I. Articles

Patterns of Collective Desistance from Terrorism: Fundamental Measurement Challenges

by Erin Miller

Abstract

To better understand why perpetrator organizations desist from terrorist violence, we must first understand how perpetrator organizations desist from terrorist violence. Here, I aim to improve our empirical understanding of patterns of collective desistance from terrorism in support of a robust research agenda to advance theory and policy on this topic. I discuss two key challenges for empirical analysis of collective desistance from terrorism: operationalization of perpetrator organizations, and operationalization of collective desistance. To illustrate these challenges, I leverage more than 40 years of event data from the Global Terrorism Database among organizations that carried out terrorist attacks between 1970 and 2013. Using descriptive statistics, I critically evaluate the implications of large-N analyses and illustrate their strengths and limitations.

Keywords: terrorist organizations; desistance; disengagement; measurement

Introduction

Efforts to better understand why terrorist groups[1] decline or disengage increasingly leverage large, terrorist attack-level datasets that are promising for developing an empirically grounded, theoretical and practical understanding of patterns of longevity and decline among terrorist organizations.[2] However, there is a distinct lack of clarity about this often-overlooked unit of analysis called "terrorist group" or "terrorist organization." In particular, we must reconsider the fundamentals of measurement to avoid mistaken assumptions about what constitutes a terrorist organization and how we might best evaluate the activities of such organizations. Here I focus on two challenges: operationalizing terrorist organizations, and operationalizing collective desistance. Specifically, what are the key implications of measurement and analytical strategy for the study of collective desistance from terrorism? By illustrating these challenges, I aim to improve our understanding of the complexity of group-level patterns of desistance.

The Importance of Groups

Although those who carry out terrorist attacks are responsible for their actions as individuals, there is extensive evidence that the collective, or group they belong to or claim to be part of, plays an important role in the perpetration and exacerbation of criminal activity. Researchers have observed and extensively studied peer influences and the salience of co-offending in many behaviors, including alcohol use among college students,[3] desistance from marijuana use,[4] general delinquency and desistance from delinquency,[5] as well as adult offending.[6] With few exceptions,[7] the unit of analysis in studies on co-offending is the individual or the incident.

Some of the most relevant insights on collective offending, and those that could potentially inform our understanding of terrorist group activity, are found in the scholarly literature on criminal gangs. Nearly a century ago, Thrasher observed that while the gang does not cause crime *per se*, it "aids in making chronic truants and juvenile delinquents and in developing them into finished criminals."[8] Likewise, scholars routinely observe that group membership is an influential element of engagement in terrorism. Some highlight the motivations of individuals that are generated by collective experiences, including strains or

grievances.[9] Black describes terrorism as "unilateral self-help by organized civilians" characterized by "strong ties among the aggrieved and a lack of ties to their adversaries."[10]

Others argue that the difference between an aggrieved individual who is able to wage a terrorist campaign and one who is not is a matter of collective identity and resource mobilization.[11] Moghaddam specifically views an individual's engagement in terrorist activity as a psychological process through which one responds to perceived injustice by joining, assimilating, and drawing on the resources of a group or organization.[12] Ultimately, scholars devote a great deal of attention to the impact of groups on individuals because groups provide a structural, ideological, logistical framework for criminal activity, including terrorism. As Atran suggests, "small group dynamics can trump individual personality to produce horrific behavior in otherwise ordinary people."[13]

Despite the fact that collective action is an important feature of many types of criminal behavior, scholars have not thoroughly explored the dynamics of the groups themselves, whether street gangs, criminal organizations, or terrorist groups.[14] While there are several possible reasons for this, perhaps the primary obstacle is that systematically collected empirical data on groups are very difficult to obtain.[15] In his introduction to Thrasher's 1927 study of more than 1,300 gangs in Chicago, Short notes that Thrasher conducted "the most comprehensive study of the phenomenon of adolescent gangs ever undertaken," but, "The very scope of Thrasher's investigation, his methods, and his primary purpose also stood in the way of theoretical development. The task of statistical manipulation of more than 1,300 cases on which very little data in common were collected was an impossible barrier to conceptualization beyond relatively crude classification."[16] Thrasher noted that gangs vary in their degree of cohesion and a group will develop into a more solidified unit "if conditions are favorable to its continued existence" but that "the ganging process is a continuous flux and flow, and there is little permanence in most of the groups."[17] Unfortunately, we know little about the conditions that are favorable or not to the continued existence of a criminal group.

Likewise, in his introduction to a new edition of the 1980 study that Clinard and Yeager conducted on a sample of 477 Fortune 500 companies, Clinard contrasts it with Sutherland's 1949 study of 70 of the largest companies.[18] Sutherland, whose efforts took 25 years, considered the full life span of the companies in his sample. Clinard and Yeager investigated more companies in much greater detail, but for only two years, 1975 to 1976.[19] Clinard points out that the authors of both studies acknowledge the difficulty of systematic data collection on such entities.[20]

Despite the difficulty in gathering data, this is not to say that groups have been ignored. Numerous carefully researched and insightful case studies on groups and organizations that engage in illegal activity have been conducted in order to better understand how they operate.[21] In addition, there have been a number of efforts to develop empirically grounded typologies to classify reasons for organizational decline and desistance from terrorism.[22] While many case studies are impressive in their depth, ability to capture nuanced and complex experiences of groups, and while they make rich contributions to the understanding of specific contexts and events, because they are narrow in scope their contribution to theory development and generalizable principles is limited. Analysis of a more comprehensive array of terrorist organizations supports greater breadth of understanding regarding the ways in which these groups desist from terrorist violence.[23]

