

The Nature of the Beast: Organizational Structures and the Lethality of Terrorist Attacks

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Why are some terrorist organizations so much more deadly than others? This article examines organizational characteristics such as ideology, size, age, state sponsorship, alliance connections, and control of territory while controlling for factors that may also influence lethality, including the political system and relative wealth of the country in which the organization is based. Using data from the Memorial Institute for the Prevention of Terrorism's Terrorism Knowledge Base (TKB), we use a negative binomial model of organizational lethality, finding that organizational size, ideology, territorial control, and connectedness are important predictors of lethality while state sponsorship, organizational age, and host country characteristics are not.

Why are some terrorist organizations so much more lethal than others? Of the 395 clearly identified terrorists organizations operating throughout the world from 1998 to 2005, only 68 have killed 10 or more people during that period (MIPT 2006). Indeed, only 28 have killed more than 100 people. What factors can account for this dramatic difference in organizational lethality?¹ Our key theoretical interest is in the effect of organizational ideology, size (as measured by membership), territorial control, age, and “connectedness” on lethality. Our central claim is that organizational lethality may be linked to three independent factors: what we term “audience,” “othering,” and capabilities. Audience refers to the groups or deities that the organization is trying to impress. Othering refers to the process of clearly articulating groups and individuals that have a lesser moral or ethical status than members of the terrorist organization and the racial, ethnic, geographic, or language group they purport to represent. Capabilities refer to material and informational resources that a group may deploy to engage in lethal violence. Though we cannot directly measure arsenals and bank accounts, we use proxies—size, age, territorial control, and organizational alliance

connections—to operationalize concepts drawn from the social movements literature.

We test hypotheses drawn from this literature using data from the Memorial Institute for the Prevention of Terrorism's (MIPT) Terrorism Knowledge Base. MIPT provides the only publicly available dataset of domestic *and* international terrorism that is comprehensive and global. The dataset is complete for the years 1998–2005, which will be the focus of this study. To facilitate our analysis we adopted MIPT's definition of terrorism as it applies to nonstate actors: “Terrorism is violence, or the threat of violence, calculated to create an atmosphere of fear and alarm. These acts are designed to coerce others into actions they would not otherwise undertake, or refrain from actions they desired to take (MIPT 2006).”² In addition we draw on data from Polity IV (Marshall and Jaggers 2003), the Correlates of War Project (Correlates of War II 2004; Singer 1987), the Monterey Terrorism Research and Education Program at the Monterey Institute of International Studies Group Characteristics Database (Ackerman 2006), and our own extensive coding efforts to extend, improve, and update the MIPT data. Unlike previous efforts, this dataset allows us to simultaneously model domestic

¹Lethality could be considered a metric of a terrorist organization's “success.” We are not making that argument here. For some organizations, killing is not a valued activity—in fact, it is actively avoided. We are seeking to study those factors that make organizations likely to kill.

²For MIPT's full definition, please see the Terrorism Knowledgebase Glossary at <http://www.tkb.org/Glossary.jsp>.

and international terrorist organizations with global scope.

As is true of much quantitative research on terrorism, there are important temporal and data constraints with this study, especially given the cross-sectional design, eight-year span, and number of unclaimed attacks. However, we believe that this is the best data available and is worthy of investigation. Due to these constraints, we are not arguing that the organizations analyzed here were lethal in the past nor are we arguing that they will necessarily stay on the same trajectory into the future (though we believe some factors have enduring importance). Instead, we are attempting to identify those factors that make a terrorist organization more or less lethal over the period 1998–2005.

Why Are Some Terrorist Organizations More Lethal Than Others?

One of the most prevalent arguments made about the differing lethality of terrorist organizations relates to the ideology of the organization. Ideology is important because as Drake says about targeting, “it sets out the moral framework within which [organizations] operate” (1998, 53). Several researchers have argued that “New Terrorism” organizations are more lethal because their ideologies are more permissive of violent and deadly acts (Hoffman 1998; Laqueur 1998, 1999, 2004; Lesser et al. 1999; Simon and Benjamin 2000, 2001, 2002).

Instead of focusing on whether the terrorism is “new” or “old,” we argue that there are two characteristics of any particular ideology that make it more or less deadly than others: the ideology’s audience and the ideology’s capacity to clearly and cleanly define an “other.” As Crenshaw points out “terrorist ideology, no matter how unrealistic, must be taken seriously as a guide to intentions. Coupled with analysis of capabilities it provides a basis for expectations” (1988, 15). Gressang IV (2001) argues that some terrorists are more deadly because they are addressing their acts of violence to a supernatural audience—God. As Hoffman argues:

For the religious terrorist, violence is a sacramental act or divine duty, executed in direct response to some theological demand or imperative and justified by scripture. Religion therefore functions as a legitimizing force, specifically sanctioning wide-scale violence against an almost open-ended category of opponents (1999, VII)

Conversely, other ideologies—be they leftist, anarchists, communist, etc.—address an earthly audience (Gressang IV 2001) and are not motivated by the

same broad hatred and permissive morality characteristic of some religious organizations (Laqueur 1999). Simon and Benjamin explain the reasoning for this restraint on the part of ethnonationalists and leftist organizations by arguing that:

The phenomenon of the new terrorism differs fundamentally from the more familiar politically motivated terrorism. Except in insurgencies and civil wars, groups with nationalist or social-revolutionary objectives . . . calculate that indiscriminate violence would undercut their claims to legitimacy and alienate potential sympathizers. . . . By avoiding egregious bloodshed, group leaders preserve their eligibility for a place at the bargaining table and, ultimately, a role in successor governments. . . . State sponsors have typically wanted their acts of terror to achieve a similar effect and have calibrated these acts to avoid retaliation or war. (2001, 5)

