborates fully on each variable.

mirroring between LEAD and ROLE allows researchers to assess the same set of variables in dyadic state-rebel analyses and thereby compare state and rebel leaders along like dimensions.<sup>6</sup>

[Table I here]

As a central feature of ROLE, we compiled a ‘coding supplement’ for each leader, recording every coding decision about the individual and citing at least one reliable source to justify each data point. This practice instills a high degree of transparency which we believe significantly enhances ROLE’s contribution, as we release these full coding supplements along with the database so that scholars can evaluate (and, we hope, continuously bolster) our data.

As documented in the supplements, we consulted a wide range of sources to code leader biographies. This includes major international and local newspapers (we found obituaries particularly useful); scholarly books and articles (on specific leaders or, more often, their organizations or conflicts); autobiographies, biographies, and memoirs; existing conflict datasets with organizational profiles (e.g., the *South Asia Terrorism Portal*), various compendia (e.g., Bartrop’s *A Biographical Encyclopedia of Contemporary Genocide*, Newton’s *Famous Assassinations in World History*, and Rowman and Littlefield’s *Historical Dictionary* series) and publications from international and non-governmental organizations, local and foreign governments, and rebel organizations themselves. Coders consulted sources in multiple languages in addition to English, including French, Spanish, German, various Arabic dialects, Hebrew, Hindi, Indonesian, and Russian.

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<sup>6</sup> For example, LEAD shows that 13% of state leaders since 1980 have had combat experience. The figure is 46% in ROLE, suggesting rebel leaders are far more likely to have personally seen the costs of war.

Collecting detailed data on some leaders proved challenging;<sup>7</sup> careful inspection shows that missingness centers on poorer, non-English speaking, and autocratic states.<sup>8</sup> Still, we successfully coded complete or near-complete entries for 377 (more than 77%) of the 488 leadership cases included in ROLE, with the rest coded to varying degrees. We also conducted multiple intercoder reliability tests to ensure uniform and quality data collection (see Appendix, Section 6).

### **Rebel leader profiles: descriptive statistics**

Who leads rebel organizations? We highlight several descriptive results that elucidate key insights about modern conflict.

First, ROLE shows that rebel leaders in civil wars since 1980 have been overwhelmingly well-educated. As Figure 1 indicates, a remarkable 70% of rebel leaders on whom we found schooling information (247 out of 354 leaders) held degrees in higher education. More specifically, 49% of all rebel leaders earned a bachelor's degree or equivalent, while 21% (73 leaders) earned a master's or doctorate. In fact, leaders with postgraduate degrees outnumber leaders who never finished (or attended) secondary school (73 vs. 38 individuals).<sup>9</sup> Furthermore, before leading a rebellion, many pursued a military career (16%), teaching career (13%) (including a number of political scientists, economists, and other scholars), or career as a politician (10%). These findings align with the broader observation that social movement leaders often hold degrees in higher education and hail from middle- or upper-social classes (Morris & Staggenborg, 2004: 174). ROLE confirms this to be the case among leaders of armed rebel organizations.

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<sup>7</sup> Notably, the LEAD database similarly reports significant missingness on various leader attributes despite the greater paper trails of heads of state.

<sup>8</sup> See Appendix, Section 4, for efforts to examine and account for missingness.

<sup>9</sup> It is possible that rebel leaders on whom we lack schooling information are less educated than their peers. Yet, even in the extreme case in which *none* of the leaders on whom we lack data earned at least a bachelor's degree, over 50% of the sample will still have earned one.

[Figure 1 here]

ROLE also reveals that 38% of rebel leaders studied abroad in a formal school setting before their leadership tenure. Examples of such leaders include the Lebanese National Movement leader Kamal Jumblatt, who obtained a bachelor's degree at the Sorbonne in Paris before returning to Beirut for a law degree, and Nurul Islam, leader of Myanmar's Arakan Rohingya Islamic Front, who completed a diplomacy training course at the University of New South Wales in Australia and a law degree in human rights from the University of East London. In contrast, neither Vellupillai Prabhakaran, the head of the Liberation Tigers of Tamil Eelam, nor Gerry Adams, the leader of Northern Ireland's Provisional Irish Republican Army, earned university degrees, as both ended formal education with secondary school. Overall, 60% of rebel leaders spent significant time abroad, whether for work, study, exile, or military training, suggesting fairly cosmopolitan backgrounds.

