ABSTRACT

Title of dissertation: PATTERNS OF COLLECTIVE DESISTANCE FROM TERRORISM

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To better understand *why* perpetrator organizations desist from terrorist violence, we must first understand *how* perpetrator organizations desist from terrorist violence. With this research 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. First, I review the existing scholarly literature on collective desistance to identify conceptual and practical limitations. Second, I describe several key challenges for empirical analysis of collective desistance from terrorism. Third, I leverage more than 40 years of event data from the Global Terrorism Database to analyze patterns of desistance among 632 organizations that carried out terrorist attacks between 1970 and 2013. In doing so, I use descriptive statistics and brief qualitative case studies to critically evaluate the results of this relatively large-N analysis and illustrate its strengths and limitations. Fourth, I expand the analysis to consider how characteristics of perpetrator organizations' terrorist activity relate to patterns of desistance. Finally, I conclude with a discussion of the implications of this study for research, theory, and

policy, as well as the limitations and opportunities for improvement and expansion upon the current research.

PATTERNS OF COLLECTIVE DESISTANCE FROM TERRORISM

by

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CHAPTER ONE: Collective Desistance from Terrorism

This research is intended to bridge a gap in the literature on terrorist activity with respect to two dimensions. First, both criminology generally and terrorism studies in particular focus more on individual-level mechanisms as they relate to criminal behavior, despite the fact that many types of crime, including juvenile delinquency, gang violence, organized crime, corporate crime, and terrorism, are largely conceived of and carried out as, if not defined by, collective action (LaFree & Miller, 2008). Second, researchers that do study group dynamics typically focus on the onset of groups, or the process by which individuals join groups, while failing to systematically evaluate the dynamics of their decline (McCauley & Moskalenko, 2008; J. Miller, 2006; Sageman, 2004; Silke, 2008; Thornberry, Krohn, Lizotte, Smith, & Tobin, 2006; Thrasher, 1927). Despite these specific gaps, there is a rich literature in criminology and other disciplines, including sociology and political science, which can be constructively leveraged and built upon to better understand how terrorist organizations decline (e.g., Agnew, 2010; Crenshaw, 1987; Gurr, 1970). My objective here is to synthesize existing theoretical insights from criminology and other relevant disciplines and exploit data on more than 40 years of domestic and international terrorist attacks in the Global Terrorism Database to identify and investigate patterns of decline and desistance among terrorist organizations[1] toward

[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 (E. Miller, 2012a, 2013b; Phillips, 2014b). Note that this discussion and analysis references collectivities with varying degrees and types of organization, but excludes unaffiliated individuals.

the goal of developing a broader, empirically grounded, theoretical and practical understanding of these patterns and their predictors.

The fact that research on crime, including terrorism, focuses on individuals is certainly not unreasonable, as perpetrators are indeed individuals and, for the most part individuals rather than collectives are ultimately held responsible for breaking the law. Even in the case of corporate crime, which is typically conceived of as offenses carried out by corporations, the focus of the criminal justice system is often individual officials. Simpson (2002) notes that cases of antitrust and environmental offenses frequently involve the prosecution of individuals rather than companies because of the belief that targeting individuals will produce a greater deterrent effect. However, individuals do not act in a vacuum and there is extensive evidence that the collective, or group, plays an important role in the perpetration and exacerbation of criminal activity. For example, researchers have observed and painstakingly studied peer influences and the salience of co-offending in myriad behaviors, including alcohol use among college students (Borsari & Carey, 2001; Guo, Li, Owen, Wang, & Duncan, 2015), desistance from marijuana use (Maume, Ousey, & Beaver, 2005), general delinquency and desistance from delinquency (McGloin, Sullivan, Piquero, & Bacon, 2008; Reiss & Farrington, 1991; Short & Strodtbeck, 1974; Warr, 1998; Warr & Stafford, 1991), and adult offending (Reiss, 1988). With few exceptions, the unit of analysis in studies on co-offending is the individual or the incident (exceptions include Asal & Rethemeyer, 2006, 2008; Breiger & Melamed, 2014; Clinard & Yeager, 1980; Jankowski, 1991; Sutherland, 1949; Thrasher, 1927).

