

CREEDS OF DEATH: THE IMPACT OF IDEOLOGY ON TERRORIST ORGANIZATION  
LETHALITY

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# CREEDS OF DEATH: THE IMPACT OF IDEOLOGY ON TERRORIST ORGANIZATION LETHALITY

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## ABSTRACT

Few empirical studies examine the relationship between ideology and lethality among terrorist organizations. In this paper, I test how ideological affiliation may affect a terrorist organization's overall lethality. I theorize that jihadist groups are relatively more lethal than other groups because jihadist ideologies promote more abstract goals, stronger intragroup cohesion, and higher intergroup affinity. In particular, I hypothesize to find jihadist groups are, on average, more lethal than non-jihadist groups, and that among jihadist groups, apocalyptic groups are most lethal. Using data from the Global Terrorism Database (GTD) and Revolutionary and Militant Organizations dataset (REVMOD) on two samples of terrorist organizations, I find evidence supporting my theoretical claims. Jihadist groups are more lethal than non-jihadist groups. Further, my findings indicate that use of suicide terrorism largely accounts for higher jihadist lethality. From a policy perspective, my findings suggest counterterrorism efforts should continue focusing on combating jihadist groups and increase attention to countering suicide attacks. Terrorist group ideology requires more scrutiny in assessing attack outcomes.

The research and writing of this thesis are dedicated to my grandmother, Roni.  
Special thanks to those who helped me get here: Andreas Kern, Eric Dunford, Dushyant Tyagi,  
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Many thanks,  
Ido Levy

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## INTRODUCTION

In 2014, the jihadist group now known as Islamic State (IS) swept through Syria and Iraq, taking large swathes of territory in both countries (BBC, 2019). IS, then a little-known offshoot of al-Qaeda, shocked the international community with its brutal methods and swift victory over both the Iraqi and Syrian militaries (Pollack, 2019). As of 2018, although having now lost its territory, IS has killed almost 40,000 people in its terrorist attacks, more than any other terrorist group despite IS's youth compared to other groups.<sup>1</sup> This is puzzling as one might expect older terrorist groups to be more lethal and not think younger groups like IS could prevail over not one, but two organized militaries while also fighting off other, often older and better established armed groups. IS, however, was well-armed with not only bombs and AK-47s, but also an apocalyptic ideology relatively novel to jihadist circles, and it is this understudied aspect of terrorist groups that likely contributed to its high lethality. In this paper, I aim to answer the question *what is the role of ideology in terrorist lethality?*

I propose **greater ideological intensity increases terrorist organization lethality**. I posit ideology affects organizational lethality via three avenues: goals, cohesion, and affinity. First, more ideologically intense groups espouse goals that are more abstract and less attainable, in turn increasing a group's rejection of negotiation and willingness to use brutal methods. For example, IS's ideology prescribes an end to the divinely ordained fighting only once the apocalypse occurs; in practice, this means IS will never stop fighting, is unamenable to peace negotiations, and is happy to use brutal methods to support what it sees as a divine war against the enemies of Allah in the context of a coming apocalypse (Goldberg, 2017). Second, more intense ideologies promote stronger intragroup cohesion. Especially in groups that demand of

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<sup>1</sup> See the Global Terrorism Database, <https://www.start.umd.edu/gtd/>.

their members to commit horrible acts, a strong ideology can provide an incentive for large numbers of people to do as the group commands, remain committed to the group's goals, and refrain from exiting. Third, more intense ideologies, particularly more intensely abstract ones, facilitate a group's management of its relations with other organizations, manifesting in exchanges of information, funds, weapons, and operational support among sympathetic individuals, organizations, and states. Therefore, ideology impacts lethality through abstractness of goals, quality of intragroup cohesion, and level of affinity with other entities.

I test my hypothesis using data from the Global Terrorism Database (GTD) and Revolutionary and Militant Organizations Dataset (REVMOD). The GTD, housed at the National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland, is the most comprehensive existing database on terrorist attacks, with information on locations, perpetrators, targets, and other data points from 1970 to the present.<sup>2</sup> REVMOD contains information on militant organizations from 1945 to 2014, with information on various group characteristics, such as total kills, age, ideological affiliation, and whether a group uses terrorism (Acosta, 2019).<sup>3</sup> Using these data, I create a terrorist group-level database categorizing organizations by ideology and testing for its impact on lethality. I control for organizational factors: whether an organization uses suicide bombing, age, number of transnational attacks, network ties, and sponsors, as well as country fixed effects. I then use an organization-year-level dataset to test for variations in lethality among jihadist groups espousing different jihadist ideologies. Finally, I run an alternative regression and use different measures of lethality to test robustness.

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<sup>2</sup> See the Global Terrorism Database, <https://www.start.umd.edu/gtd/>.

<sup>3</sup> See REVMOD, <https://www.revolutionarymilitant.org/>.



## THEORY OF CHANGE

### Past Scholarship

Multiple studies have examined the role of ideology in conflict (Gutiérrez Sanín & Wood, 2014; Haas, 2005; Hafez, 2017; Maynard, 2014; Maynard, 2019; Olzak, 2016; Toft & Zhukov, 2015), though few have done so in a rigorous quantitative manner specifically for terrorism (Carson & Suppenbach, 2018; Piazza, 2009). I use Maynard's definition of ideology as "the distinctive political worldviews of individuals, groups, and organizations" (Maynard, 2019, p. 637). For terrorism, I follow START's definition: "the threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation."<sup>4</sup> Piazza (2009) posits two ideological categories: "universal/abstract" and "strategic." Universal/abstract denotes terrorist organizations with immaterial goals, such as the imposition of Sharia on the world, that conduct symbolic attacks meant for a broad global audience. In contrast, strategic groups seek more concrete goals, such as the overthrow of a regime, and perform attacks against well-defined opponents to appeal to specific audiences. Using this framework, Piazza shows that controlling for universal/abstract ideology, and especially attacks perpetrated by al-Qaeda, accounts for the relatively higher lethality of Islamist terrorist groups. Carson and Suppenbach (2018) find that jihadist groups are deadlier than non-jihadist groups, but that this effect varies with the nationalities of targets. Asal and Rethemeyer (2008a) find ideology correlates with whether terrorist groups choose to employ deadly (i.e. likely to kill) attack methods, with leftist, anarchist, and environmentalist groups less

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<sup>4</sup> See GTD codebook: <https://www.start.umd.edu/gtd/downloads/Codebook.pdf>

While there is an ongoing scholarly debate on the definition of terrorism, I do not claim this definition as the most important one. It is important for my study as I will be using GTD data, which uses this definition as its criteria for inclusion of events.

likely than religious ones to opt for killing. They and others find ideology and several other factors correlated with lethality (Asal et al., 2015; Asal & Rethemeyer, 2008a).