A second striking finding showcases Alice Auma (a.k.a. Lakwena), who led the Holy Spirit Movement in Uganda in the late-1980s. She represents the *only* female to hold the reins of a rebel organization in the civil wars in the 1980-2011 UCDP-dyadic dataset. During the last four decades, while women participated widely in many rebel movements (Wood & Thomas, 2017) and often assumed combat and leadership roles, they almost never took the helm of militant nonstate organizations. The relative absence of women in top leadership positions of social movements likely reflects broader gender inequalities in society (Morris & Staggenborg, 2004), an argument which our data show also pertains to rebel organizations.

[Figure 2 here]

Third, in contrast with popular images of youth-led revolutionary movements in contexts such as the 1979 Iranian Revolution, the 1989 Velvet Revolution, Tiananmen Square in 1989, and Tahrir Square in 2011, we find that rebel movements are regularly led by middle-aged men; the average starting age for a rebel leader is 41 years old.<sup>10</sup> As Figure 2 illustrates, 62% of rebel leaders took control of their organization in their 30s and 40s; just 15% did so before the age of 30, and only 23% after the age of 50.

Individuals overwhelmingly assume rebel leadership at older ages, towing along life experiences beyond rebel militancy when they take power. Consistent with this notion, most rebel leaders are married (86%) and have children (78%). Overall, ROLE depicts a ‘typical’ rebel leader as a middle-aged male who is married with children, has prior work experience, holds at least a bachelor’s degree, and has lived abroad.<sup>11</sup> This average profile suggests that leaders of rebel organizations do not look so different from leaders of other types of social movements (or other organizations in general), and that rising through the ranks of rebel leadership requires skills, experience, and credibility that derive from some combination of education, age, familial ties, and/or pre-rebel professional and international experience. Yet, this brief data exploration also makes clear that rebel leaders are not simply interchangeable ‘knights’ on a battlefield. Rather, they vary widely along personal and professional dimensions, allowing scholars to examine how such variation informs their wartime choices, behavior, and leadership skills.

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<sup>10</sup> Strikingly, leadership entry age ranges from 9 to 113. In the case of the 9-year-old Htoo twins from Myanmar, a local pastor reportedly named them joint leaders of the God’s Army organization after ‘God’ spoke to him. As for Pu Kyaung Long, head of Myanmar’s Lahu National United Party (LNUP), he reportedly lived to 120 and founded the LNUP seven years before his death. Excluding these outliers, the range is 14 to 88.

<sup>11</sup> The most common faith for rebel leaders in ROLE is Islam (49%). Care should be taken, however, not to conflate Muslim leaders and Islamist organizations—we added the Islamist organization variable from Wood & Thomas (2017) and found a correlation of 0.58 with Muslim leadership. While all Islamist organizations have Muslim leaders, many secular-nationalist and Marxist organizations do, too.

## **Rebel leader attributes and the use of terrorism in civil war**

ROLE has wide applicability in the study of armed conflict. To illustrate, in this section we use ROLE to contribute to the literature on rebel organizations' use of terrorism in civil war. In particular, we argue that rebel leaders' *education* and *combat experience* affect their wartime decisions around the use of terrorism, defined as 'the systematic use of intentionally indiscriminate violence against public civilian targets to influence a wider audience' (Fortna, Lotito & Rubin, 2018: 783).