Perhaps the most relevant and fruitful 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 (1927) 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." More recently, studies routinely find that gang membership is a consistent predictor of involvement in violence and recidivism (McGloin, 2007). Yet few study patterns of activity among gangs themselves as a unit of analysis (Decker & Pyrooz, 2015). Likewise, scholars routinely observe that group membership is an influential element of engagement in terrorism. That is, individuals with radical beliefs may never act on them if not for the support and encouragement of groups or networks. Explanations of terrorism as a form of collective violence certainly privilege the impact of group processes on individuals, whether they focus on social-structural motivations or resource mobilization (Barkan & Snowden, 2001; Bouhana & Wikström, 2008). Some highlight the motivations of individuals that are generated by collective experiences, including strains or grievances (Agnew, 2010; Black, 2004; Senechal de la Roche, 1996; Smelser, 1963). Black (2004, p. 10; 13), describes terrorism as "unilateral self-help by organized civilians" characterized by "strong ties among the aggrieved and a lack of ties to their adversaries." Others suggest 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 (Crenshaw, 1987, 2001; Tilly, 1978). Moghaddam (2005) 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. 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" (2006, p. 141)

Despite the fact that collective action is an important feature of many types of criminal behavior, criminologists and terrorism scholars have not adequately explored the dynamics of the groups themselves, whether street gangs, criminal organizations, or terrorist groups. This may be due, in part, to an assumption that understanding group dynamics largely follows from understanding individual or contextual dynamics. In other words, if the conditions are right for individuals to engage in collective violence, or cease engaging in collective violence, groups will come or go accordingly. Indeed, researchers who investigate the processes by which individuals leave gangs or terrorist groups finds that they have much in common (Bjørgo & Horgan, 2009; Decker & Lauritsen, 2006; Horgan, 2009; Pyrooz & Decker, 2011). However, the link between individual behavior and collective behavior is not well understood, particularly with respect to disengagement, and scholars studying diverse types of criminal behavior have indicated that we cannot assume that as the individuals go, so goes the group. While the existence and activity of groups of offenders certainly depends upon engagement of its membership, given a sufficient pool of motivated recruits collective mechanisms involving mobilization, resources, motivation, and group cohesion and strength are

equally if not more relevant to understanding patterns of crime, be it drug crime (Blumstein, 1993), gang-related offenses (Reiss, 1988; Short & Strodtbeck, 1974), corporate crime (Fisse & Braithwaite, 1993), or terrorism (Bjørgo & Horgan, 2009; Crenshaw, 1987, 1991, 2001).

Another possible explanation for the scarcity of research that treats the group as the unit of analysis is the essential need for systematically collected empirical data that can be very difficult to obtain (Simonelli & Asal, 2014). In his introduction to Thrasher's 1927 study of more than 1,300 gangs in Chicago, Short (1963, pp. xv–xvi) 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" (Short, 1963, pp. xxxiii–xxxiv). Remarkably, there have been few attempts since Thrasher's to systematically analyze quantitative data on the characteristics and activities of a large number of groups or organizations that engage in conventional crime (Decker & Pyrooz, 2015). This is due, in part, to the fact that gangs are difficult to define and count, and comprehensive data on their activities are extremely labor-intensive to collect (Jankowski, 1991; Weisel, 2002).

Likewise, in his introduction to a new edition of the 1980 study that he and Yeager conducted on a sample of 477 Fortune 500 companies, Clinard (2006) contrasts it with

what he identifies as the only other comprehensive study of corporate crime ever produced: Sutherland's (1949) study of 70 of the largest companies. Sutherland, whose efforts took 25 years, considered the full life span of the companies in his sample. Clinard and Yeager (1980) investigated more companies in much greater detail, but for only two years, 1975 to1976. Clinard (2006) points out that the authors of both studies acknowledge the difficulty of systematic data collection on the topic.

This is not to say that criminal groups have been ignored entirely. However, when researchers do study groups they typically focus on the ways in which groups form, and in-depth case studies on small numbers of groups or organizations. Prior research on collective offenders has largely focused on the onset of gang or terrorist activity, including both radicalization among individuals and the genesis of groups (McCauley & Moskalenko, 2008; J. Miller, 2006; Sageman, 2004; Silke, 2008; Thornberry et al., 2006; Thrasher, 1927). While understanding the onset of violence is undoubtedly important, the implicit assumption that a decline in violence is simply a result of the absence factors that cause violence is problematic. Instead, criminologists Uggen and Piliavin (1998) encourage those developing theoretical explanations of desistance from crime to accommodate the possibility of asymmetrical causation and systematically investigate causes of desistance in particular (Chamlin & Cochran, 1998; L. E. Cohen & Land, 1987; Lieberson, 1985). Indeed, there is a robust literature in criminology that explores desistance from criminal activity among individuals, including the effects of social processes, developmental processes, and criminal justice processes (Farrall & Maruna, 2004; Gibson & Krohn, 2013; Kazemian & Maruna, 2009; LaFree & Miller, 2008; Laub

& Sampson, 2001; Maruna, 2001). However very little, if any, of this literature examines the cessation of criminal activity among collectives. Thrasher's (1927) in-depth investigation of gangs reveals few key insights about the dynamics of gangs as entities. In particular he notes 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" (1927, p. 47) but that "the ganging process is a continuous flux and flow, and there is little permanence in most of the groups" (1927, p. 31). We know very little about the conditions that are favorable or not to the continued existence of a criminal group.