Other scholars focus on other aspects of ideology in armed conflict. Hoffman (1993) discusses how religious ideologies can justify adoption of terrorist tactics. Maynard (2019) offers a theoretical model explaining how groups and individuals adopt and act upon ideologies. Straus (2012) examines how ideology can motivate genocide. Strang (2015) employs a quantitative analysis exploring how ideology may determine terrorist attack methodology. Toft and Zhukov (2015) perform a disaggregated study on insurgency in the Russian North Caucasus in which they find Islamist groups are more resistant than nationalist groups to counterinsurgency campaigns. Ugarriza and Craig (2013) employ a quantitative analysis on former Colombian militants to argue that the effect of economic factors outweighs that of ideological ones in causing conflict. Polo and Gledistch (2016) propose that the use of terrorist tactics has more to do with the strength and local support of a group compared to its adversaries than ideology. Hence, while there is a significant amount of research on terrorist ideology, most studies treat ideology superficially and do not assess its impact on lethality.

Scholars have also examined the determinants and definitions of terrorist lethality. Nilsson (2018) finds that terrorist organization use of suicide attacks correlates with relatively higher lethality, defined as number of dead per attack. Horowitz and Potter (2014) find deeper alliances between terrorist groups lead to higher numbers of kills per group. Phillips (2017) notes that organized groups generally kill more per attack than lone attackers except in the United States, where lone attackers are more lethal. Klein (2016) finds that transnational terrorist attacks generally produce more casualties (deaths and injuries) than attacks inside the country of an attacker's presence. Olzak (2016) importantly finds that the narrower an organization's

“categorical niche,” or variation in ideologies espoused by a terrorist group, the higher its lethality (average number of deaths per attack) and longevity. This suggests more ideologically focused terrorist groups are more lethal. Danzell and Zidek (2013) note higher expenditures on homeland security reduce terrorist lethality by three measures of numbers of deaths, injuries, and attacks aggregated to the state-year level. Therefore, past scholarship has identified multiple determinants and definitions of terrorist lethality.

### **Goals, Cohesion, and Affinity**

I argue organizational goals, cohesion, and affinity mediate between ideology and lethality. Groups with more abstract ideological goals will be more lethal because their goals justify more brutal means. Bernholz (2004) notes terrorist organizations can frame atrocities as altruistic if they support aims reflecting their “supreme values.” A number of studies link the theological aims of religious terrorist groups, particularly jihadist groups, to higher likelihoods of adopting suicide bombing (Acosta, 2010; Berman & Laitin, 2008; Hoffman, 1993, 2004; Moghadam, 2009), a tactic with a higher average lethality than other terrorist attack tools, such as firearms or knives (Mroszczyk, 2019). Hoffman and McCormick (2004) conceptualize the tendency of terrorist organizations to conduct “signaling” attacks meant more to impress target audiences than achieve military objectives. Piazza (2009) notes signaling attacks are meant to cause higher casualties and associate more with groups espousing universal/abstract ideologies.

Ideology promotes cohesion by addressing the problem of collective action and promoting camaraderie among group members. Topitsch (1958, quoted in Bernholz, 2004) notes ideologies create “binding” communities by inculcating a common identity in group members. Olson (1965) posits self-interested individuals will refrain from acting in support of group

interests, so groups require incentives to motivate collective action. Ideology can serve as such motivation (Mikołajczak & Becker, 2019; van Stekelenburg et al., 2009). Conversely, groups with less intense ideologies and more strategic goals may be more prone to revert to criminality, splinter, or disintegrate (Cronin, 2009; Youngman, 2019).

Entities espousing similar ideologies may support each other out of ideological affinity. Hoffman (2017) describes state sponsorship of terrorist groups as a rational act on the part of states that share the goals of the groups they sponsor, such as Iran's sponsorship of Hamas and Hezbollah based on their common ideological aim to defeat Israel. State sponsorship may also boost a group's internal chances of survival (Carter, 2012). Byman (2015) discusses sponsorship by other groups, like the Taliban's provision of funds and safe haven for the like-minded al-Qaeda when the latter relocated to Afghanistan. Groups may ally with each other on ideological grounds or express ideological goals through a desire to ally, as multiple groups have done by pledging allegiance to IS (Acosta & Childs, 2013; Day, 2016). Better external support and intergroup cooperation then lead to heightened lethality (Horowitz & Potter, 2014).

### **Jihadism and Lethality**

Focusing on jihadist groups facilitates analysis of the effect of ideology on lethality. I define a jihadist group as an organization espousing a sacred violent struggle toward defending, glorifying, and expanding Islam. Among the most lethal terrorist groups on average are jihadist groups (Carson & Suppenbach, 2018; Piazza, 2009). Applying my definition to the GTD, of the top ten terrorist organizations by numbers of people killed, five are jihadist, including the top three groups (see, A.1 in the Appendix). The relatively high lethality of jihadist groups makes them ideal as a point of comparison to groups of other ideological affiliations. This follows my

theory since jihadist groups tend to have abstract goals (Goldberg, 2017; Hoffman, 1993, 2017; McCants, 2015; Piazza, 2009; Wood, 2015), boast strong cohesion due to religious conviction and common goals (Hoffman, 1993, 2017; Sper, 1995), and enjoy considerable external sponsorship and cooperation through affinity (Byman, 2005, 2015; Byman & Kreps, 2010; DeVore, 2012; DeVore & Stähli, 2015; Hoffman, 2017; Richardson, 2005; Sageman, 2004).