First, we expect that education should make rebel leaders more likely to eschew terrorism in war. There are several potential mechanisms for this. To begin with, studies find that education positively affects cognitive ability, intelligence, reasoning, and working memory, and that these effects last well beyond formal schooling and into old age (Guerra-Carillo, Katovich & Bunge, 2017). Education also provides political awareness and the skills needed to effectively engage in political activity (Dahlum & Wig, 2017). If rebel leaders weigh the costs and benefits of wartime tactics, then more educated leaders may be more cognizant of the strategic pitfalls of terrorism – including public backlash, lower odds of concessions, and reduced chance of victory – and hence more likely to refrain from its use (Fortna, 2015; Abrahms, 2018). Furthermore, ensuring restraint in war requires that rebel leaders provide formal instruction to their fighters to build discipline, and this often includes 'detailed lessons about history, politics, religion or other theories of social organization' (Hoover Green, 2016: 625). Rebel leaders who themselves obtained formal education may be more capable of such exercises of organizational control. Finally, schooling also typically expands one's domestic and international social networks (Huang, Silverman & Acosta, forthcoming), increasing the reputational costs of allowing fighters to use terrorist tactics.

Second, we expect that rebel leaders with combat experience should be more likely to avoid using terrorism. Experience is a strong teacher, and leaders with combat experience should better appreciate the strategic costs of terrorism and understand alternative methods of fighting. They should also better grasp the exigencies of modern war, including the domestic and international political ramifications of tactics that may have short-term payoffs but can undermine their long-run goals, not least by violating international norms of war (Jo, 2015). As with education, experience with combat can also equip rebel leaders to better instill organizational discipline and control over their fighters, given their greater exposure to norms and tactics of military command (Doctor 2020). There may be a psychological mechanism at work as well: studies show that exposure to wartime violence increases individuals' capacity for empathy and preference for more pro-social outcomes (Hartman & Morse, 2020), suggesting that wartime combat experience may increase rebel leaders' aversion to indiscriminate civilian death.<sup>12</sup>

## **Research design**

To assess our hypotheses, we use ROLE's data on rebel leadership alongside conventional organizational and state-level variables. For the dependent variable, we use measures of terrorism at the organization-year level from the Terrorism in Armed Conflict (TAC) dataset (Fortna, Lotito & Rubin, 2018). TAC is based on a careful process of matching incidents in the Global Terrorism Database (GTD) with the organizations or movements that perpetrated them, and is ideally suited for studying rebel use of terrorism.

We use two variables from ROLE to capture the leader attributes we highlighted above as crucial to rebel terrorism use. The first is *Education*, a six-point ordinal measure of the leader's

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<sup>12</sup> The correlation between education and combat experience is modest, at only  $r=-0.23$ . We also found little evidence of a meaningful interaction effect between them.

educational attainment ranging from no primary education to completion of a doctoral degree. The second is *Combat experience* prior to leadership, a binary variable. We recognize that leaders with education and combat experience may be more likely to have other attributes and experiences that make terrorism less appealing. We include two of these. A continuous measure *Age* captures leaders' age during the year in question; with age comes better emotional control, social reasoning, and big-picture thinking (e.g. Baltes, 1993), making it possible that older leaders are better able to resist short-term impulses to use terrorism. A binary indicator *Military experience* captures whether or not a leader has had experience serving in a state's military; we wish to separate combat experience from socialization into a military more broadly. These factors also expand the range of leader attributes included, demonstrating more of the explanatory value of ROLE.

We control for several other factors linked to rebels' use of terrorism in the literature. At the organizational level, these include: *Rebel strength*, given the widespread perception of terrorism as a 'weapon of the weak' (Abrahms, 2018); *Rebel centralization*, which may inhibit terrorism since rebel leaders are more likely to recognize its costs than their foot soldiers (Abrahms & Potter, 2015); and *Foreign support* and *Natural resource use*, which are both thought to, among other things, dissociate rebels from their local civilian support bases and thus make them less concerned about civilian harm (Fortna, Lotito & Rubin, 2018). At the contextual level, we include *GDP per capita*, as some scholars identify poverty as a key source of terrorism (Abadie, 2006), *Democracy*, which some view as increasing a state's vulnerability to terrorism (San-Akca, 2014), *Territorial dispute*, as others argue that rebels fighting over territory find terrorism attractive (Holtermann, 2019), and *Conflict duration*, given that terrorist conflicts tend to last longer than other types of disputes (Fortna, 2015).<sup>13</sup>

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<sup>13</sup> Table A2 in the Appendix shows the range of each control variable and its data source.