The Operationalization of Terrorist Organizations

In contrast to research on individuals–which, aliases and mistaken identity notwithstanding, are fairly straightforward to conceive of as individuals–gangs and terrorist organizations are extremely difficult to define and operationalize.[24] The challenge of defining terrorist organizations involves all of the difficulties of defining terrorism itself[25]–in addition to numerous other considerations related to both the behavior of the group as well as its very essence as a group, known in the field of psychology as *entitativity*.[26] The

concept of entitativity, or the degree to which a collection of individuals is an entity, holds that organizations vary in the extent to which their members are similar to each other, engaged in coordinated efforts to pursue common goals, and are physically near to each other, as well as the extent to which the boundaries of membership are fixed and stable rather than fluid. With respect to terrorism, "groups of individuals that carry out violent attacks may be small, clandestine, informally related clusters of people, broad networks united by leaderless resistance, or formally established, hierarchical organizations that are explicit about their existence and their objectives."[27]

Beyond variation in entitativity, organizations that perpetrate violent terrorist attacks are dynamic and multi-faceted in their behavior, typically engaging in many different types of activity, both legal and illegal, violent and non-violent. In certain situations it is problematic to assume that any organization that carries out at least one terrorist attack is a 'terrorist organization' when in fact, the use of violence may be an exception to the group's usual repertoire rather than a defining characteristic. This is perhaps most likely the case for perpetrator organizations that are attributed responsibility for a relatively small number of attacks. In this sense, reliance solely on event data on terrorist violence can lead to flawed conceptual and theoretical assumptions about the organizations that carry out these attacks.

For example, several recent studies that examine the longevity of terrorist organizations using quantitative analyses of terrorist attack data corroborate Rapoport's[28] often cited estimation that the vast majority of terrorist organizations last for less than one year.[29] Others, which use more conservatively curated sets of data, estimate that the average life span of terrorist groups is somewhat longer.[30] A key difference is that these latter analyses are narrower in scope. They either include only organizations' international terrorist attacks; or, they include only those terrorist organizations that are more established and explicitly committed to the use of terrorist violence to achieve their goals, rather than simply any group that has carried out at least one international or domestic terrorist attack.[31]

This difference in how terrorist organizations are defined and operationalized for quantitative analysis has clear implications for the assumptions we make about their activity and the conclusions we draw about their life cycles. Dugan and colleagues characterize perpetrator groups that engage in terrorism for less than one year as "short-lived terrorist organizations" or "short-lasting terrorist organizations."[32] In reality, this pattern of data might be generated by a number of different scenarios, only one of which is that bona fide terrorist organizations carried out attacks for less than one year and then failed to survive. Other equally plausible explanations include the possibility that the attacks perpetrated by these named "organizations" are actually the work of other full-fledged, long-lasting terrorist organizations that have temporarily adopted a unique *nom de guerre* for the purpose of carrying out certain attacks. For example, the 1993 bombing of the World Trade Center in New York was claimed by a group of perpetrators linked to al Qa'ida, calling themselves "Liberation Army Fifth Battalion."[33] Or, perhaps the attacks were carried out by fully formed organizations that are not typically considered terrorist groups, but rather insurgent groups, non-violent protest groups, or even political parties whose engagement in terrorism is extremely unusual. In any case, the organizations may not be short-lived at all.

LaFree, Dugan, and Miller describe an example of this phenomenon: the Institutional Revolutionary Party (PRI) in Mexico, which was the leading political party in power in Mexico for most of the 20th century.[34] In 1997, PRI operatives carried out 14 terrorist attacks against opposition political/militant groups. Since these are the only terrorist attacks attributed to the PRI, an analyst equipped with only data on terrorist violence would classify the perpetrator group as a "short-lived terrorist organization" even though by most definitions they are neither short-lived, nor a terrorist organization, because their existence spans nearly a century and is fundamentally characterized by involvement in electoral politics rather than the use of terrorist violence.

The Operationalization of Organizational Desistance

The second important measurement issue involves defining collective desistance from terrorism. Operationalizing any type of desistance is difficult, because it involves quantifying the prolonged cessation of behavior or activity. Regardless of the behavior in question, this raises a number of questions. For example, for how long must one abstain in order to be considered inactive and sufficiently unlikely to reengage? Is desistance an absolute status, or is it assessed relative to historical or typical levels of activity? What is the significance of replacement activity–desisting from one type of behavior, but shifting to another?

Because the operationalization of desistance is not straightforward, applications are typically arbitrarily and idiosyncratically informed by the particular topic being studied and the availability of suitable data. [35] Criminologists have observed that rather than maintaining a consistent state of offending or non-offending, individuals are likely to drift in and out of criminal activity.[36] The same can be true of terrorist organizations. However the measurement of non-offending is further complicated because such organizations, unlike human beings, can be resurrected after inactivity or even "death." One example of this is the Black September Organization, the faction of the Palestine Liberation Organization (PLO) that was responsible for the September 1972 attack on the Israeli team at the Munich Olympic Games.[37] Following this pivotal attack, Black September was the target of Israeli counterterrorism operations code-named *Wrath of God* and *Spring of Youth*, which involved the capture or killing of nearly all of its members. The group's activity peaked in 1973, but declined rapidly and by all accounts, including claims made by PLO leadership, the group was completely dismantled by the mid-1970s. Nevertheless, nearly a decade later the group purportedly announced that it was "resuming revolutionary activities," raising puzzling questions about what characterizes the entitativity of this, and similar organizations.