Moreover, there exists ideological variation among jihadist groups. Some, like Hamas, I classify as *local*, seeking to violently replace supposedly apostatical “corrupt” regimes or perceived foreign occupiers with Islamic rule. These groups concentrate within the borders of a state or subnational unit; Hamas aims to replace Israel with an Islamic state. *Revolutionary* jihadist groups aim to spread Islamic law by force through establishing “resistance” organizations in target countries. These groups predominantly claim allegiance to the supreme leader of Iran and operate mostly across multiple Muslim-majority countries. For example, Hezbollah and Asaib Ahl al-Haq take orders from Tehran and seek to spread the Islamic revolution of Iran to Lebanon and Iraq, respectively. *Caliphal* organizations wish to restore and ultimately expand the “caliphate,” or Islamic empire governed by sharia. Their scope is global. Al-Qaeda, whose goal is to build an “Islamic army” to retake and expand the caliphate’s territory, is one example of such a group. Finally, *apocalyptic* groups act to fulfill perceived apocalyptic missions, such as taking certain territories and targeting particular groups, in advance of an imminent Judgement Day. They not only recognize no borders, but also espouse goals that are unattainable in the physical world. IS, with its fixation on preparing the world for an imminent apocalypse, is an ideal example of this type of organization. These ideological nuances allow for analysis of lethality variations among jihadist groups.

## Strategic—Apocalyptic

Existing coding for ideology remains rudimentary. The GTD itself has only one “International-Ideological” variable indicating whether an attack’s perpetrators were of different nationalities from the target/victims. This is insufficient for my study and, at any rate, it remains unclear what is “ideological” about this variable. START houses an auxiliary dataset for the GTD, the “Global Terrorism Database Ideological Motivations of Terrorism in the United States,” that associates every recorded attack up to 2016 in the United States with an ideology.<sup>5</sup> However, this dataset is cumbersome and ambiguous, with 13 ideological categories, some aggregated (e.g. “religious”) and others subdivided (e.g. “religious-Christian” or even “Islamic-Sunni”), providing no more than superficial analysis power, and only for attacks that occurred in the United States. START’s Big Allied and Dangerous (BAAD) dataset contains three ideological categories for 140 organizations from 1998 to 2012.<sup>6</sup> While this simplifies categorization, labels remain too broad (“left,” “religious,” or “ethnic”) for my analysis and the existence of variables for whether a group adheres to an ideology at all and possibility of groups having “compound” ideologies of one or more categories actually overcomplicates coding. REVMOD provides perhaps the best existing coding, with five simple indicator variables: “Islamist,” “leftist,” “nationalist,” “rightist,” and “anarchist.” This coding at least allows for comparison of five qualitatively different sets of groups, though still falls short in comparing groups within the same ideological categories or reaching some ordinal or scale measure.

I propose an ordinal measure for ideology, ranging from *strategic* (similar to Piazza, 2009), or groups with more attainable goals that perform attacks toward functional objectives, to

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<sup>5</sup> See, <https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/SACQNK>.

<sup>6</sup> See, <https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/JT6GFR>.

*apocalyptic*, or groups with goals unattainable in the physical world and whose attacks seek predominantly to signal. Although my study focuses on IS as an ideal apocalyptic group, apocalypticism is by no means unique to jihadist organizations. The Japanese cult Aum Shinrikyo, the U.S. Jim Jones cult, and other non-jihadist groups adopted violence around notions of an imminent apocalypse (Mayer, 2001). Hubback (1997, p. 2) notes how the “*the language of doomsday religion*” accompanies the rise of millenarian movements like communism, fascism, and Nazism in the early 20<sup>th</sup> century. According to apocalyptic logic, since the world is ending soon, all worldly goals become urgent, justifying the use of brutal methods. The ultimate goal becomes either hastening the End or preparing for it. Nonetheless, considering the hypothesized higher lethality of jihadist groups in general, I expect a group that is both jihadist and apocalyptic to exhibit the highest lethality.

## **Hypotheses**

I hypothesize that jihadist organizations are more lethal than non-jihadist organizations. Even with local jihadist groups, the long-term prospect of jihad is a transnational struggle and jihadists perceive their mission is based on centuries of Islamic theology (Byman, 2015; Gunaratna, 2002; Hoffman, 2017; McCants, 2015). Religious conviction and transnational character entail jihadist goals themselves should be more abstract or couched in an abstract vision. Even in an absence of charismatic leaders, jihadists have a plethora of common texts, symbols, and cultures they can call on to bolster intragroup cohesion and structure their organizations in ways to facilitate its maintenance (Goldberg, 2017). This is evident in the significant flow of foreign fighters into jihadist groups, particularly IS (Barrett, 2017; Byman,

2019). Finally, these common ideological symbols create an affinity among jihadists that facilitates cooperation and sponsorship for their groups.

I propose several scope conditions for my hypothesis. First, fragile states and areas of limited statehood, or areas of less effective government, generally make it easier for armed nonstate actors to operate, in turn allowing terrorist organizations to increase their lethality (Polese & Hanau Santini, 2018; Schnitt, 2015). Groups seeking to kill more would most likely find more success in these less governed spaces. For example, IS and al-Shabaab, two of the most lethal terrorist organizations, operate out of Syria and Iraq and Somalia, respectively, three of the most “fragile states” according to the Fragile States Index (Fund for Peace, n.d.). Second, anocratic (between democratic and autocratic) and autocratic regimes seem to be more prone to suffering terrorist attacks due to their failure to respond to citizen needs and address group grievances (Magen, 2018). For instance, Magen (2018) shows that although terrorist incidents have occurred increasingly between 2002 and 2016, they have occurred at the fastest growing rates in countries with autocratic regimes and less frequently in democratic countries, where surveys reveal a parallel heightened concern by citizens about terrorism. One may then expect terrorist groups to more easily recruit and operate in autocratic countries. I use country fixed effects to capture these variables. Third, groups with higher organizational capital will be better positioned to deploy violence to advance their ideologies (Jackson et al., 2005). I use a battery of organizational controls to capture this condition. I summarize my hypotheses as follows:

H<sub>1</sub>: A group’s espousing a jihadist ideology correlates with higher lethality.

H<sub>2</sub>: Jihadist groups espousing more intense ideologies are more lethal than jihadist groups with less intense ideologies.