## Empirical results

We test our expectations using negative binomial regression models with country-clustered standard errors. The results are reported in Table II. The first two models (M1 and M2) use a high estimate of the number of terrorist fatalities inflicted per organization-year from TAC, and the last two (M3 and M4) use a low estimate. M2 and M4 include rebel leader attributes, while M1 and M3 include only the organizational and contextual variables, allowing us to compare the impact of leader attributes with variables at other levels of analysis.

[Table II here]

The models show that rebel leader attributes are strongly associated with terrorism use. In particular, they indicate that leaders with more education and leaders with combat experience use significantly less terrorism in their campaigns, supporting our primary expectations. Other rebel leader attributes also matter – prior military experience is associated with increased likelihood of terrorism use while age is associated with a decreased likelihood of use (though the latter is statistically significant in only one of two models). Interestingly, these results mirror findings on state leaders' propensity to use force abroad (Horowitz, Stam & Ellis, 2015), in which combat experience makes leaders more restrained, while military training without such experience makes them more aggressive. These results merit further investigation and highlight promising links between research on rebel and state leader behavior.

The effects of rebel leader attributes are substantively significant as well. Figure 3 displays the marginal effects of rebel leader education and combat experience on the predicted number of annual terrorist fatalities inflicted by rebel organizations (results from Table II, M4). Each additional level of education attained by the rebel leader is associated with an average of 21 fewer

terrorist fatalities per year, while the leader having experienced combat is associated with 43 fewer annual terrorist fatalities.

Meanwhile, relatively few factors are significant at the organizational or contextual levels, with the key exceptions of democratic adversaries and territorial disputes. These findings support arguments about the propensity of terrorist organizations to target democracies (San-Akca, 2014) and the attractiveness of terrorism in territorial conflicts (Holtermann, 2019). We also compare measures of fit between the models with and without leader attributes. Doing so shows that adding the leader attributes significantly reduces the logged likelihood of the models (Likelihood Ratio test  $p$ -values:  $p=0.00$  for M2 vs. M1,  $p=0.00$  for M4 vs. M3), suggesting that the leader attributes meaningfully enhance our ability to explain rebels' use of terrorism.<sup>14</sup>

[Figure 3 here]

## **Conclusion**

The last two decades have witnessed the emergence of a wealth of new data on rebel organizations, opening up a new research agenda on how the attributes of rebel organizations affect conflict. Despite these advancements, we still have little knowledge of the individuals who lead rebellions and how their biographies affect war dynamics. The ROLE Database promises to open entirely new avenues of research on rebel leadership. Systematic study of state leaders, as well as an abundance of historical and anecdotal accounts of well-known heads of state and rebel leaders, provide strong reasons to believe leadership matters for understanding political outcomes. With its compatibility with existing conflict data and the extensive and transparent documentation of

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<sup>14</sup> Future work might explore whether the combat and education effects disappear (or reverse) in contexts where terrorism is especially useful. We thank an anonymous reviewer for this point.

sources used in its construction, ROLE allows researchers to ask new questions while building on existing knowledge. Given its focus on individual rebel leaders, the database should also serve as a fruitful nexus between structural, organizational, and micro-level approaches to the study of conflict.

**Replication data:** The database, codebook, and do-file for this article, and the online Appendix, are available at [www.prio.org/jpr/datasets](http://www.prio.org/jpr/datasets). To access all ROLE Database material, including coding supplements for each leader, see [www.RebelLeaders.Org](http://www.RebelLeaders.Org). All analyses were conducted using Stata 16.