A growing number of studies quantitatively analyze large numbers of terrorist perpetrator organizations,[38] including some that investigate the desistance of terrorist organizations in particular.[39] In contrast to in-depth case studies, these large-N studies seek to identify common patterns and principles that can be used to form the basis of a broader understanding of collective desistance. However, where qualitative analyses and case studies risk overlooking the forest for the trees, large-N studies may have the opposite problem. While grappling with large datasets, researchers often rely on analytical techniques and theoretical assumptions that greatly oversimplify the diverse patterns of terrorist activity among groups and organizations. In particular, reducing the dynamics of violent terrorist activity to a dichotomous measure of active or inactive, or to a single number of years active, impedes our ability to fully capture various dimensions of activity, including both time span and frequency of attacks, that comprise the groups' trajectory of desistance from violence. In addition, when leveraging a large set of data with violent terrorist organizations as the unit of analysis, researchers can sometimes overlook critical contextual variation, such as the non-terrorist activities of the groups involved, or other external factors that influence the terrorist behavior that comprises the dataset.

Several recent empirical analyses of the duration or longevity of terrorist groups are based on the premise that terrorist organizations are often in competition for scarce resources, support, and personnel.[40] Young and Dugan examine the survival of terrorist organizations, finding that perpetrator groups that exist among greater numbers of other perpetrator groups have a greater likelihood of failing (in terms of carrying out their last recorded attack) in a given year.[41] The authors interpret this as support for the hypothesis that groups with greater numbers of competitors are more likely to fail. However it is not clear from this analysis that the groups in question are truly competitors, rather than involved in some other type of relationship, such as collaborators. Phillips uses a similar analytical strategy, in addition to in-depth case studies, to examine the specific effects of violent rivalries[42] and cooperation[43] on group longevity. In contrast to Young and Dugan's results, Phillips finds that terrorist groups engaged in violent rivalries are actually less likely to cease offending, an observation that is reminiscent of Thrasher's assertion that gangs "develop through strife and thrive on warfare."[44]

Others have also investigated the impact of mobilization-related variables on terrorist group survival, including state support,[45] duration dependence,[46] and group size, tactics, geography, and ideology.[47] But perhaps the most important contribution of Phillips' research in this area is that he begins to effectively bridge the gap between qualitative studies, which typically contain rich detail on a small number of groups, and quantitative studies that provide potential for generalizable findings but frequently overlook important features of how groups co-exist, interact, and evolve.

What is important about this literature is that the theorized mechanisms represent processes rather than states. While scholars have only begun to quantitatively investigate the specific ways in which de-mobilization operates, it would appear that active terrorist organizations rarely disappear overnight. Even the "sudden desistance" investigated by Dugan, Huang, LaFree, and McCauley in the case of the Armenian Secret Army for the Liberation of Armenia (ASALA) took place over a period of approximately seven years.[48]

Despite this, virtually all of the quantitative analyses conducted on the topic of terrorist group longevity adopt duration or survival analysis as a methodological strategy, defining the point of terrorist group failure or end as the year of a group's last recorded attack. These methods reduce the data on a group's terrorist activity to a dichotomous measure of whether or not the group was active during a particular time period, or simply the total length of time for which a group engaged in terrorist attacks. This means that a perpetrator group whose activity spans 10 years with an average of 0.2 attacks per year is accounted for in the same way as a perpetrator group whose activity spans 10 years with an average of 20 or 200 attacks per year. Likewise, a perpetrator group whose activity drops from 100 attacks per year to one attack per year and then remains active at that rate for another decade is still considered active in a survival analysis, despite a tremendous decline to what may be an essentially incidental rate of violence. This analytic strategy disregards both theoretical and empirically observed patterns that characterize failure as a process–perhaps a very long one–rather than a discrete state.[49] In contrast, researchers who adopt more qualitative methodologies such as case studies have the advantage of being able to incorporate any and all of these facets of a group's trajectory into their analysis.[50]

Data Analysis

To further illustrate these challenges, I examine data on the violent terrorist activity of organizations identified as perpetrators of attacks in the Global Terrorism Database.[51] The GTD is an event-level database maintained by the National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland, in which terrorism is defined as "the threatened or actual use of illegal force and violence by non-state actors to attain a political, economic, religious, or social goal through fear, coercion or intimidation."[52] At the time of this analysis the GTD includes details on 125,087 domestic and international terrorist attacks that occurred around the world between 1970 and 2013.[53] Because it includes both international and domestic attacks, and does not require that an attack target non-combatants, the GTD's definition of terrorism is relatively broad, and well-suited for the current analysis. Although the data collection process for the GTD is described at length elsewhere, here I outline some especially relevant details.[54]

Source materials provided information about the perpetrator of the attack in 55% of all cases in the GTD. The data collection team records attributions of perpetrator responsibility for each attack in the GTD as reported in the original source (usually media articles), making adjustments to account for the use of aliases, variation between native language names and English language names, and standardization of acronyms. Although not all terrorist attacks are formally claimed by a perpetrator organization, the media source articles that the GTD data collection process relies upon typically report names of organizations that have at some point been self-identified by leaders, spokespersons, or other group members. In some cases source articles report

attributions of responsibility based on statements made by authorities or witnesses to the attack; however, the name or identity of the perpetrator organization almost always comes from the organization itself.[55]

Perpetrator groups do not have to be particularly well-organized or well-established to be named in the GTD. In fact, the perpetrators in the full dataset range from loose networks with few members, or members who are not well known to each other, to formal, hierarchical organizations. If a perpetrator group is identified as a faction of a larger group, the GTD attributes the attack to the "parent" group, making note of the name of the faction. The only exception to this rule concerns the Palestine Liberation Organization (PLO), whose factions are relatively autonomous and represent unique entities in the data. In contrast, attacks by groups identified as "splinters" of other groups are attributed to the name of the splinter group. Presumably there are substantively significant reasons for the organizational cleavage that indicate a meaningful distinction from the "parent" entity. Similarly, if a group changes its name, it is documented as a separate entity. This practice raises some important considerations for evaluating the decline of groups, which I will address in the discussion of the analysis.