## DATA

I use the GTD for my core analysis. The GTD contains over 190,000 incidents since 1970 and includes information on the perpetrators, targets, casualties, and locations of each attack. I use the latest available dataset, covering incidents from 1970 to December 2017 and containing 181,692 incidents. The unit of analysis I use is the terrorist organization. The GTD lists the names of 3,537 unique group names (*gname*). This includes at least 622 generic names for attacks unconnected to organized groups or with unknown connections to them. Particularly concerning are the observations with “unknown” perpetrator groups, as these account for 82,782 incidents. This will almost certainly bias my results since the GTD collects data mostly from media sources, which are less comprehensive in areas where jihadists operate most, namely the Middle East and North Africa. Additionally, I remove all observations for groups that were not active for at least four months in at least two years. I do this because media sources may misattribute attacks or report names of groups that either do not really exist or quickly fail. Also, low activity may indicate considerably inferior organizational or ideological development, lack of attack capabilities, or other traits that may reduce the validity of my lethality and ideology measures. Of 2,915 perpetrator groups, I code 484 as jihadist, almost 17% of non-generic group names. I further narrow this down to 230 organizations that were active for at least four months of at least two years (A.4 in the Appendix). The GTD contains 32,230 terrorist incidents perpetrated by jihadist groups, accounting for about 32% of incidents perpetrated by non-unknown groups. I turn to REVMOD for the numbers of sponsors and ties for each group, variables not included in the GTD. REVMOD contains information on groups that were

operational from 1945 up to 2014. Its unit of analysis is militant organizations rather than attacks.<sup>7</sup>

### **Dependent Variable**

To test the relationship between ideology and lethality, I use an ordinary least squares (OLS) model. The dependent variable is the log of *lethality*, measured as average number of kills per attack per terrorist organization (total number of kills divided by total number of attacks for each organization). This is similar to Olzak's (2016) study, which uses the same measure of lethality to conduct an organization-level analysis of the relationship between ideological category spanning, or amount of various ideological streams within one group, and lethality. Other authors have used raw numbers of kills/casualties or attacks per group (Asal et al., 2015; Danzell & Zidek, 2013; Horowitz & Potter, 2014; Klein, 2016; Nilsson, 2018; Phillips, 2017). I opt for Olzak's definition because theoretically, if a group's ideology demands killing, then one would expect ideologically intense groups to give more attention to causing casualties in each of their attacks. Less intense groups may emphasize more functional objectives, such as seizing weapons or territory, that may incidentally cause casualties, but may not necessarily aim to inflict death. Some groups, such as environmentalist terrorist groups whose attacks mostly aim to damage civilian property, may even avoid killing altogether. One may view an attack as a terrorist organization's primary means of producing violence. I assume what immediate results terrorists hope to achieve by their production of violence is indicative of their intentions, with killing indicating more intense ideological aims. An overall count of fatalities or attacks fails to capture the typical amount of killing groups aim to achieve and may give undue weight to

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<sup>7</sup> See <https://www.revolutionarymilitant.org/>.

outliers. Hence, I expect to see more killing in *each* attack perpetrated by more ideologically intense groups. I use raw numbers of kills, injuries, and attacks for robustness checks.

My measure of lethality comes with its own caveats. Groups that commit smaller numbers of attacks but still manage to kill moderate or large amounts of people may receive undue weight in my analysis because, mathematically, a small number of attacks could inflate lethality. Further, because my method examines average lethality rates, individual attacks resulting in extremely high numbers of deaths, such as the 9/11 attacks, will distort mean death rates. I address these problems by excluding outlier attacks from group lethality calculations and employing a logged lethality variable (see, A.2 in the Appendix).

The unit of analysis is terrorist organization. Studies by Piazza (2009) and Carson and Suppenbach (2018) are most similar to the study I conduct due to their focus on jihadist groups and how their ideologies influence lethality. However, I do not adopt their definitions of lethality due to their disaggregated units of analysis – the terrorist incident – with lethality as the numbers of resulting casualties (killed or wounded) for each incident. This is reasonable for their analyses since average group-level lethality rates (my definition) would remain fixed over time, diminishing the variation necessary for their event-level studies. Aggregated up to the group-level, my study requires a time-invariant measure: either total casualty numbers or average rates. I choose the latter. Another reason I use terrorist organization as the unit of analysis is ideology remains relatively fixed by group over time. In fact, this addresses a shortcoming in using ideology variables in event-level, time-varying studies, namely that associating incident-level observations with fixed ideology indicators is theoretically unreasonable due to the time-fixedness of ideology *by group*, not event. While this is not a concern for my study, it remains relevant for Piazza, Carson, Suppenbach, and others who conduct similar event-level studies.

## Core Independent Variable

*Jihadist* is my core independent variable. It is a binary measure indicating whether a group espouses a jihadist ideology. I code this variable based on my above definition of jihadism for every terrorist organization listed in the GTD under the *gname* variable. I use multiple sources to construct my *jihadist* variable, including the Stanford Center for International Security and Cooperation, TRAC, Middle East Forum, and various media sources. I also reference the coding of REVMOD, GTD, and Piazza (2009). Due to the difficulties of coding a scale measure for ideological intensity, I use *jihadist* because of the theoretical tendency of jihadist groups to have greater levels of lethality. As aforementioned, jihadist groups generally pursue more abstract goals, benefit from strong intragroup cohesion, and enjoy support via ideological affinity with like-minded external entities. Hence, because jihadist groups are generally more ideologically intense than non-jihadist ones, I use the *jihadist* variable to test the impact of ideological intensity on lethality.

I further analyze variations in lethality among jihadist groups. I code a five-point ordinal variable, *jihadintense*, gauging intensity within the subsample of jihadist organizations (zero represents non-jihadist groups). Each point corresponds, in order of intensity, to my theoretical articulations of local, revolutionary, caliphal, and apocalyptic jihadist groups (see, Table 1). I expect local jihadist groups to be least ideologically intense among the four types because their localized focus entails more tangible goals, functional means to achieve them, and less opportunity for cooperation/external sponsorship. See below a full summary of my coding for subcategories of jihadist ideology.