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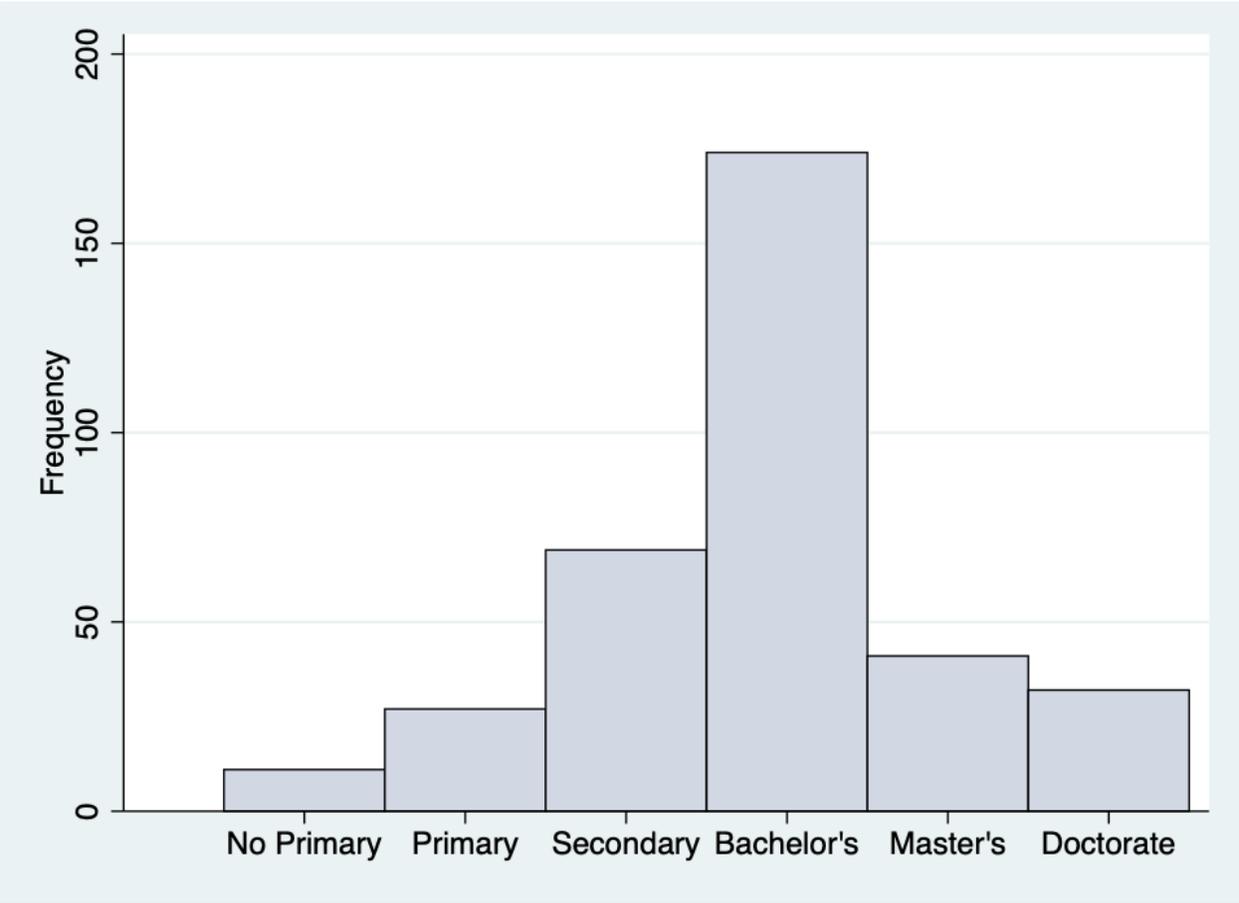
DANIEL SILVERMAN, PhD in Political Science (Ohio State, 2017); Assistant Professor, Carnegie Mellon University; research focus on international security, political psychology, and the politics of the Middle East and Islamic world.