Choice of audience does not fully explain other patterns noted in the literature. Scholars who have studied suicide terrorism suggest that ethnonationalists caught in long-lasting struggles can be just as indiscriminately violent as organizations motivated by religious fervor (Bloom 2003, 2004, 2005; Pape 2003, 2005; Pedahzur, Perliger, and Weinberg 2003).³ We argue that another ideological component is the “othering” of the general population. If members of the general population are viewed as potential converts to the cause—as is true in many leftist and some religious ideologies—then the organization will have an incentive to be discriminate in its killing. If there is a clear dividing line between members and “others”—as there is in ethnic and some religious conflicts—then ideologically there is no reason to discriminate when killing (Juergensmeyer 2003). This boundary with the “other” (Tilly 2003, 21) allows for viewing all “on the other side” as legitimate targets. Killing more of the other is usually better. Killing generates publicity for the cause, which may facilitate recruiting and resource generation; it highlights organizational effectiveness; and it puts the government on notice that the organization is serious about its demands. Additionally, mass killing of the other can serve as a “boundary activation” (Tilly 2003, 21) process for the

³This perspective is at odds with the emerging consensus in social psychology on ingroup and outgroup preferences. Contrary to Sumner’s (1906) original contention, most recent research finds that ingroup preference does not reliably lead to outgroup disdain or hatred (see Brewer 1999). However, few studies have analyzed this question with respect to ingroup and outgroup preferences in the context of protracted violent conflict. The major exception—Duckitt and Mphuthing (1998)—found evidence for outgroup hostility among Black South Africans toward only those whites possessing economic and political power—the Afrikaners. This finding is consonant with the LeVine and Campbell (1972) and Sherif and Sherif (1953) work.

TABLE 1 Audience and Othering

	Strong Othering	Weak Othering
Supernatural audience	Religions – especially those correlated with ethnicity	Religions and cults without clear ethnic affiliations
Terrestrial audience	Ethnonationalism	Leftist Rightist Environmentalism Anti-globalization Communism Anarchism

terrorist's chosen constituency that has not yet "seen the light." If this view is correct then organizations that have religious or ethnonationalist motivations are likely to be more lethal than organizations that lack a religious or ethnic component to their ideology. Combining these two concepts suggests the following typology (see Table 1).

While many religions are focused on conversion and thus might be less prone to othering (like organizations motivated by leftist ideologies for example), we agree with Juergensmeyer's argument that within the context of long-term violence and grievance, religion can build a powerful sense of being involved in a "cosmic war" (2003, 149) where the othering of the enemy is powerfully enforced. Since our data is restricted to organizations that have already chosen violence we believe that religious ideologies in this context will move organizations in the direction of such othering. Pushed by distinct types of differences that can complement each other, the confluence of ethnonationalism and religion will heighten the othering effect. This discussion leads to the following hypothesis:

H1: Holding all else constant: The most lethal terrorist organizations are those motivated by both religion *and* ethnonationalism. Religiously motivated organizations are the second most lethal, followed by those motivated by ethnonationalism, followed by all other ideologies.⁴

While the terrorism literature has focused on ideology as a key factor in lethality, scholars of social movements have emphasized others. One school of thought underlines the importance of resources for the behav-

ior and success of organizations. Movements that are able to mobilize resources are more likely to emerge and "succeed" (McCammon et al. 2001; McCarthy and Zald 1977). Alimi in his study of insurgencies notes that "... resource mobilization proponents focus on leadership, strategy, organizational characteristics, and members' commitment as major determinants of collective action... instrumental [to] the achievement of political goals" (2003, 117). Boyns and Ballard (2004) point out that resource constraints affect terrorist movements as well, while Enders and Sandler (2004) make the straightforward point that organizations with more resources are able to engage in larger attacks more often.

There are obviously many types of resources that help to determine the lethality of a terrorist organization, including financial assets, technical expertise, and access to restricted places, materials, and knowledge. However, we—like Boyns and Ballard (2004, 14)—argue that "human capital" is essential. It is the talent, expertise, and social connections (Bienenstock and Sageman 2005) of individuals involved in the organization that allow it to be successful at gathering other resources that are needed to kill. In the absence of detailed knowledge about the members of a group, we believe a useful proxy is the estimated size of the organization's membership. The larger an organization becomes, the more likely that its membership includes individuals (a) skilled at the methods of death and destruction, (b) capable of raising and managing money, and (c) possessed of access to restricted information, places, and materials. In short, bigger organizations should be more capable.

However, this argument is not universally accepted. There is a counterargument in the terrorism literature which suggests that New Terrorism organizations—which are often infused with ideologies that are exclusive and supernaturally oriented—are likely to be smaller and more exclusive (Laqueur 1999, 5, 9). Oots

⁴Some scholars hypothesize that extremist Islamic ideologies—but especially those that have accepted the potent but canonically questionable concept of jihad-as-holy war—motivate the most lethal organizations (Johnson and Russell 2005; Quillen 2002; Zimmerman 2004). Our data, though, had too few non-Islamic religious groups to sustain a credible statistical test.

argues that small- or medium-sized groups are likely to be deadlier in particular attacks because maintaining large coalitions and organizational structures is particularly challenging and resource intensive (1986, 49). These arguments may confound the ideology effects we outlined before with the size effects we separately discuss here. When both are properly controlled we hypothesize that size will be positively correlated with lethality:

H2: Organizations with larger memberships are likely to be more lethal.