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 (Clinard & Yeager, 1980; Crenshaw, 1991; Cronin, 2006, 2009; Dugan, Huang, LaFree, & McCauley, 2008; Jankowski, 1991; Ross & Gurr, 1989; Sutherland, 1949; Thrasher, 1927; United States Institute of Peace, 1999; Weisel, 2002). While many of the case studies are impressive in their depth, ability to capture nuanced and complex experiences of groups, and 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. It is likely that the most well researched terrorist organizations differ in important and systematic ways not only from each other, but from lesser-known organizations as well. 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 (Dugan, LaFree, & Miller, 2012; McCauley, 2008).

A growing number of studies quantitatively analyze relatively large numbers of terrorist perpetrator organizations (Asal & Rethemeyer, 2008; Clauset & Gleditsch, 2012; Dugan, 2012; Dugan et al., 2012; LaFree, Dugan, & Miller, 2015; Simonelli & Asal, 2014), including some that investigate the desistance of terrorist organizations in particular (Blomberg, Engel, & Sawyer, 2010; Blomberg, Gaibulloev, & Sandler, 2011; Gaibulloev & Sandler, 2013; S. G. Jones & Libicki, 2008; E. Miller, 2012a; Phillips, 2014a, 2015; Young & Dugan, 2014). In contrast to in-depth case studies, these relatively 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, while qualitative analyses and case studies risk overlooking the forest for the trees, relatively large-N studies may have the opposite problem. That is, 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 relatively 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, or other external factors that influence the terrorist behavior that comprises the dataset.

Partly as a result of these gaps, the development of theories to help understand and generate hypotheses regarding patterns of criminal activity among groups, including desistance from criminal activity among groups, is extremely limited both in the field of criminology and the multi-disciplinary field of terrorism studies in particular. There are many ways in which existing theories designed to explain individual processes and behavior can be adapted to provide insight for group-level patterns of activity, however this requires careful consideration of key concepts. These include defining the somewhat vague concept of desistance as it applies to groups, which is as complex if not more so as defining it for individuals, and considering what mechanisms—as well as experiences, beliefs, traits— typically attributed to people can be extended to groups of people.

Given the diversity of perpetrator organizations, development of theory that seeks to explain group-level activity stands to benefit from an inductive approach that leverages empirical data on said activity in a way that complements the deductive theorizing that has already been done based primarily on archetypical cases of well-established perpetrator groups. Of equal if not greater importance are the policy implications of this line of inquiry. With respect to terrorism, we have limited understanding of the most effective policies to counter terrorist organizations and hasten their demise (Dugan & Chenoweth, 2012; Dugan et al., 2008; Lafree, Dugan, & Korte, 2009; Lum, Kennedy, & Sherley, 2006). There are lessons to be learned from criminology, and the research that follows will build a foundation for developing general theoretical principles in support of policy.

The purpose of this research is not to formally test extant theories or articulate a comprehensive theoretical paradigm to explain collective desistance from terrorism. Although I synthesize relevant theoretical perspectives across disciplines in order to establish context, many key concepts identified in the existing literature remain unmeasured and untestable. Instead, I address the following research questions.

1. What are the ways in which organizations that engage in terrorist violence desist from engaging in terrorist violence? What patterns or trajectories of declining violence do we observe among organizations that engage in terrorism?
2. How do salient attributes of perpetrator organizations' terrorist activity relate to their patterns of desistance from terrorist violence? For example, are particular tactics or patterns of onset correlated to particular patterns of desistance?
3. What are the key implications of measurement and analytical strategy for the study of collective desistance from terrorism? How do these issues impact our understanding of the longevity and patterns of decline of terrorist organizations?