**Table I. Summary statistics on variables in ROLE Database**

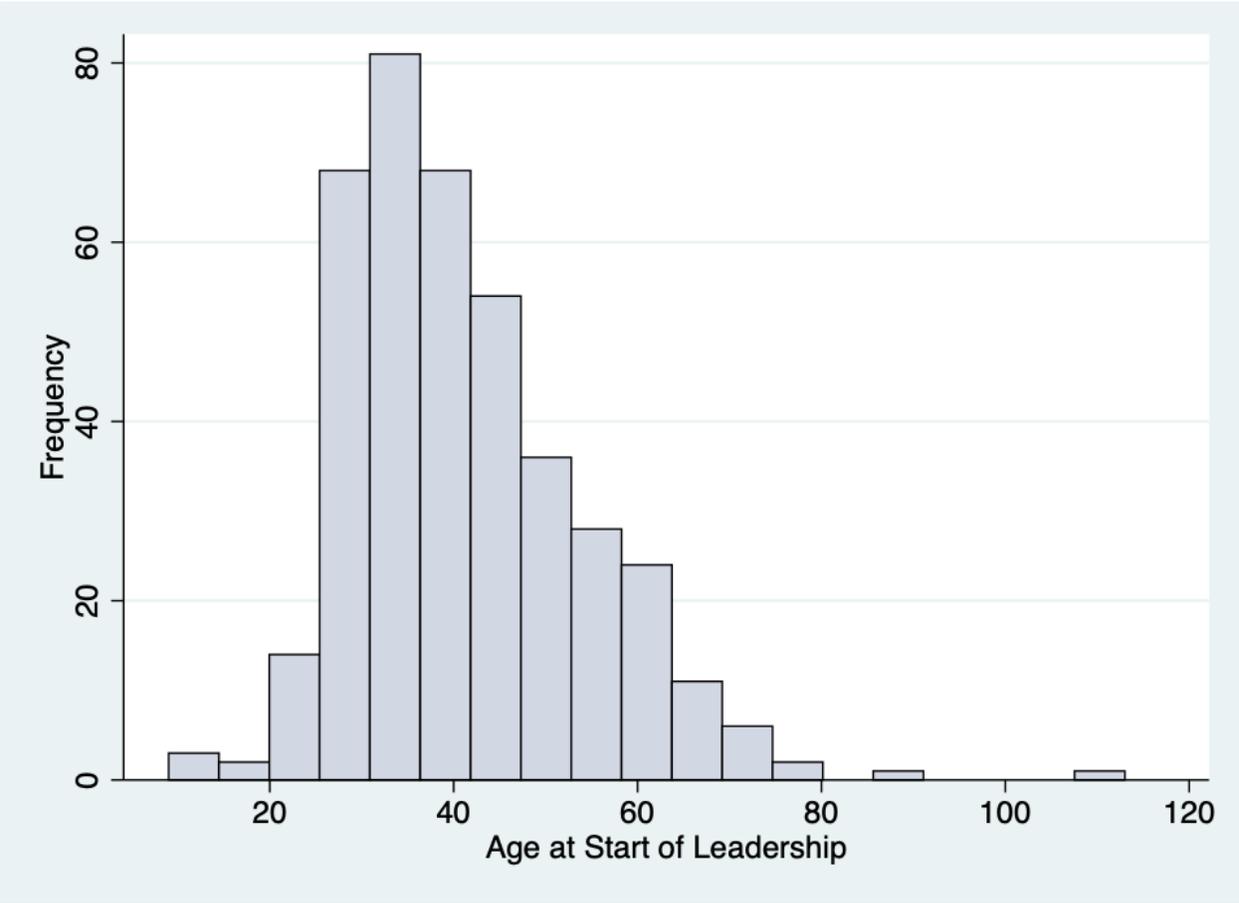
	<i>n</i>	Mean	SD	Range
<i>General</i>				
Birth year	413			
Gender	488			
Death year	227			
Deceased	429	0.52	0.50	0   1
Power-sharing	443	0.14	0.35	0   1
<i>Education</i>				
No primary	354	0.03	0.17	0   1
Primary	354	0.08	0.27	0   1
Secondary	354	0.20	0.40	0   1
Bachelor's	354	0.49	0.50	0   1
Master's	354	0.12	0.32	0   1
Doctorate	354	0.09	0.29	0   1
Western education	347	0.19	0.39	0   1
<i>Religion</i>				
Christian	403	0.40	0.49	0   1
Muslim	403	0.49	0.50	0   1
Hindu	403	0.05	0.22	0   1
Buddhist	403	0.04	0.20	0   1
Other	403	0.01	0.11	0   1
None	403	0.01	0.12	0   1
<i>Pre-Leader occupation</i>				
Teacher	395	0.13	0.34	0   1
Journalist	395	0.03	0.18	0   1
Lawyer	395	0.02	0.12	0   1
Engineer	395	0.02	0.14	0   1
Medicine	395	0.03	0.17	0   1
Sciences	395	0.01	0.11	0   1
Agriculture	395	0.01	0.07	0   1
Military	395	0.16	0.36	0   1
Religion	395	0.05	0.23	0   1
Labor	395	0.03	0.18	0   1
Activist	395	0.22	0.42	0   1
Politician	395	0.10	0.30	0   1
Writer	395	0.02	0.14	0   1
Economics	395	0.00	0.05	0   1
Aristocrat	395	0.00	0.05	0   1
Police	395	0.02	0.12	0   1
Business	395	0.05	0.21	0   1
Other	395	0.11	0.31	0   1
<i>Leadership entry</i>				
Founded	447	0.38	0.49	0   1
Appointed	447	0.24	0.43	0   1
Elected	447	0.16	0.37	0   1
Seized	447	0.03	0.18	0   1
Unclear	447	0.18	0.39	0   1