A related resource argument addresses the question of state sponsorship. Much of the terrorism literature argues that lethality is highly correlated with all forms of external support but especially state support (Byman 2005, 49; Quillen 2002, 285). State support is sometimes viewed as having a “force multiplying effect” (Hoffman 1999, 15). States allow organizations to become more lethal because “. . . states can provide levels of firepower, funding, training and intelligence far beyond the scope of substate groups [as well as] safe havens and bases” (Wilkinson 2000, 64). However, as Simon and Benjamin (2001, 5) suggest, state sponsors may restrain the lethality of their proxies in order to avoid retaliation. On balance, however, we hypothesize that the resource effect will outweigh the “state restraint” effect:

H3: Organizations with state support are likely to be more lethal.

The terrorist literature has also argued that organizational age is an important factor in lethality and effectiveness. Age allows for learning and adaptation to counterterrorism practices that can make organizations more deadly—if they have the resources to survive sufficiently long. As Hoffman argues:

An almost Darwinian principle of natural selection . . . seems to affect terrorist organizations, whereby every new terrorist generation learns from its predecessors . . . Terrorists often analyze the mistakes made by former comrades who have been killed or apprehended. (1999, 25)

Organizational scholars have long noted this phenomenon in the general population of for-profit, nonprofit, and public organizations (Hannan and Freeman 1989). While the New Terrorism literature suggests that newer organizations motivated by religion may be more deadly, older organizations may have the resources and knowledge necessary to be deadlier, holding ideology, size, and state sponsorship constant:

H4: Older organizations are likely to be more lethal.

Like any voluntary organization, terrorist entities must solve a collective action problem (Olson 1971). Given the need to maintain secrecy and avoid detection by national police and military authorities, “self-help” through direct mobilization of resources is probably the modal approach. Yet like most modern organizations, those with a terrorist bent do engage in relationships with other organizations in their environment. The benefits from working as allies with other terrorists are potentially enormous. Networked organizations can access knowledge, information, personnel, financial reserves, and material that might otherwise be unavailable.

There is a growing literature in the study of social movements that underlines the value of social networks to social movement organizations (SMOs; Arquilla and Ronfeldt 2001; Diani and McAdam 2003; Khagram, Riker, and Sikkink 2002; Klandermans and Oegema 1987). The advantages that networks bring to other types of SMOs should accrue to terrorists as well (Asal and Rethemeyer 2006). Through relationships terrorist organizations spread out the mobilization tasks, diversify the risks inherent in mobilizing resources (of detection in particular), and even build the basis for a division of labor between organizations. For this reason we hypothesize that highly lethal organizations should be thoroughly connected to other terrorist organizations. The more direct relationships an organization maintains, the more lethal it should be.

H5: Organizations with extensive direct ties to other terrorist organizations are likely to be more lethal.

Finally, another factor that could make a contribution to organizational capabilities and thus lethality is control of territory.⁵ Control of territory is one of the characteristics of state sovereignty (Morgenthau and Thompson 1985, 329–30), it provides a variety of resources and can make an important “. . . contribution to a state’s perceived power and security” (Hensel 2000, 59). In the context of insurgency, Mao argued that the same is true—that building bases and holding territory is important developmental stage through which a successful movement must progress (Ford 2005, 57). We believe the argument can be extended to terrorist organizations.

Specifically, researchers have argued that “black holes” (Makarenko 2004, 138) existing in weak or failing states can provide valuable resources and shelter from military or civilian authorities seeking to

⁵We are indebted to one of our anonymous reviewers for highlighting the importance of territory in modeling organizational lethality.

disrupt terrorism (Stanislawski 2005, 159). For instance, Hamas' partial control of the Gaza Strip has allowed it to smuggle in a variety of deadly weapons (Inbar 2006, 829). Control of territory allows organizations to "... accommodate entire training complexes, arms depots, and communications facilities" (Takeyh and Gvosdev 2002, 98) and access to recruits. Makarenko suggests that al-Qaeda's base in the "black hole" of Afghanistan was central to its rise as a security threat to the United States (2004, 139). Thus:

H6: Organizations that control territory are likely to be more lethal.

While our focus in this paper is on organizational and network characteristics, both the terrorism and social movements literature strongly suggest that one must control for the political system of the country in which the organization is based. "The key recognition in the political opportunity perspective is that activists' prospects for advancing particular claims, mobilizing supporters, and affecting influence are context-dependent" (Meyer 2004, 126) and will have an effect on the strategies that organizations will adopt (Eisinger 1973; Tilly 1978). While democracy may make other avenues of protest more available, it also makes it easier to carry out terrorist attacks (Crenshaw 1981; Eubank and Weinberg 2001; Ross 1993) because democracies often have fewer restrictions on behavior. Li has found that different components of democracy have different effects on terrorism. At the state level "... democratic participation reduces transnational terrorist incidents in a country, while government constraints increase the number of those incidents" (Li 2005, 278). Democracy, then, may promote terrorism through resource and human flows but discourage it through more robust and satisfactory political conflict resolution mechanisms. On balance we are agnostic with respect to which factor will more heavily influence organizational lethality; we include these variables in our model as controls.