Perpetrator Organizations

Point of departure for this dissertation research were 3,120 unique entries in the three *perpetrator group name* fields in the GTD. Collection of the GTD relies on open-source media reports, which often include only generic information about perpetrators, or only names of unaffiliated individuals. Accordingly, 683 of these entries do not reference formal organizations, but are essentially generic descriptors that were reported in the source materials. These range vary in degree of detail and usefulness from "Terrorists" and "Subversives" to "Smugglers and Elephant Poachers" and "Supporters of ex-President Gamsakhurdia" (the first democratically elected president of Georgia), to "Salafi Extremists."

Short-term Perpetrator Organizations

Aside from the generic perpetrator designations there are 2,437 formally named entities in the GTD that have been linked to 57,240 terrorist attacks, resulting in 152,498 deaths between 1970 and 2013. More than 70 percent of these named entities (71%) were active for 365 days or fewer. The 1,726 named organizations that engaged in terrorism for 365 days or fewer carried out 3,561 attacks, which killed 7,059 people between 1970 and 2013. The number of attacks per group ranges from one (1,198 groups; 69%) to 367 attacks perpetrated by the Islamic State of Iraq and the Levant (ISIL), which began carrying out attacks under that name in April 2013. ISIL was also responsible for 1,431 total fatalities from terrorist attacks. The next most active of the short-term organizations was the Dishmish Regiment, which carried out 43 attacks in India over the course of approximately six weeks in 1984.

Figure 1 shows the distribution of time span, in days, of terrorist activity among the perpetrator organizations that engaged in terrorism for less than a year. This distribution is extremely skewed, with 1,361 groups (79%) active for only a single day. For the most part, the organizations that were active for less than one year are extremely poorly documented. In many cases their names are obscure, such as "The Illegal Fisherman of the Night" and "The Armed Secret Organization," and the only information available about them pertains to their claim of responsibility for a terrorist attack.

There are several possible explanations for the large number of organizations that carry out attacks for less than a year, or only a day. One possibility is that law enforcement or security forces rapidly and effectively countered these organizations. For example, Smith observes about a US-based right-wing group: "The Order existed for only a year after its creation, and it is obvious that the alterations in federal law enforcement policy that took effect during 1983 shortened the life span of The Order and its affiliates."[56]

Similarly, this is also likely to be true of Saudi Hizballah, which was founded in 1987 as "an alternative political network."[57] The only terrorist attack attributed to Saudi Hizballah in the GTD is the 1996 attack on the United States military barracks at the al- Khobar towers, a relatively sophisticated truck bomb attack that killed 19 airmen and wounded 386 people. Jones reports that following the al Khobar attack, Saudi authorities made numerous arrests of Saudi Hizballah members, essentially decimating the organization.[58]

Another possible explanation is that, like many start-up companies or book clubs that fail to gain momentum, the groups never fully engaged as organizations. Though it is difficult to be certain, given the limited information available, perhaps this is the case for the French anti-nuclear group that called itself "Commandos Opposing with Explosives the Self Destruction of the Universe (COPO)."[59]

Figure 1. Time Span of Terrorist Violence, Perpetrator Groups active ≤ 365 days
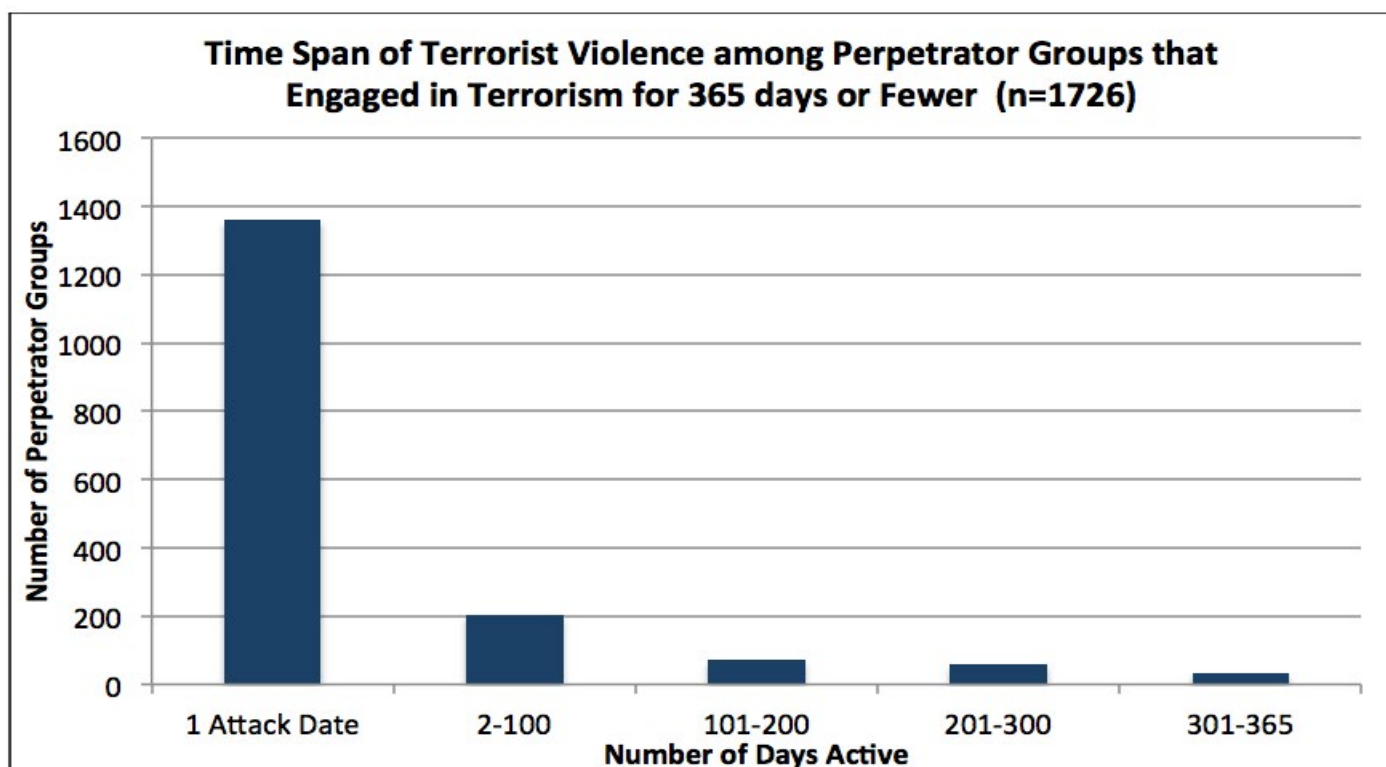
A third possibility, alluded to above, is that they were fully established organizations that primarily engaged in other types of activity, such as electoral politics, and only carried out terrorist attacks as an exception to otherwise non-violent activities. Indeed, 60 of the 1,726 organizations include the word "party" in their name, though it should be noted that one of these is the "Vengeance Party," a group that claimed responsibility for the kidnapping and death of a Dutch priest in Lebanon in 1985.[60]