Entry age	399	41.09	12.94	9   113
<i>Personal</i>				
Married	371	0.86	0.35	0   1
Children	363	0.78	0.41	0   1
Polyglot	403	0.07	0.26	0   1
Physical health	397	0.05	0.22	0   1
Mental health	395	0.01	0.09	0   1
<i>Political</i>				
Military experience	392	0.31	0.46	0   1
Rebel experience	412	0.54	0.50	0   1
Political affiliation	393	0.71	0.46	0   1
Govt. experience	401	0.26	0.44	0   1
Elite family	250	0.38	0.49	0   1
Imprisonment	406	0.28	0.45	0   1
Assassination attempt	374	0.03	0.18	0   1
Combat experience	359	0.46	0.50	0   1
<i>International experience</i>				
Study abroad	375	0.38	0.49	0   1
Military training abroad	362	0.27	0.45	0   1
Work abroad	380	0.15	0.36	0   1
Exile	401	0.25	0.43	0   1
<i>Death</i>				
Disease/natural	409	0.23	0.42	0   1
KIA	409	0.07	0.25	0   1
State assassination	409	0.08	0.27	0   1
Rival assassination	409	0.04	0.19	0   1
Executed	409	0.02	0.13	0   1
Fratricide	409	0.01	0.09	0   1
Accident	409	0.02	0.13	0   1
Suicide	409	0.00	0.07	0   1
Homicide	409	0.00	0.05	0   1
External assassination	409	0.04	0.19	0   1

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**Figure 1. Rebel leaders' educational attainment**