Data

Data for this study was derived from four sources. The primary source was MIPT's Terrorism Knowledge Base (TKB). The TKB contains data on domestic and international terrorist organizations for the period 1998–2005. As of January 17, 2006, MIPT had identified 499 organizations that had committed at least one incident between 1998 and 2005. For each of these organizations, the TKB extraction provides a summary of the number of incidents, injuries, and fatalities the

organization caused during this period. MIPT also includes a residual category of "unknown." It is important to note that "unknown" accounts for 72.1% of the incidents, 46.7% of the injuries, and 47.5% of the fatalities. Why these attacks are unclaimed is itself unknown. Many of these acts may be committed by entities (individuals, small groups, temporary splinter groups, etc.) that would not fit the generally accepted definitions of "organization" and thus would not be part of this study. Juergensmeyer (2003) suggests that religious organizations may also tend to leave their acts unclaimed because they wish to avoid attention. If so, our results may underestimate the importance of religion as a factor in organizational lethality.⁶

Of the 499 organizations that perpetrated an incident between 1998 and 2005, 400 of them had data pages that included group-level information in the TKB system as of January 17, 2006.⁷ We undertook extensive efforts to independently confirm the existence of each group in order to remove "organizations" that were aliases, covers, or temporary fronts for other members of the dataset. Eventually, five "alias/fronts" were removed, for a total of 395 observations.

For each organization, we had coders read the organization's page and extract information on its size (in terms of number of members), date of founding, ideology (which MIPT calls "classification"), sources of state sponsorship (defined as financial transfers), country the organization primarily targets,⁸ number of connections to other terrorist organizations (reported in MIPT's "related groups" pages), and the scope of territory (if any) the group is purported to control. If information in the page was contradictory or if MIPT's data was contradicted by other sources, we sought independent confirmation from academic, Internet, and print media resources before assigning a final code or value for a variable.

MIPT's ideological classifications are extensive and overlapping, reflecting the complexity of organizational ideology.⁹ For instance, an organization may be both religious and ethnonationalist in its ideological orientations; it may be ethnonationalist and leftist or rightist, and so forth. Our coding scheme explicitly

⁶We are indebted to Brian Lai of the University of Iowa for this insight.

⁷Impressionistically, it appears that many of the missing groups are new organizations that have sprung up in Iraq since the U.S. military action began.

⁸This is not the same as the "base of operations" MIPT lists in the page; in some cases, organizations may operate from one country but target another.

⁹For a more complete description of how ideology is coded in the MIPT database, see <http://www.tkb.org/DFI.jsp?page=method>.

allowed organizations to be slotted into multiple ideological categories. Our base case is those organizations that have no religious, ethnonationalist, or leftist component to their ideology. This would include communist, anarchists, antiglobalists, anti-Americanist, racists, rightists, environmentalists, and “unknown” (though only one organization was coded as unknown) and combinations of these. We created five ideology dummy variables based on these classifications—see Appendix A.1 in the online appendix at <http://journalofpolitics.org/articles.html>.

In an effort to increase the number of organizations for whom a size estimate was available, we asked a panel of experts at the Monterey Terrorism Research and Education Program at the Monterey Institute of International Studies (MIIS) to provide a best estimate of size based on a series of intervals. Our coders also sought additional information from Internet sources as we compiled the dataset. Just over half of the organizations were recoded through our and MIIS’ efforts. After combining data from MIPT, MIIS, and our own coding there were still 77 organizations for which we had “low-confidence” size data. Those organizations were coded as having size “0.” Appendix A.2 presents our coding scheme for size.

To capture the effect of organizational alliances, we coded TKB’s 22-item “related groups” system into six codes that ranged from “target” to “affiliated wing.” We then used UCINET 6 (Borgatti, Everett, and Freeman 2002) to count the number of “positive” (i.e., suspected alliance, alliance and rivalry, confirmed alliance, and familial) relationships each organization has. In social network parlance, we calculated the organization’s simple degree—the number of positive alliance relationships that each organizations has.

To control for country effects, we connected each organization to a set of measures from the POLITY and COW datasets to characterize the nature of the country in which the organization is based (which in most cases is also the country that is most often attacked) using the three-digit CCODE system available in both datasets. We used the POLITY2 variable for regime type, which varies from 10 (strongly democratic) to -10 (strongly autocratic). From COW, we used measures of energy consumption and total population to construct an energy consumption per capita measure as a basic control for the level of economic development and wealth of the country in which the organization is based.

We calculated organizational age as the number of years (in whole numbers) that have elapsed between the year of founding and 2005, inclusive of the

year of founding. In our models we included an organizational age-squared term in order to determine whether there is an increasing or decreasing marginal effect from age.

We defined “control of territory” as the organization’s ability to *both* (a) coerce nonmember civilians to act or forbear and (b) exclude police and military units from some defined geographic space over a period of time greater than six months. We used a variety of sources to code this variable, including MIPT, published academic work, Internet searches, and searches of print media databases.

Appendix A.3 provides summary statistics for the variables included in the model.

While recognizing the limitations of the data and the blunt instrument they provide, we believe that we have constructed the most comprehensive dataset possible from public data.

Methodology

The unit of analysis is terrorist organizations. The dependent variable is the number of fatalities attributed to each organization between January 1, 1998, and December 31, 2005.¹⁰ The dependent variable ranges from 0 to 3,505 with a median of 0, a mean of 31.36 and a standard deviation of 202.04. Of the 395 organizations for which there are data, 240 of those organizations perpetrated one or more incidents that resulted in no fatalities.