The current research aims to advance our understanding of group-level desistance from terrorist activity as follows. First, I review the relevant theoretical landscape and empirical analyses of terrorist group longevity and decline. I discuss the ways in which existing theories of violence designed to explain behavior among individuals, and theoretical explanations of violence from other disciplines can be adapted for and inform the development of theory to explain group-level terrorist activity. Second, I discuss the methodological limitations of the existing analyses of terrorist groups and describe a methodological strategy for modeling the dynamics of perpetrator organizations' terrorist

activity using group-based trajectory analysis (Nagin, 2005), in concert with descriptive statistics and case studies. Third, I conduct original analyses of patterns of activity among terrorist groups, exploring various dimensions of their activity. In these analyses, I define terrorist groups empirically, based on their status as perpetrators of terrorist attacks characterized by the Global Terrorism Database 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" (LaFree et al., 2015, p. 13). I conclude by discussing the implications of these findings for research and policymaking, and identify several key areas for further investigation that are critical components of a research agenda on collective desistance from terrorism. By presenting a multi-method analysis that combines descriptive statistics and group-based modeling of trajectories of violence among a relatively large dataset of terrorist perpetrator organizations with case studies selected to illustrate the contextual variation in these patterns, this research serves to improve our understanding of the complexity of this type of criminal behavior and identify essential facts that a useful theoretical paradigm must accommodate.

CHAPTER TWO: Theoretical and Empirical Literature[2]

To better understand the dynamics of terrorist groups, I draw on an extensive body of literature across several relevant disciplines. As a form of political violence, terrorism has long been studied by political scientists. However, it undoubtedly falls within the purview of criminology established by Sutherland (1934, p. 1) as "the body of knowledge regarding crime as a social phenomenon that includes within its scope the process of making laws, of breaking laws, and of reacting toward the breaking of laws." Beyond this mere definitional compatibility, and despite the sometimes dramatic and unique qualities of terrorist attacks, we observe numerous features of terrorist crimes and criminals that are shared in common with conventional crimes and criminals. Of particular relevance to the present research is the fact that terrorism is often, but not exclusively, perpetrated by groups of individuals. In fact, the literature describing the composition and formation of terrorist groups is strikingly reminiscent of observations on criminal gangs (Sageman, 2004; Thrasher, 1927).

A few theoretical frameworks exist, however most are incomplete for explaining group-level desistance from terrorist activity (LaFree & Miller, 2008). In general, existing theoretical paradigms in the fields of criminology and sociology either focus on individual-level or contextual mechanisms without clearly laying out the implications for group dynamics, or they focus on the onset of groups without laying out the implications

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[2] An earlier version of this chapter was previously published in:
Miller, E. (2012). Patterns of Onset and Decline Among Terrorist Organizations. *Journal of Quantitative Criminology*, *28*(1), 77–101.

for decline. Some scholars do directly address the decline of terrorist groups, but from the vantage point of a few idiosyncratic examples of long-established terrorist groups rather than a comprehensive profile of the myriad types of groups (Crenshaw, 1991; Cronin, 2006, 2009; Ross & Gurr, 1989; United States Institute of Peace, 1999). Here I briefly review the landscape of key theoretical and conceptual paradigms that are most relevant for explaining the phenomenon of collective desistance from terrorism, with the intention of identifying ways in which they would need to be adapted in order to inform the question at hand, and the practical implications of empirical evaluation. Three of the most relevant theoretical and conceptual frameworks from criminology, sociology, political science, and terrorism studies are: 1) theoretical explanations that emphasize the importance of grievance or strain; 2) theoretical explanations that emphasize organizational mechanisms such as recruitment, cohesion, and resource mobilization; and 3) inductively generated typologies that enumerate the myriad causes of collective desistance from terrorism.

While these three frameworks approach the question of collective desistance from terrorism in different ways, they share in common a theoretical or practical relevance to this topic. As Table 2.1 indicates, each of these frameworks identifies or implicates key constructs that are likely to influence or characterize the decline of terrorist organizations. The first two are theoretical frameworks developed by criminologists, sociologists, and political scientists, primarily as general explanations of crime and violence. Any implications they may have for collective desistance from terrorism in particular must be inferred from the general principles they put forth.