**Table 1. Typology of Variations in Jihadist Ideologies**

Code	Ideology	Explanation	Example(s)
0	Non-Jihadist	Groups espouse an ideology unrelated to jihadism (e.g. communism, Maoism, anarchism).	Shining Path; Tamil Tigers; Irish Republican Army
1	Local	Groups seek to topple “corrupt” regimes and replace them with Islamic law.	Hamas; Ahrar ash-Sham
2	Revolutionary	Groups seek to spread the Islamic Revolution of Iran.	Hezbollah; Asaib Ahl al-Haq
3	Caliphal	Groups aim to build up forces to capture land and form an Islamic empire governed by sharia.	Al-Qaeda
4	Apocalyptic	Groups seek to prepare the world for the apocalypse by establishing an Islamic empire.	Islamic State

### Controls and Model

I consider a number of controls to include other variables plausibly associated with both *jihadist* and *lethality*. Organization-level controls include age, network ties, state sponsorship, number of transnational attacks, and whether a group uses suicide bombing. Jihadist groups may be stronger because of their particular organizational and support structures, leading to higher lethality. At the same time, stronger organizations may live longer and, therefore, have more opportunities to accumulate skill and increase their lethality. I calculate *age* as the difference between the years of a group’s latest and earliest attacks. Groups with ties to other organizations

may be able to increase their lethality through cooperation while it is reasonable to expect that like-minded groups are more likely to have ties with one another than groups with disparate ideologies. I use REVMOD data for my *ties* variable. State sponsorship can give groups access to better weapons and funding, enabling greater lethality, and state sponsors may choose to provide greater support to groups with which they share ideological affinity. I use REVMOD data for my *sponsors* variable. Groups that choose to adopt suicide bombing must justify its use ideologically, implying an association of suicide bombing with certain types of ideologies. My *suicide* variable equals “1” for groups that have committed at least one suicide attack per the GTD and “0” for those that have not. Klein (2016) argues groups that conduct transnational attacks have more liberty to act and kill since they are less concerned with impressing a local audience. To account for this, I employ the control *intas*, defined as the number of transnational attacks an organization conducts per the GTD. Finally, I use country fixed effects to account for factors affecting lethality pertaining to an organization’s most targeted country.<sup>8</sup> Overall, I produce the following basic model for my empirical analysis:

$$lethality_i = \alpha + \beta_1 jihadist_i + \beta_2 age_i + \beta_3 sponsors_i + \beta_4 ties_i + \beta_5 suicide_i + \beta_6 intas_i + \beta_7 country_i + \epsilon_i$$

whereby *lethality<sub>i</sub>* is the number of fatalities per attack of a group/group-year, *jihadist<sub>i</sub>* is a binary measure indicating whether a group espouses a jihadist ideology, *age<sub>i</sub>* is the age of a group in years, *sponsors<sub>i</sub>* is the number of state sponsors a group has, *ties<sub>i</sub>* is the number of ties a group has with other organizations, *suicide<sub>i</sub>* is whether a group has performed at least one suicide attack, *intas<sub>i</sub>* is the number of transnational attacks a group has conducted, and *country<sub>i</sub>* represents country fixed effects.

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<sup>8</sup> For example, a number of studies find links between regime type and terrorist lethality (Gaibullov et al., 2017; Magen, 2018; Wade & Reiter, 2007; Wilson & Piazza, 2013).

## EMPIRICAL ANALYSIS

### Method

I employ ordinary least squares (OLS) regressions in my main analysis of the relationship between ideology and lethality. Due to the large number of terrorist attacks that fail to produce any casualties, the distribution of terrorist lethality is heavily right-skewed, with over 50% of attacks since 1970 resulting in no fatalities and 95% in less than 10. Indeed, only less than 0.5% of attacks kill more than 50 people. Thus, using raw lethality rates would bias my results and leave my outcome variable with low variation. To suit this distribution to linear regression, I calculate the natural log of each group's lethality rate to produce the main dependent variable for my analysis. The resulting increased variation facilitates linear regression (see, A.2 in the Appendix). For further analysis and robustness tests, I calculate the natural logs of each group's total kills, injuries, casualties (kills and injuries combined), and attacks. I run my model with these alternative measures of lethality. Finally, I use the raw numbers of lethality, kills, injuries, casualties, and attacks in a negative binomial regression as an additional robustness test and to echo similar previous studies that used this method (Carson & Suppenbach, 2018; Piazza, 2009).

### Findings

My results reveal support for my hypothesis. Across my initial tests (Table 2), jihadist groups have a statistically significant higher lethality than non-jihadist groups. This holds at the 1% level for a simple regression without country fixed effects, a simple regression with country fixed effects, and a regression with controls for age, transnational attacks, ties, and sponsors. In a regression with these controls as well as country fixed effects, jihadist remains significant at the

5% level. Overall, jihadist groups are approximately 41%-77% more lethal than non-jihadist groups.

Only the ties and sponsors variables also have statistically significant coefficients in one of the models. Number of ties is significant at a 10% level in Model 4, yet is estimated to associate with only about a 1.4% increase in lethality for each additional group tie. While this may imply high levels of lethality for very well-connected groups, most organizations have less than six ties, meaning ties has little impact, if any at all, on lethality. Nonetheless, the number of sponsors is both practically significant and statistically significant at a 1% level. With each additional state sponsor correlating with an approximately 10% increase in lethality, this variable may account for considerable jumps in lethality. This is plausible since states may provide considerable aid to groups that can increase lethality, as with Iran's provision of \$700 million annually to Hezbollah (Mohsin, 2018). Still, 95% of sampled groups have less than four sponsors. Hence, while sponsors may serve as force multipliers for terrorist lethality, ideology is a more primary determinant of lethality.



**Table 2. The Relationship Between an Organization’s Lethality and Being Jihadist**

	Model 1	Model 2	Model 3	Model 4
Jihadist	0.688***	0.494***	0.768***	0.405**
	-0.0848	-0.117	-0.107	-0.173
Age			-0.0024	-0.00413
			-0.00362	-0.00387
Transnational Attacks			-0.000285	0.000164
			-0.000756	-0.000584
Ties			0.00515	0.0140*
			-0.00867	-0.008
Sponsors			0.1000***	-0.029
			-0.0342	-0.0466
Constant	0.833***	1.349***	0.669***	1.318***
	-0.0545	-0.294	-0.0918	-0.326
Country FE	No	Yes	No	Yes
Observations	230	230	163	163
R-squared	0.192	0.712	0.281	0.766

Note: Robust standard errors below coefficients

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

Whether a group conducts suicide attacks accounts for much of the higher lethality of jihadist groups. In my two models including the suicide attacks variable (Table 3), it remains consistently significant, with its coefficient even rising from 36.2% to 43.3% when including country fixed effects. This is particularly striking because being a jihadist group is no longer statistically significant in Model 2 of Table 3. Although the sponsors variable remains significant, it is less so than in my initial tests and is over 1 percentage point less impactful on lethality. As almost 70% of sampled groups that use suicide terrorism are jihadist, this suggests suicide bombing largely explains jihadist organizations’ relatively higher lethality.