Given that the dependent variable is a sum generated by a rare event—deaths from a terrorist attack—a count model was employed. In this case the model demonstrated signs of overdispersion and contained a large number of “zeros” in the dependent variable. Given this structure, a zero-inflated negative binomial (ZINB) model (Cameron and Trivedi 1998; Long 1997; Long and Freese 2003), which can account for both overdispersion and zeros, might be in order. In this case, the choice turned out to be largely moot. Though the Vuong test is statistically significant (indicating better fit for the ZINB model) the results of the NBREG are generally indistinguishable from a ZINB model where the zero-inflation component is specified using only those regressors we have selected for the count model. The pattern of statistical significance and relative size of effects are, ordinarily

¹⁰Incidents may be extracted by group using this URL: <http://www.tkb.org/IncidentGroupModule.jsp>. Note: the figures obtained at a later date may not match those reported here since MIPT is continuing to update this database.

speaking, unaffected by the method used, except as noted below. The magnitudes of the effects are somewhat different, as we shall also discuss, though the NBREG model is more conservative in its estimate of simulated effects on three of our five most important variables. Thus in the interests of brevity, simplicity, and conservatism we present the NBREG results here and provide the ZINB model in Appendix A.5. (For an extended discussion of model choice issues, see Appendix A.4.)

One potential technical source of heterogeneity in the data is the length of time groups existed during our study period. In most count models this is thought of as “exposure” to a count-generating process. After experimenting with a number of exposure measures we opted to model our data using a natural log measure of years that the organization existed between 1998 and 2005.¹¹ Organizations in the database could have been exposed for as little as one year and as many as eight, so the logged exposure control variable ranges from 0 to 2.08 (see Appendix A.3).

The data on organizational size varies in its quality and availability. To account for this, we estimated models with and without observations for which we had low confidence in our measure of organizational strength. Because terrorist organizations are often based in the same country, we adjusted the standard errors for country-level clustering (Rogers 1993). Finally, due to its size and sponsorship of the 9/11 plot, al-Qaeda may be *sui generis*. For this reason we estimated our models with and without the observation on al-Qaeda.

These analytic choices resulted in four possible models: (1) all organizations; (2) all organizations except al-Qaeda; (3) all organizations except those that have suspect size data; and (4) all organizations except al-Qaeda and those with suspect size data.

All four models, regardless of method, reported χ^2 tests that were statistically significant at $p < 0.00005$. Statistical significance of coefficients was measured at the 5% level, except as otherwise noted.

Findings

Table 2 contains the results from our four NBREG models. Several universal findings are immediately

apparent. Regardless of model or method, religious ideology (per Hypothesis 1), size (per Hypothesis 2), and alliance ties (per Hypothesis 5) all drove up lethality between 1998 and 2005 while leftist ideology was statistically indistinguishable from the lethality rate of all other “weak other/terrestrial” organizations in the dataset.

Thus the results in Table 2 seem to indicate that lethality is strongly related to the nature of the audience but is less conclusive regarding othering. In the NBREG model, the point estimates are ordered as expected: the religious and ethnonationalist coefficient is the largest, followed by the religious coefficient, and then the ethnonationalist coefficient. The religious and religious and ethnonationalist coefficients are both statistically different from zero: organizations that seek to impress a supernatural audience tend to kill more. However, the ethnonationalist coefficient is not different from zero, in contravention of Hypothesis 1. (The same is also true to of the leftist coefficient, though in the NBREG model the point estimate carries a negative sign.) In Hypothesis 1 we also suggested that organizations with strong religious *and* ethnic components may be the most lethal. Our data cannot confirm this part of the Hypothesis. Across all four NBREG models, the point estimate for religious and ethnonationalist ideology is larger than for groups with a purely religious ideology. However, the differences between the point estimates for religious ideology and religious-ethnonationalist ideology are not statistically significant. The Wald tests for equality of the religious ideology and ethnonationalist and religious ideology coefficients could not reject the null hypothesis that they are equal (p values ranged from 0.64 to 0.92). The ZINB results are even less supportive of this segment of the Hypothesis, finding that the religious and ethnonationalist variable only exceeds the religious variable in models that include the observations with low-confidence strength data. Like the NBREG results, the Wald test of the ZINB results cannot reject the null that the coefficients are equal. The upshot: A supernatural audience is a driver of organizational lethality, but the confluence of audience and othering and othering alone cannot be conclusively linked to higher levels of lethality.

Four other results also appear to be universal. First, organizational age appears to have no effect on lethality, in contravention of Hypothesis 4. This finding is unaffected by the functional form selected or method. Neither the linear nor quadratic specification led to age being statistically significant. Why might this be? One hypothesis is that the age effect is primarily accounted for by the size and connections

¹¹Stata 9.0 includes two “canned” approaches to exposure control: (1) the natural log of units exposure with the coefficient constrained to be 1.0 (the “exposure” option); (2) units exposure modeled as a linear variable with the coefficient constrained to be 1.0 (the “offset” option). Our tests found that the constraints on the coefficient were not supported by the data. Thus we opted to control for exposure through an independent variable.