Long-term Perpetrator Organizations

The remaining 711 organizations in the GTD were actively engaged in terrorist attacks for more than one year. These groups carried out 53,679 attacks, causing 145,439 deaths between 1970 and 2013. These perpetrator organizations make up 29 percent of all non-generic perpetrators, but their terrorist activity comprises 94 percent of attacks and 95 percent of all fatalities perpetrated by non-generic organizations. On average, these organizations engaged in terrorism for 8.7 years, ranging from one year (75 organizations) to 43 years (three organizations). Figure 2 shows that even after the removal of perpetrator organizations that

engaged in terrorism for less than a year, the distribution is still heavily skewed to the right, as more than half of the organizations (55%) carried out attacks for five years or fewer.

Desistance as a Process

Consider the trajectories of perpetrator organizations that have engaged in terrorism for more than 40 years between 1970 and 2013. There are nine such organizations: Basque Fatherland and Freedom (ETA), the Provisional Irish Republican Army (PIRA), the Jewish Defense League (JDL), the National Liberation Army of Colombia (ELN), the Popular Front for the Liberation of Palestine (PFLP), the Popular Front for the Liberation of Palestine, General Command (PFLP-GC), the Ulster Freedom Fighters (UFF), the Ulster Volunteer Force (UVF), and the New People's Army (NPA).

Figure 2. Time Span of Terrorist Violence, Perpetrator Groups active > 365 days
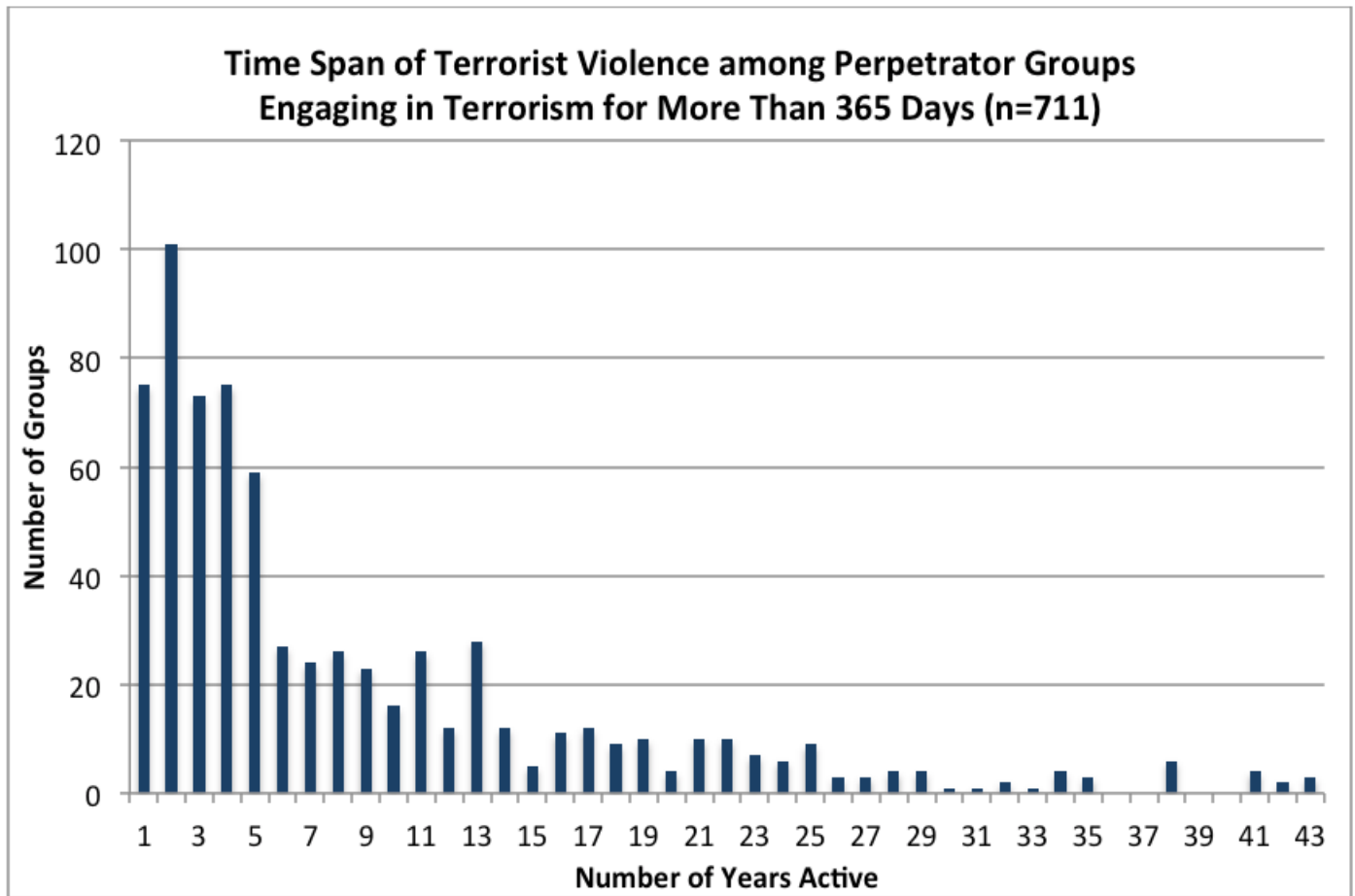
Figures 3a-i show the individual trajectories of terrorist attacks over time for each of these organizations. Note that although these nine organizations were active for similar lengths of time according to the GTD, their patterns of activity are dramatically different.