**Table 3. Baseline Model with Control for Suicide Attacks**

	Model 1	Model 2
Jihadist	0.532***	0.168
	-0.132	-0.178
Suicide	0.362**	0.433***
	-0.152	-0.157
Age	-0.00262	-0.00423
	-0.00362	-0.00356
Transnational Attacks	-0.000453	-3.86E-05
	-0.000752	-0.000549
Ties	-0.00178	0.00821
	-0.0112	-0.00957
Sponsors	0.0882**	-0.038
	-0.0379	-0.046
Constant	0.683***	1.240***
	-0.0904	-0.328
Country FE	No	Yes
Observations	163	163
R-squared	0.303	0.784

Robust standard errors below coefficients

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

The impact of suicide attacks becomes more apparent when examining alternative measures for lethality. I calculate lethality by taking the natural log of raw numbers of total casualties, kills, injuries, and attacks rather than kills per attack for every sampled organization (Table 4). Across all measures except total attacks, the coefficient on my suicide attack variable remains statistically significant at least at a 5% level. Moreover, groups that use suicide terrorism kill and wound over 100% more than do groups that do not use it. Despite the statistical significance of transnational attacks, age, and ties across models, their impact on lethality is no more than a mere 5.5% at best. Thus, these models show suicide bombing as a robust indicator of terrorist lethality in general and jihadist lethality in particular.

The total attacks measure refines understanding of jihadist lethality by suggesting jihadist effectiveness derives from attack efficiency rather than volume. Significant at a 10% level, the jihadist coefficient predicting total attacks suggests jihadist groups perform almost 80% fewer attacks than non-jihadist groups. However, my prior analysis, as well as the consistent robustness of the suicide attacks variable, suggest jihadist groups still do kill more than non-jihadist ones in raw numbers. Therefore, jihadist lethality most likely derives more from higher casualty attacks than from a higher volume of attacks. This also suggests my main measure of lethality most accurately measures jihadist lethality since it gives weight to fatalities per attack.

**Table 4. Baseline Model with Alternative Measures for Lethality**

	log(Casualties)	log(Kills)	log(Wounded)	log(Attacks)
Jihadist	-0.74	-0.468	-0.863	-0.793*
	-0.547	-0.528	-0.575	-0.406
Suicide	1.166***	1.043**	1.352***	0.378
	-0.435	-0.414	-0.476	-0.356
Age	0.0254*	0.0301**	0.0252*	0.0348***
	-0.0131	-0.0138	-0.0133	-0.00837
Transnational Attacks	0.0112***	0.0101***	0.0119***	0.0110***
	-0.00198	-0.00233	-0.00186	-0.00192
Ties	0.0549**	0.0449	0.0551**	0.0224
	-0.0258	-0.0341	-0.0277	-0.0316
Sponsors	-0.0938	-0.067	-0.0491	-0.0352
	-0.114	-0.126	-0.121	-0.0926
Constant	6.766***	5.241***	6.195***	4.823***
	-1.053	-1.249	-1.009	-1.061
Country FE	Yes	Yes	Yes	Yes
Observations	163	163	163	163
R-squared	0.768	0.766	0.754	0.651

Robust standard errors below coefficients

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

## Robustness

Although the prior models support the robustness of my measures for ideology and suicide attacks as determinants of lethality, I perform two more tests to further assess robustness. First, I conduct an additional test at the organization-year level with an alternative categorical measure for ideology and my original measure of lethality as the dependent variable (Table 5). I code variations in ideology using the 5-point scale that I present in my data section, with zero indicating non-jihadist groups. The *jihadist intensity* variable captures this variation. I examine temporal variation because I define some organizations as changing their ideologies over time. I base this coding on whether a group pledges allegiance to a group with a different ideology from its own. For example, a local group that pledges allegiance to IS will change from a local to an apocalyptic organization and rise on the intensity score from 1 to 4. Exploiting variation at the organization-year level, my sample size increases to 2,185.

This test reveals the usefulness of my alternative ideology measure and supports the robustness of my ideology and suicide variables. In fact, unlike in Table 3, my ideology measure remains statistically significant (at a 1% level) when accounting for country fixed effects. Whether an organization conducts suicide attacks retains its statistical significance. Age is also statistically significant at a 1% level, but is associated with a small effect. Number of sponsors remains significant at a 1% level without country fixed effects, but with a smaller associated effect than in Table 3. Hence, my ideology and suicide variables remain statistically significant and show lower p-values even with more controls in Model 2 of Table 5.

**Table 5. Model for Variations in Jihadist Ideologies and Lethality**

	Model 1	Model 2
Jihadist Intensity	0.215***	0.0835***
	-0.0239	-0.0323
Suicide	0.274***	0.262***
	-0.0528	-0.0592
Age	-0.00905***	-0.0126***
	-0.00143	-0.00143
Transnational Attacks	-0.00166	-0.000317
	-0.00189	-0.00165
Ties	-0.00287	0.00808
	-0.00407	-0.0052
Sponsors	0.0533***	-0.00419
	-0.013	-0.0192
Constant	0.709***	1.013***
	-0.0305	-0.146
Country FE	No	Yes
Observations	2,185	2,185
R-squared	0.15	0.378

Robust standard errors below coefficients

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

In Table 6, I run my baseline model (Table 4) again as negative binomial regressions. Due to the highly zero-inflated distribution of casualties from terrorist attacks since 1970, authors researching terrorism have used count models to minimize bias in their results (Carson & Suppenbach, 2018; Horowitz & Potter, 2014; Nilsson, 2018; Phillips, 2017; Piazza, 2009). By using linear regression with logged dependent variables, I have opted for an alternative measure. I run negative binomial regressions using the raw numbers, as opposed to logged values, to see how my results fare with this more traditional method.