TABLE 2 Negative Binomial Results for 1998-2005 Total Fatalities

	With Al Qaeda		Without Al Qaeda	
	All	High Confidence	All	High Confidence
Size (ordinal)	1.373* (0.180)	1.450* (0.215)	1.362* (0.189)	1.425* (0.229)
Religious ideology	2.891* (0.833)	3.217* (0.925)	2.865* (0.835)	3.197* (0.936)
Ethnonationalist ideology	0.873 (0.511)	0.540 (0.460)	0.859 (0.508)	0.529 (0.456)
Ethnonationalist & religious	3.332* (0.978)	3.536* (1.193)	3.291* (1.000)	3.505* (1.211)
Leftist ideology	-0.458 (0.413)	-0.402 (0.489)	-0.489 (0.413)	-0.427 (0.487)
POLITY2	0.005 (0.030)	0.037 (0.034)	0.005 (0.030)	0.037 (0.033)
Organizational age	0.051 (0.044)	0.054 (0.039)	0.051 (0.043)	0.054 (0.039)
Organizational age squared	-0.0001 (0.001)	-0.001 (0.001)	-0.0001 (0.001)	-0.001 (0.001)
Count, organizational connections	0.188* (0.072)	0.187* (0.080)	0.223* (0.059)	0.225* (0.065)
Energy consumption per capita	-0.144 (0.099)	-0.152 (0.130)	-0.147 (0.098)	-0.157 (0.127)
State sponsorship	-0.539 (0.393)	-0.880* (0.433)	-0.582 (0.386)	-0.930* (0.419)
Control of territory	0.853* (0.376)	0.782* (0.443)	0.879* (0.391)	0.830†† (0.467)
Log exposure	-0.020 (0.394)	0.348 (0.294)	-0.029 (0.396)	0.377 (0.308)
Constant	-0.796 (0.760)	-1.652* (0.787)	-0.790 (0.763)	-1.700* (0.767)
Log(alpha)	1.718* (0.109)	1.657* (0.116)	1.719* (0.110)	1.657* (0.118)
N	395	318	394	317
χ^2	265.615	213.401	274.014	217.912
Log-likelihood	-838.56	-715.03	-827.55	-703.90
Clusters	65	56	65	56

Standard errors in parenthesis.

* $p < 0.05$, † $p = 0.078$, †† $p = 0.076$

effects. As organizations age they usually (but not always) gain members. They also have more time to establish their bona fides among similar groups, making it more likely that they can establish fruitful alliance relationships.

Second, democracy has no measurable effect on lethality. The POLITY2 coefficient is never statistically significant. Democracy plays no role, positive or negative, in determining how lethal a terrorist organization is, though it may affect whether terrorist organizations form in a country and whether they carry out attacks.

Third, the energy consumption per capita measure was statistically insignificant across all models. Like democracy, relative wealth seems to play little, if any part in determining lethality.

Regarding the role of state sponsorship (Hypothesis 3), the findings are equivocal at best. In contravention of Hypothesis 3, the state sponsorship variable is *negative* in all our models, but it is statistically significant only in the NBREG models that exclude the low-confidence observations. In the ZINB results, state sponsorship is strongly and negatively related (at $p < .001$) to the zero inflation process but

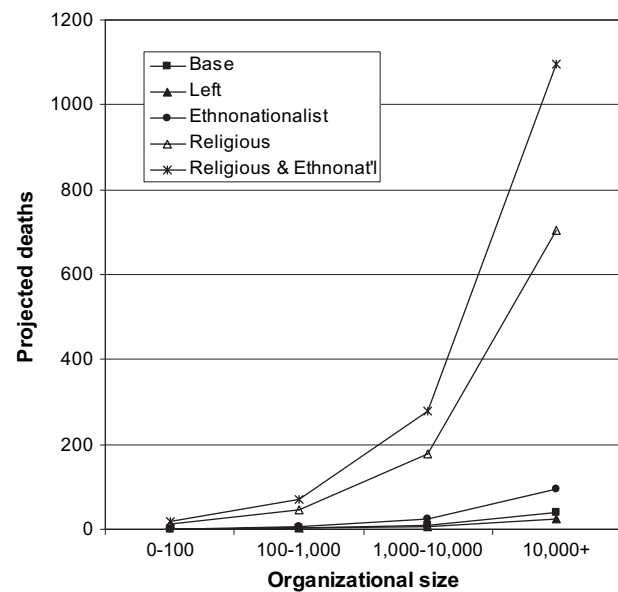
statistically unrelated to the count process. In other words, state sponsorship tends to make organizations more likely to kill, but state sponsorship does not tend to increase the number of people killed by an organization. This finding suggests a possible restatement of Simon and Benjamin's (2001) proposition that state sponsors tend to restrain their clients' activities. State sponsorship may indeed restrain their clients from killing too promiscuously, but the provision of resources and support may enable an organization to engage in some killing.

Control of territory is generally associated with higher levels of killing. Two of the NBREG models find a positive, statistically significant coefficient (at the 0.05 level); the other two find the coefficient significant only at the 0.08 level. All four ZINB models find positive, statistically significant coefficients at the 0.05 level. Hypothesis 6 is generally confirmed.

The NBREG model is inherently nonlinear, so interpretation of relative effects is not straightforward. To get a better sense of the effect size, ideological commitments, territorial control and alliance ties have on projected lethality, we executed a series of statistical simulations, the results of which are reported in Figures 1–4 below.¹² For each simulation we (1) used the model estimated using all 395 observations; (2) set the “nontreatment” variables to their means (see Appendix A.3); and (3) varied size, ideology, territorial control, and/or degree to derive projected lethality. Since the size variable is ordinal, we have included all four categories. For the degree variable, we have used values of zero, the mean, and the mean plus 1, 2, or 3 standard deviations (with the caveat that all values except zero are fractional though the variable takes only integer values). (In Appendix A.6 we provide additional simulations that allow for comparison of the effects as estimated using the ZINB and NBREG models.)