Figure 3 (a-i): Organization Trajectories, where Time Span > 40 years
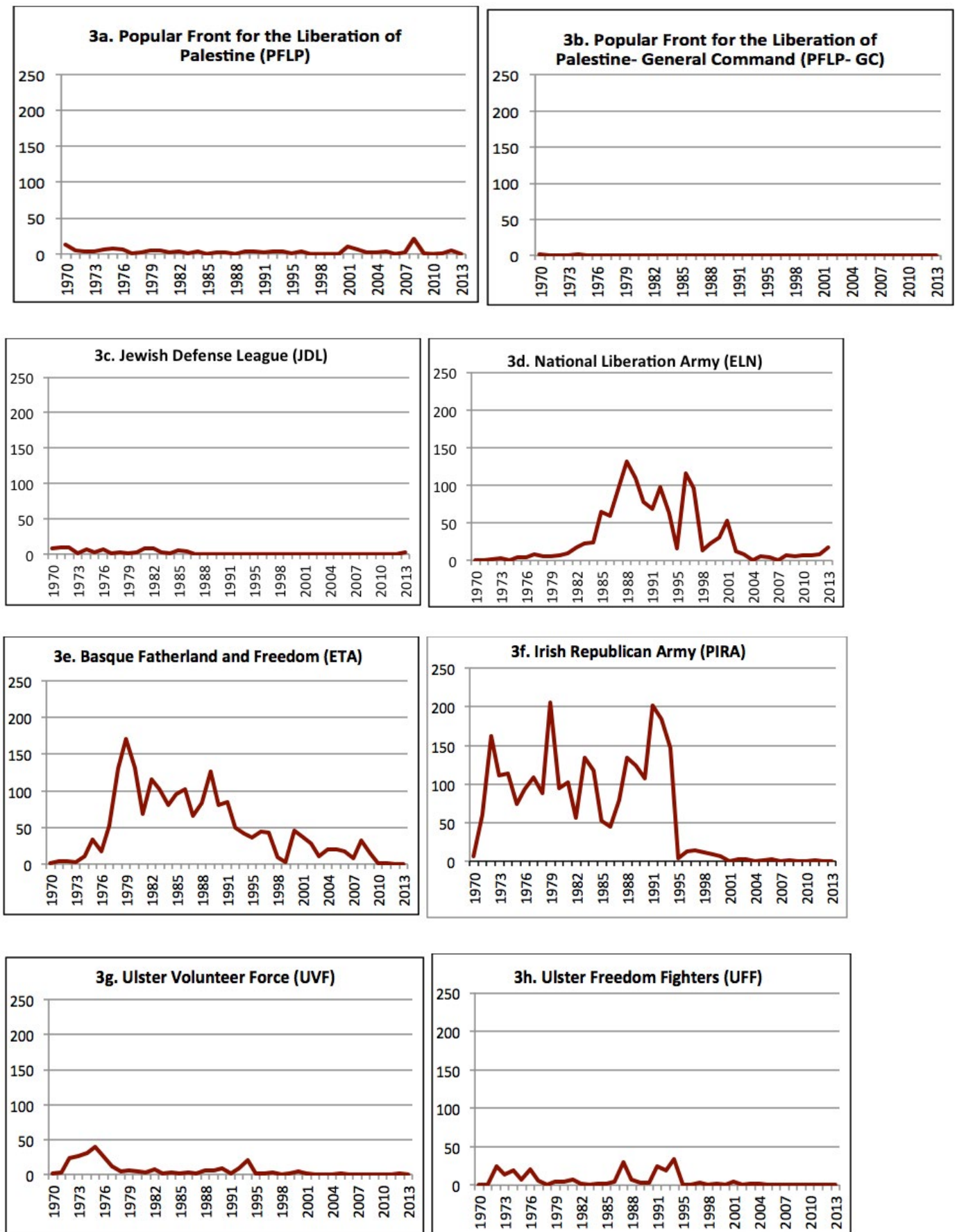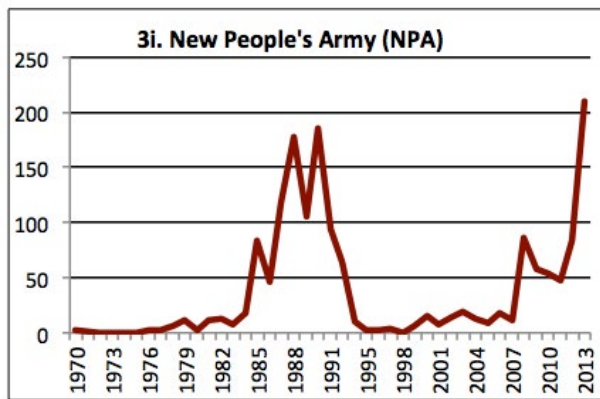
While several of these organizations have carried out relatively few terrorist attacks during the period of time in which they were active, others such as the ELN, ETA, PIRA, and NPA were extremely prolific. However, even among the more active perpetrator organizations, the patterns of activity suggest different mechanisms for decline. An analysis of these perpetrator groups based merely on total number of years of terrorist activity or a simple survival analysis would fail to capture this variation. Even a measure of average number of attacks per year is potentially misleading for an organization like the PIRA. Calculated over the entire span of activity, 65.2 attacks per year is actually a very poor measure of a central tendency for almost any point in the PIRA's 41-year history documented by the GTD.