The tests yield similarly and sometimes more significant results. The coefficient on jihadist groups remains significant with my original measure of lethality, as well as with the total

attacks measure, and becomes significant at a 10% level with number of wounded. The suicide variable remains significant in all measures except number of attacks, further suggesting jihadist groups, via their affinity for suicide bombing, conduct more efficient attacks rather than a higher volume of attacks. While the age, transnational attacks, and ties variables return some significant coefficients at various levels, their associated impacts remain relatively small, and number of sponsors loses any significance. This is further evidence for the importance of ideology and suicide tactics in determining terrorist organization lethality. It also bolsters the claim that jihadist groups' higher lethality derives largely from higher casualty attacks rather than volume of attacks. Moreover, the significance of the jihadist coefficient for number of wounded suggests jihadist groups on average injure less people than non-jihadist groups, implying in turn that jihadist attacks may have a significantly higher kills-wounded ratio (favoring kills). This adds an additional layer to jihadist lethality: jihadist attacks are more lethal in that they kill more and wound less than non-jihadist attacks. Overall, these additional tests confirm the robustness of my ideology, suicide, and lethality variables, support my hypothesis, and illuminate several dimensions of jihadist lethality.

**Table 6. Negative Binomial Regressions with Baseline Model**

	Lethality	Casualties	Kills	Wounded	Attacks
Jihadist	0.464**	-0.781	-0.551	-0.982*	-0.848**
	-0.209	-0.543	-0.545	-0.555	-0.399
Suicide	0.549***	1.020***	0.709*	1.325***	0.0369
	-0.187	-0.378	-0.415	-0.384	-0.332
Age	-0.0145**	0.0257**	0.0360**	0.0194	0.0336***
	-0.00573	-0.0118	-0.0154	-0.012	-0.00829
Transnational Attacks	-0.00103	0.0101***	0.00952***	0.0105***	0.0107***
	-0.000755	-0.0015	-0.00201	-0.00146	-0.00153
Ties	0.0171***	0.0654**	0.0614	0.0708***	0.0637*
	-0.00631	-0.0263	-0.0382	-0.0234	-0.0335
Sponsors	-0.0331	-0.109	-0.0779	-0.125	-0.113
	-0.0512	-0.0861	-0.0967	-0.0839	-0.0757
Constant	0.784**	7.539***	6.653***	6.881***	6.141***
	-0.34	-0.634	-0.678	-0.612	-0.69
Country FE	Yes	Yes	Yes	Yes	Yes
Observations	163	163	163	163	163

Robust standard errors below coefficients

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

### Limitations

My study has a number of limitations. First, data availability is a notable problem for any study on terrorist groups (Chermak et al., 2012; Sheehan, 2012). Unlike many nonviolent groups, these organizations' illegal nature implies they have a vested interest in keeping their activities secret and distorting any information they do release. The better data there is available on terrorist groups, the easier it will be for counterterrorism forces to fight them. Thus, any information terrorist organizations release themselves is unreliable and all available data comes from external sources. This is particularly a problem for the GTD, which collects almost all of its data from media sources. Such sources may carry bias as to which attacks they report (Adams, 2018). Further, terrorist groups themselves often seek media coverage of their attacks,

introducing the possibility different characteristics of an attack, such as weapon used or success vs. failure, might influence whether an attack receives coverage (Marin, 2011). Finally, different media outlets may have varying degrees of access to certain attack sites, possibly causing underreporting or lack of reporting (Arva & Beielser, 2014).

While this remains a potential challenge to statistical inference and analysis of terrorism patterns, it is interesting that my results support my hypothesis despite the presence of a possible media bias. My coding of the jihadist variable indicates jihadist groups are concentrated in the Middle East, Southwest Asia, and Africa, regions with a high number of fragile states<sup>9</sup> and low levels of press freedom.<sup>10</sup> Thus, one would expect underreporting in these areas, biasing results downward. Despite this observation, my results support my hypothesis, suggesting the data availability problem is only underestimating my point estimates, not inflating them. This may even indicate further support for my hypothesis.

Second, the amount of unknown information on recorded terrorist incidents, particularly unknown perpetrators, presents another challenge. Approximately 45.6% of GTD incidents have unknown perpetrator groups. If these missing events are not randomly distributed, this large portion of unknown perpetrators is most likely a source of bias for my study. There is evidence they are, indeed, not randomly distributed (Arva & Beielser, 2014). Nonetheless, this problem is closely tied to the data availability issue; there is most likely more unknown information in places where press coverage is weaker. Hence, if this is biasing my results, it is reasonable to infer that it is only leading to lower point estimates rather than inflated coefficients.

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<sup>9</sup> See, Fragile States Index, <https://fragilestatesindex.org/>

<sup>10</sup> See, Press Freedom Index, <https://rsf.org/en/ranking>



Third, it is difficult to measure unobservable factors possibly related to ideology and lethality, though this only testifies to my contention that we need to better understand the less tangible aspects of terrorist lethality. Organizational capital and cohesion are notable as confounding variables. Quantifying the former with sufficient accuracy would require aggregation or observation of perhaps many factors on which there is little data available. Age, size, and political access, which are somewhat accessible, comprise only three features in a myriad of far less available information, including funding, recruitment rates, military capabilities, numbers and types of weapons, morale, and strength of strategic, operational, and tactical leadership. Cohesion is perhaps more difficult to measure, plausibly requiring knowledge of organizational culture, strength of ties among individual members, and measures of rank-and-file ideological commitment. Future projects should collect this information to improve models of terrorist lethality. Acosta's (2019) measure for "political command," or the extent of an organization's involvement in a political system, is one positive step forward.

Fourth, my independent variable raises questions of variation and sample size. The coding for my ideology variable is fairly limited: a binary variable in the first and third models and a 5-point categorical variable in the second. Also, I conceive of ideology as predominantly time-invariant, with some variation only in my second model. This limits my level of analysis in my first model to the organization level. The greater variation in my second model enables organization-year samples. Consequently, my first model uses a smaller sample size and all models have sufficient, but lower variation than is ideal for statistical analysis. To address these problems, I employ a group-year sample robustness test (Table 4), which yields similar results. Still, future projects may conceive of ideology variables with more time variation to facilitate higher resolution analysis.

Finally, there may be other more accurate operationalizations of ideology my model does not capture. To measure ideology, I use binary and ordinal variables based on the relatively higher lethality of jihadist groups. A scale variable would be ideal for regression analysis, but it remains difficult to produce for a measure of ideology. Even my ordinal measure constitutes a novel shift from the more commonly used binary variables for different ideological categories. While this is a step forward, ideology variables remain relatively crude measures that cannot accurately account for higher resolution variability. Alternative measures may assign ideologies to individual attacks or even perpetrators, allowing for much more precise study of ideology. A scale measure of ideology would be a great boon to such studies, but challenges remain in defining criteria. For example, abstractness of goals may be a criterion, albeit also a difficult one to quantify, though perhaps a better measure would be an index of goals, cohesion, and affinity. While my coding for ideology is a novel step forward, future research on ideology should consider these alternative measures.