As the figures demonstrate, there is a strong “accelerator” effort from the confluence of size and ideology (Figure 1), size, degree, and territorial control (Figure 2), and size and alliance connections (Figures 3 and 4). Territorial control helps to foster killing, but in a more pronounced fashion among large and religious or religious and ethnonationalist organizations (see Figure 2). Even the most ideologically benign organization may eventually engage in killing if they accumulate enough alliance ties (see Figure 3). We believe this finding makes intuitive sense from

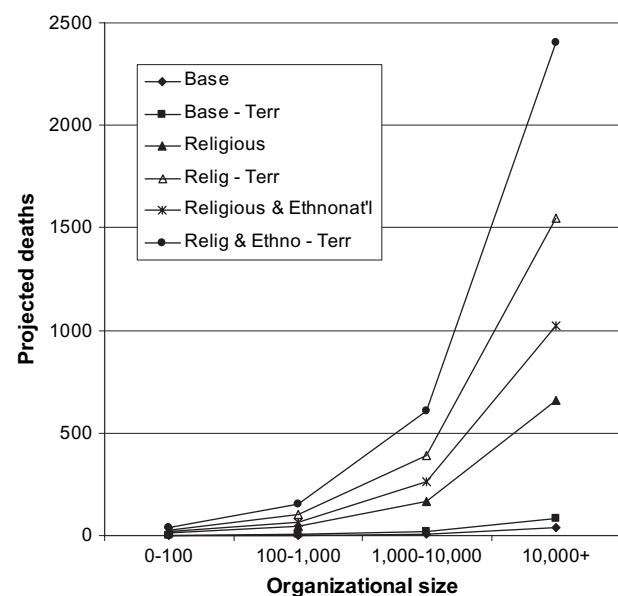
FIGURE 1 Lethality by Ideology & Size



two complementary perspectives. First, the more ties an organization develops, the more likely the organization is to gain access to knowledge needed to engage in deadly terrorism. Second, the more alliances an organization makes the more likely it is to associate with peer organizations that have a permissive attitude toward killing, which may lead to competitive behavior or degradation of existing ethical commitments to avoid killing.

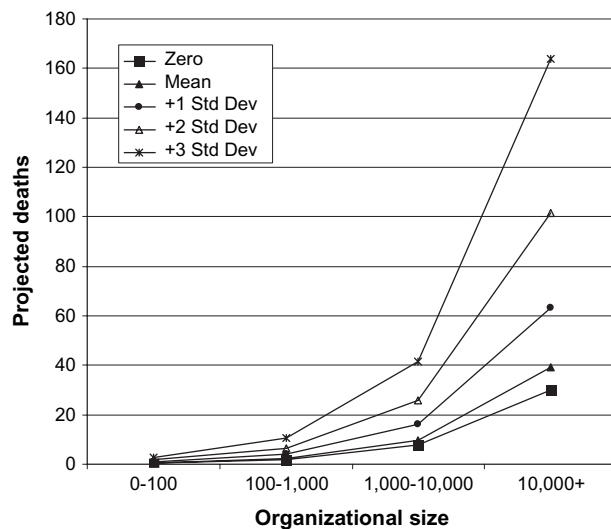
Finally, the graphs are patterned generally as our theory suggests: Religious and ethnonationalist

FIGURE 2 Lethality by Ideology, Size, and Control of Territory



¹²The simulations results here and in the online appendix were calculated using the Stata commands “prvalue,” constructed by J. Scott Long and Jun Xu, and “prtab,” constructed by J. Scott Long and Jeremy Freese—see www.indiana.edu/~jslsoc/spost.htm.

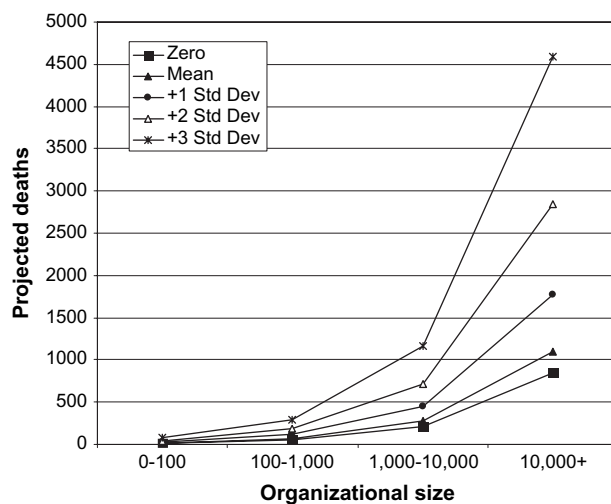
**FIGURE 3 Lethality by Size and Connections
Base Case Organizations**



organizations kill more than religious organizations (though the difference between the two is not conclusively different from zero), which kill more than leftist, ethnonationalist, and all others, regardless of size or connections. Leftists are projected to kill somewhat less than the base case members, but the coefficient on leftists is statistically not different from zero.

This suggests that of othering and audience, audience seems to have the upper hand. Religious groups kill much more than nonreligious groups. Ethnonationalism alone boosts killing above the base case only slightly (and not statistically significantly at

**FIGURE 4 Lethality by Size and Connections
Religious & Ethnonationalist
Organizations**



that). Eight of the 10 most lethal groups (and 15 of the top 20), including al-Qaeda, al-Qaeda Organization in the Land of the Two Rivers (the group formerly led by Abu Musab Zarqawi), the Riyadh us-Saliheyn Martyrs' Brigade, the Taliban, Hamas, the Lord's Resistance Army (LRA), and the Armed Islamic Group are all classified as religious or religious and ethnonationalist in orientation. Of the 28 groups that have killed more than 100 people between 1998 and 2005, only four were solely ethnonationalist in orientation.