An Alternative Analytical Strategy

Elsewhere, I have used group-based trajectory analysis to begin to address the challenge of modeling desistance as a process.[61] This analytical strategy, developed by Nagin and Land in 1993 to model patterns of behavior over the life course of individuals, allows analysts to estimate discrete classes of trajectories of events over time that represent predicted patterns of activity derived from a set of observed values of change over time. Researchers can also estimate the probability of an observation's membership to a particular trajectory class of activity that is consistent with its patterns of behavior.[62] Put simply, this is a descriptive analysis that allows one to systematically group together numerous trajectories like those shown in Figures 3a-i, based on their similarity. By doing so, we can identify general patterns of activity over time among perpetrator groups, and estimate how common they are.

The results of these analyses illustrate a variety of trajectories of activity among perpetrator groups, ranging from "low peak; rapid decline" trajectories to "high peak; very slow decline" trajectories. However, they also reveal yet another complication related to the operationalization of terrorist organizations. In fact, some of the organizations characterized by the most rapid rates of decline were those that did not disengage, but instead changed their names and evolved to continue carrying out terrorist attacks recorded as different entities in the database. These include, for example, Tawhid and Jihad, which was the original name of the group that would later become al Qa'ida in Iraq (AQI), and subsequently evolve into Islamic State of Iraq (ISI), followed by Islamic State of Iraq and the Levant (ISIL), and ultimately Islamic State (IS). As noted above, ISIL would be considered a short-term perpetrator organization at the time of this analysis. Surely this is a mischaracterization, given its history.

Discussion

By reviewing basic information on the composition of perpetrator organizations in the GTD, I have arrived at several key conclusions regarding the implications of measurement and analytical strategy for the study of collective desistance from terrorism, and how these issues impact our understanding of the longevity and perceived patterns of decline of terrorist organizations.

First, event databases of terrorist attacks are extremely rich and it is appealing to aggregate the data on perpetrator organizations and leverage it to study their patterns of activity. This seemingly avoids the challenge of defining what is meant by a "terrorist organization" *a priori* because it provides information on all groups that have carried out terrorist attacks. However, this operationalization can lead researchers to assume that the organizations are a relatively homogenous set of "terrorist groups" when in fact, the perpetrator organizations in the GTD are more of an assortment of what we might consider quintessential terrorist organizations, criminal organizations, insurgent groups, political parties that engage in occasional terrorist attacks, political parties that routinely engage in terrorist attacks, terrorist organizations that have evolved into political parties, and a plethora of splinter groups, alliance groups, single-use names of perpetrator groups, and, in a few cases, unaffiliated or weakly affiliated individuals who have branded themselves with a group name. This complexity in the data is likely above and beyond variation in the cohesion or organizational structure of terrorist groups, which most scholars would anticipate.

Second, when faced with a dataset of terrorist activity it is important to keep in mind the vast diversity of contexts in which perpetrator organizations operate. Organizations evolve over time, merging with other organizations, splitting apart, and sometimes changing names despite little or no change in the structure of the organization. Furthermore, fluidity of group membership, leadership, and overall identity as allegiances come and go suggest that the entitativity of collectives that engage in terrorism is highly variable and should not be taken for granted. These factors, which would almost certainly come to light in a qualitative analysis of collective desistance among a single terrorist group or a small number of terrorist groups, are more difficult to identify and address when dealing with hundreds of perpetrator organizations.

A third key implication for research is that the analyses here are consistent with theorizing that desistance is a process, rather than a state. The various trajectories of long-active organizations illustrate different patterns that a perpetrator group's terrorist activity might follow; however, even those that are characterized by rapid decline manifest that this process often takes place over the course of several years. A perpetrator organization's rate of decline can also vary based on its frequency of attacks. If an organization transitions from heavily active to completely inactive in the span of one year, it is quite possibly due to an artifact of the data, such as a name change. Because of this, in order to better understand the process of desistance, it is important that we use analytical methods that can accommodate dynamic changes in behaviors over time. Analysis of the longevity of perpetrator organizations' terrorist violence is insightful, but it can be misleading in the absence of information about variation in its intensity over time, as well as qualitative contextual information about the organizations' evolution.