## **CONCLUSION**

The persistent increase in terrorism over the past decades presents a puzzle for scholars and policymakers. Jihadist terrorist groups in particular have endured through confrontation with military forces, other nonstate actors, and rapidly changing circumstances, with IS even taking over sizable territories. Material factors like size, age, and weapons cannot alone explain their perseverance; intangible factors, especially ideology likely fill this gap. Indeed, my analysis shows jihadist groups are more lethal than non-jihadist ones, and that the jihadist attachment to suicide attacks largely drives this higher lethality. Data compiled from the GTD and REVMOD

confirm my conclusions. I find support for my hypothesis in group-level and group-year-level samples, as well as tests using different measures of ideology and lethality and regressions.

My study has a number of implications for policy. First, this study confirms the higher lethality of suicide attacks as opposed to other terrorist tactics. This also seems to at least partially account for the relatively higher lethality of jihadist groups. This suggests that, even as terrorism continues to evolve and become more complex, suicide tactics remain its deadliest feature and policymakers should develop better responses and preventive measures. There are a number of areas where they may tackle suicide attacks since such attacks require extensive planning, technical expertise, and human capital, leaving more opportunity for counterterrorism forces to disrupt them. Likewise, intelligence gathering remains crucial to preventing, foiling, and defeating suicide attacks. Second, because jihadist groups are more efficient attackers, counterterrorism forces should put more emphasis on preventing rather than defeating attacks. While the latter will remain important for reducing the impact of attacks, jihadist groups have proven more capable than others of producing larger numbers of fatalities for each of their attacks. Because a jihadist attack is more likely to produce casualties even against a strong response, counterterrorism policy should put particular emphasis on preventing them before they can reach the execution stage.

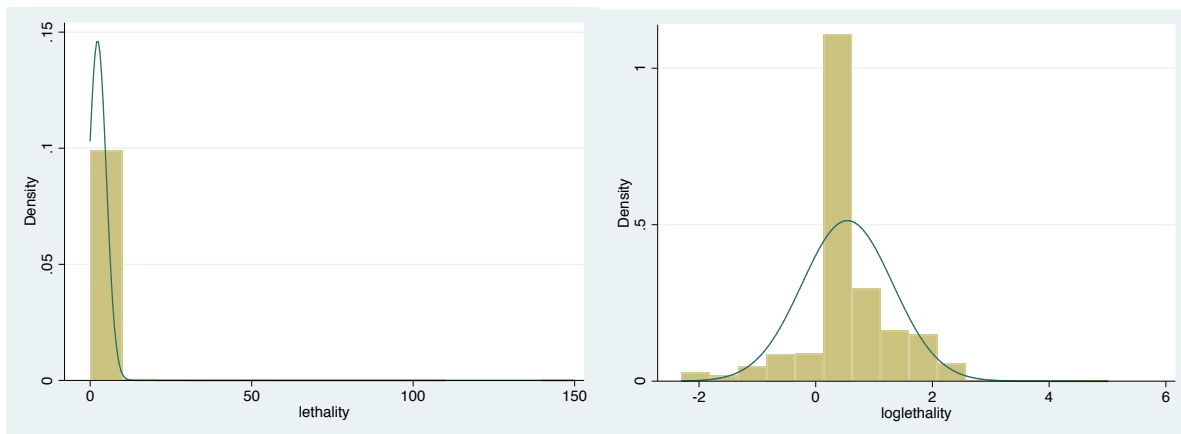
Policymakers and scholars should start looking more at intangible factors to understand terrorist lethality. Years of military campaigns, while proving successful in degrading some terrorist groups, have failed to defeat major organizations and not stopped terrorism from only growing as a phenomenon. Clearly, efforts to defeat terrorist organizations by attacking their material assets have fallen short. A new approach, of driving at the internal cohesion, bonds between, and ethos of groups, may be the answer. This will not be as easy as bombing hideouts

and eliminating group leaders. We now must invest in learning more about the trends that have formed these groups' identities, memberships, and ideologies (Goldberg, 2017; McCants, 2015; Wood, 2015). We must not mistake these groups for simple fringe lunatics, but rather recognize them as products of the societies and cultures they draw from, even if they are twisted reflections. Hammering harder will not lead to more desirable outcomes. Now is the time to try to understand terrorist groups in their own terms so we may fight them on ours.

## APPENDIX: DESCRIPTIVE STATISTICS

**Table A.1. Ten Highest Killers in the GTD**  
Five, including the top three, are jihadist groups.

Group Name	Total Kills	Total Attacks	Lethality
Islamic State of Iraq and the Levant (ISIL)	38923	5613	6.9
Taliban	29410	7478	3.9
Boko Haram	20328	2418	8.4
Shining Path (SL)	11601	4555	2.5
Liberation Tigers of Tamil Eelam (LTTE)	10989	1606	6.8
Al-Shabaab	9330	3288	2.8
Farabundo Marti National Liberation Front (FMLN)	8065	3351	2.4
Nicaraguan Democratic Force (FDN)	6662	895	7.4
Tehrik-i-Taliban Pakistan (TTP)	6042	1351	4.5
Revolutionary Armed Forces of Colombia (FARC)	5661	2487	2.3



**Table A.2. Distributions of Lethality and the Log of Lethality**  
Left: the distribution of lethality; right: the distribution of the log of lethality.

**Table A.3. Frequency of Attacks Associated with Jihadist Groups**  
Missing values represent attacks associated with generic names/unknown perpetrators.

Jihadist Attack?	Freq.	Percent	Cum.
0	55557	30.58	30.58
1	32230	17.74	48.32
.	93904	51.68	100.00
n=181692			

**Table A.4. Frequency of Jihadist Groups in Final Sample**

Jihadist Group?	Freq.	Percent	Cum.
0	161	70.00	70.00
1	69	30.00	100.00
n=230			

**Table A.5. Frequency of Jihadist Groups with Data for all Variables of Interest**

Jihadist Group?	Freq.	Percent	Cum.
0	122	74.85	74.85
1	41	25.15	100.00
n=163			

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