The most unrelentingly lethal organizations are those that are large, well-connected, control territory, and seek to do the bidding of some deity.

Conclusion

Between 1998 and 2005, terrorist organizations killed over 26,000 people. Why did some organizations tend to account for more of the death toll than others? Using the best—though limited—data available in the public domain, we believe the answer is that (1) large organizations, (2) organizations that address supernatural audiences through religious ideologies, (3) organizations with religious-ethnonationalist ideologies—ideologies that define an other and play to the supernatural, (4) organizations that build and maintain extensive alliance connections with peers, and (5) organizations that maintain control over territory are the primary actors in this story. Though much of the organizational and social movements literature suggest that new organizations are less effective and able, our data was unable to find evidence that newness matters. Some widely held theories about the correlates of lethality—including the belief that state sponsorship and “homebase” regime-type would affect organizational lethality—could not be substantiated with our data. In fact, there is equivocal evidence that state sponsorship tend to restrain killing by client organizations (though the ZINB findings suggest that state sponsors may promote some killing—just not a great deal). Size coupled with religious and ethnonationalist ideology generates the capability needed to pursue deadly ends. A religious-ethnonationalist organization with more than 10,000 members, holding other factors at their means, is predicted to have killed at least 1,096 people between 1998 and 2005, which is substantially higher than the median or mean of the data.

Focusing on organizational factors breaks new ground in several ways. First, much of the empirical and theoretical literature has focused on state- or individual-level explanations of terrorism (Borum 2004; Hudson 1999; Lai 2004). The organizational level of

analysis has not been a major area of investigation (Pynchon and Borum 1999). Regardless of level of analysis, the critical question of what factors contribute to the lethality of terrorist organizations is largely unexamined.

Second, most studies have focused on regional or international terrorism (see, for instance, Engene (2004) on European terrorism, Feldman (2004) on Latin American terrorism, and studies by Enders and Sandler (2000, 2002) and Li (2005) and Li and Schaub (2004) on international terrorism) to the exclusion of domestic incidents. These decisions—driven in part by the availability (or lack thereof) of data—may have seriously skewed our understanding of terrorist activities. From 1998 to 2005 there were 26,445 fatalities caused by terrorist attacks but only 6,447 were caused by international terrorist attacks—a bit more than 24% of the total. The attacks on 9/11, account for over 3,000 of those international fatalities (MIPT 2006).

Third, this study integrates insights from the social movement literature that have been largely overlooked previously. Terrorist organizations are often conceptualized as manifestations of social movements but application of insights from this field is rare (Goodwin 2004, 259).

Finally, this study leverages data on the network of terrorist organizations worldwide to explore the importance of organizational connections to the behavior and lethality of those organizations. While numerous studies have examined the importance of individual-level networks to terrorist operations and tactics (see, for instance, Arquilla and Ronfeldt 2001; Bienenstock and Sageman 2005; Krebs 2004; Pape 2005), we are aware of no study that uses data on organizational alliances and linkages to help explain lethality.

While we believe that our dataset is the most complete resource currently available, there are several key limitations that must be kept in mind. Any study of terrorism is bounded by the unknown. We are only able to account for slightly more than half of all fatalities between 1998 and 2005. We have no way of knowing whether the acts that went unclaimed were perpetrated by (a) members of our dataset, (b) organizations unknown to us, or (c) entities that could not be classified as organizations and thus would not be part of this study. There is reason to believe that the excluded organizations may be religious in nature (see Juergensmeyer 2003) making our findings on religion and lethality understated, but there is no way to be sure. Even for those acts that have been claimed, our data is incomplete. Of the 499 organizations that

have committed an act, MIPT had no information or information that proved to be duplicative on 104 of them. Many of these organizations existed for brief periods of time, and others may be temporary splinters of existing organizations. If so, these omitted “entities” may lack sufficient cohesion to be considered organizations and thus belong in a different study. Additionally, some variables are notoriously hard to code accurately, even for the organizations we know well—thus our decision to present two analyses. For these reasons, care should be taken generalizing beyond the period we have studied. Nevertheless, we believe this to be the most comprehensive and in-depth study of organizational lethality ever attempted. It provides a probabilistic model of terrorist organizational behavior that can be used to identify groups that due to their size, ideology, and/or alliance connections bear greater scrutiny and vigilance.

This paper raises important data collection and collation issues for terrorism researchers. The TKB database is the only database publicly available that allows for cross-national and global study of international and domestic terrorist organizations and as such it fills an important gap in the literature. However, the lack of time-series and comprehensive organizational data restricts our ability to identify key aspects of terrorist organizational behavior. Further, variables like grievances or organizational structure that have been successfully used to explain other kinds of political mobilization are not comprehensively available for the study of terrorism.

Though we cannot generalize from our findings, we do believe they suggest—subject to further confirmation—that efforts to disrupt lethal terrorist activities need to focus on large, well-connected organizations. Organizations with more than 1,000 members are difficult to build and sustain. They require talented and committed leadership with a certain marketing and management flair. Future studies may wish to focus on case studies of leadership development. Of particular interest would be the processes by which leaders emerge from religious communities that are then able to leverage religious symbols and institutions in the quest for size and connectedness. Identifying strong leaders and interrupting their ability to recruit and build may be a crucial step in reducing the death toll from organizational terrorist activities.

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