Future Research

In addition to capitalizing on the promise of trajectory models to analyze the process of collective desistance from terrorism, future research should seek to address the challenges related to operationalization of terrorist organizations using large-N data. For example, preliminary analyses of *movements* identified in the GTD—clusters of diverse perpetrator entities that share common goals—indicate that their patterns of terrorist activity are very different from those of individual perpetrator *organizations*.[63] While the distribution of active time spans among perpetrator organization is heavily skewed to the right in Figure 2, meaning most have very short periods of activity while a few have much longer periods of activity, the opposite is true of movements. This suggests that while the names of organizations come and go, the broader cause is often much more robust.

Like terrorist organizations, terrorist movements can be very difficult to operationalize. It is not immediately clear what the appropriate level of aggregation or granularity should be–does the Islamic State's movement consist of those named organizations that have directly evolved over time, with shared leadership, personnel, and resources? Or, is it more appropriate to broadly conceive of the Islamic State movement as any

organization that has pledged allegiance to al Baghdadi? Or, does the broader salient movement essentially consist of all of adherents to Salafi jihadism? Regardless what the answer might be, this research made it clear that quantitative research on how individual groups relate to the broader cause is a necessary next step in order to accurately evaluate patterns of collective desistance from terrorism.

Conclusions

Given that this analysis reveals diverse patterns of desistance and substantive variation among organizations classified as having similar trajectories, this finding is consistent with Crenshaw's observation that the effectiveness of counterterrorism operations is likely to differ depending on context.[64] These results suggest that it is important for policymakers to consider the historical patterns of activity not only among perpetrator organizations that are loosely organized versus hierarchically structured ones, but also differ with respect to degree of intermittency and specialization in offending.

To the extent that future research is able to better identify the events, circumstances, or policies that promote rapid collective desistance from terrorism rather than gradual desistance from terrorism, policymakers may adopt strategies that leverage this information for the purpose of fostering rapid desistance in order to prevent violent groups from continuing to engage in terrorism for decades. However, in order for this research agenda to be truly productive, scholars must embrace the challenging work of multi-method, critical analysis of terrorist perpetrator organizations.

The function of scientific inquiry is not always to simplify complex phenomena, but sometimes it is – certainly in the social sciences–valuable to recognize and expose the inherent complexity. It is often the case that if we are transparent about the limitations of data and statistical methodologies, research on many of the challenging issues faced by social scientists raises more questions than it answers. The results presented here demonstrate that this is certainly true of patterns of collective desistance from terrorism, if one wants to establish a robust research agenda for future inquiry.

Postscript

This article summarized some of the methodological considerations on which the author's doctoral dissertation was based. The thesis itself used a method called *group-based trajectory analysis* to more fully model the dynamics of the "life course" of more than 600 organizations identified as terrorist perpetrators in the GTD. The quantitative work was complemented by case study analysis in order to challenge assumptions that are often based on either case studies or aggregate statistics alone.

The dissertation identified six distinct patterns of post-peak terrorist violence among the 632 perpetrator organizations identified in the GTD as having carried out terrorist attacks for at least one year. These unique patterns of decline in terrorist violence among organizations include both rapidly declining organizations (approximately four out of five of the organizations could be classified as such) and those that declined more gradually or hardly at all (approximately one fifth of them).

It was also found that perpetrator organizations that began engaging in terrorist violence on a rapidly increasingly trajectory, as well as those that have carried out mass-casualty attacks, suicide attacks, or logistically sophisticated international attacks, are disproportionally less likely to be characterized by a rapidly declining trajectory of post-peak activity, compared to those groups whose terrorist activities do not have each of these attributes.

About the Author: **Erin Miller**, *Ph.D.* is the winner of the 3rd TRI Award for the Best Doctoral Dissertation on

Terrorism and Counter-Terrorism. Her thesis "Patterns of Collective Desistance from Terrorism" was defended in July 2015 and led to a doctoral degree in Criminology and Criminal Justice. She is a Researcher for the National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland where she is, as Program Manager, responsible for the Global Terrorism Database (GTD).

Dr. Miller has been part of the GTD team since 2004, developing efficient and effective data collection processes. She produces accessible analytical reports that provide context for current events, and she frequently consults with end-users of the GTD, including researchers, policy makers, journalists, and students. She serves as key personnel on research projects related to the GTD, and has created training modules to provide GTD users with insight on data collection methodologies and tools for data analysis.

Notes

[1] There is little agreement in the literature regarding the terminology used to describe these entities; most scholars use the terms "terrorist group" and "terrorist organization" interchangeably. Note that this discussion and analysis references collectivities with varying degrees and types of organization, but excludes unaffiliated individuals; Miller, E. (2012a). Patterns of onset and decline among terrorist organizations. *Journal of Quantitative Criminology*, *28*(1), pp. 77-101;URL:*http://doi.org/10.1007/s10940-011-9154-6* ; Miller, E. (2013b). Terrorist organizations. In *Encyclopedia of Criminology and Criminal Justice*. Springer, pp.5146-5147; Phillips, B. J. (2014b). What is a terrorist group? Conceptual issues and empirical implications. *Terrorism and Political Violence*, pp. 1-18; URL: *http://doi.org/10.1080/09546553.2013.800048*.

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[53] The GTD is missing data on attacks that occurred in 1993 because the original records were lost prior to being transferred from Pinkerton to START. Therefore 1993 is excluded from the analysis. Because 1993 falls at an arbitrarily different point in the life course of each organization, I assume that this missing data do not systematically impact the results of this analysis.

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