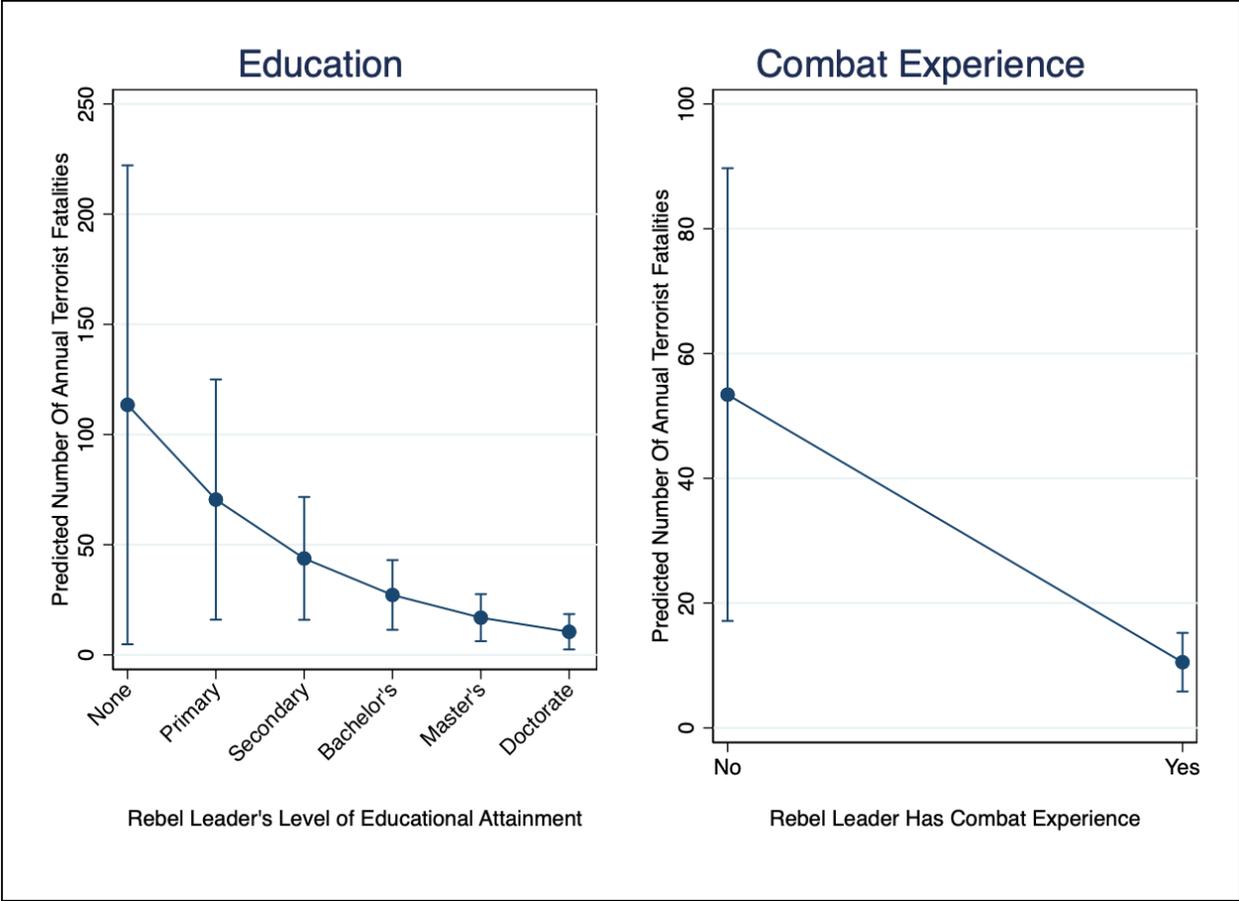
**Figure 2. Rebel leaders' age at start of leadership**

**Table II. Drivers of rebel organizations' use of terrorism**

	(M1) Terrorist fatalities	(M2) Terrorist fatalities	(M3) Terrorist fatalities	(M4) Terrorist fatalities
<b><u>Leader attributes</u></b>				
Education		-0.57*** (0.13)		-0.48*** (0.13)
Combat experience		-2.06*** (0.41)		-1.62*** (0.37)
Age		-0.02 (0.02)		-0.03* (0.01)
Military experience		0.90* (0.39)		0.68+ (0.37)
<b><u>Organizational features</u></b>				
Rebel strength	0.34 (0.39)	0.12 (0.33)	0.31 (0.38)	0.15 (0.33)
Rebel centralization	0.41 (0.26)	0.15 (0.29)	0.43+ (0.25)	0.28 (0.27)
Foreign support	-0.25 (0.37)	-0.51 (0.41)	-0.14 (0.36)	-0.30 (0.42)
Natural resource use	0.12 (0.50)	0.59 (0.48)	0.25 (0.47)	0.68 (0.47)
<b><u>Contextual factors</u></b>				
GDP per capita	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Polity score	0.16** (0.05)	0.19*** (0.05)	0.16*** (0.05)	0.19*** (0.05)
Territorial dispute	1.36** (0.50)	1.40** (0.45)	1.32** (0.46)	1.38** (0.44)
Conflict duration	0.02 (0.04)	0.00 (0.03)	0.02 (0.04)	0.01 (0.03)
Constant	1.52 (1.01)	5.61*** (1.39)	1.57 (0.97)	5.25*** (1.31)
Observations	1,374	1,004	1,374	1,004
Logged likelihood	-2967.95	-2332.96	-3393.05	-2682.81

Results from negative binomial regression models. M1-M2 use TAC's highest estimate of annual terrorist fatalities, while M3-M4 use its lowest. Robust country-clustered standard errors in parentheses.

\*\*\* p<0.001, \*\* p<0.01, \* p<0.05, + p<0.1



Results are plots of marginal effects of each variable from Table II, M4.

**Figure 3. Marginal effects of rebel leader education and combat experience on predicted number of annual terrorist fatalities**