Table 2.1 Key theoretical and empirical constructs related to collective desistance from terrorism
(Adapted from: E. Miller, 2012a, p. 80)

THEORY: GRIEVANCE, STRAIN, AND COPING	
Merton (1938) -Relief from tension between social goals and structural means Gurr (1970) -Decrease in relative deprivation -Resolution of grievance Baumgartner (1984) Senechel de la Roche (1996) Black (2004) -Resolution of grievance (those in power desist from promoting perceived injustice)	Agnew (1992; 2010) -Decrease in strain: Scope Magnitude Civilian targets Injustice Asymmetry -Increase in coping mechanisms: Social support Social control -Breakdown of collective orientation -Decrease in beliefs/conditions favorable to terrorism
THEORY: ORGANIZATIONAL CHARACTERISTICS/MECHANISMS	
Tilly (1978) -Breakdown in organization -Loss of resources -Failure of mobilization	Crenshaw (1987) -Loss of group cohesion/solidarity -Decreased support of constituency -Decreased salience of purposive incentives
TYPOLOGIES: WHY TERRORISM ENDS	
Ross & Gurr (1989): –Preemption –Deterrence –Burnout –Backlash Crenshaw (1991): –Physical defeat by government –Group abandons terrorist strategy –Organizational Disintegration USIP (1999): –Success –Preliminary success –Organizational breakdown –Dwindling support –New alternatives	Cronin (2006; 2009): –Capture/Killing of leaders –Unsuccessful generational transition –Achievement of the cause –Transition to legitimate political process –Loss of popular support –Repression –Transition out of terrorism: Toward criminality Toward full insurgency Jones & Libicki (2009): –Policing –Military force –Splintering –Politics –Victory

The third approach stems from a growing literature in which terrorism scholars attempt to classify empirically observed ways in which terrorist groups have ceased offending or ceased to exist. It is important to note that many of the constructs identified in Table 1 are not mutually exclusive or likely to operate in a vacuum. Indeed, one of the tenets most commonly agreed-upon by scholars who investigate the decline of terrorist organizations is that there is rarely a single reason for a group to desist from terrorism. Rather, the best explanation is likely to involve multiple forces, both internal and external to the group, operating in concert to promote the organization's demise (Crenshaw, 1991; McCauley, 2008; Ross & Gurr, 1989). Bearing this in mind, my primary goal in reviewing these theoretical and typological mechanisms is to illustrate that they each include elements that suggest that collective desistance from terrorism, not unlike desistance from other types of crime (Laub & Sampson, 2001), is likely to be a *process* rather than a *state*. As such, we require methodological tools that allow us to evaluate the process of decline among groups (Bushway, Piquero, Broidy, Cauffman, & Mazerolle, 2001; Bushway, Thornberry, & Krohn, 2003).

Grievance, Strain, and Coping

Perhaps one of the most salient features of terrorism is that which differentiates it from other types of crime: the fact that it is typically defined as having political goals (Schmid & Jongman, 2005). Because of this, many scholars seeking to better understand terrorism and political violence in general focus on the grievances of the perpetrators and their ability, or lack thereof, to address grievances in non-violent ways. In the field of political science, Gurr (1970, 2011) is credited with theorizing about relative deprivation (also

referred to as sense of injustice, or grievance) as a key source of motivation for political violence. Gurr suggests that the perceived tension between what is and what ought to be with respect to values such as security, welfare, and self-determination varies in scope, intensity, and duration, and is an important predictor of the likelihood of engaging in collective violence. Though Gurr's relative deprivation theory was primarily influenced by psychological research on the link between frustration and aggression, it bears a strong resemblance to the strain theory variants advanced by criminologists that are partly rooted in sociology.

Leveraging Durkheim's (1897) concept of *anomie*, Merton (1938, 1968) establishes a framework in which antisocial behavior, instead of stemming from unrestrained biological impulses, is a result of the disconnect between culturally ascribed goals and structurally constrained means of achieving them. Indeed, under certain structural conditions this disconnect causes frustration and otherwise deviant behavior is not only possible, but also normative rather than deviant. Merton identifies five ways in which an individual can adapt to this frustration in specific situations: conformity, innovation, ritualism, retreatism, and rebellion. The two possible responses that are most relevant to violence, and to terrorism in particular, are innovation (the internalization or acceptance of culturally defined goals, but not the institutional restrictions on how they may be achieved) and rebellion (making efforts to change the social structure rather than adapt to it). Though Merton's aim is to better specify the complex link between poverty and crime by identifying these varied responses, he acknowledges that this initial effort does little to

articulate what determines the mode of response, aside from the somewhat poorly defined concepts of assimilation or socialization.

The grievance- or strain-based theoretical framework has evolved and been expanded upon, with mixed empirical support, by many scholars attempting to specify the relevant sources, types, and dynamics of strain or conflict that impact delinquency and conventional crime (Agnew, 1992, 2007; Cloward & Ohlin, 1960; A. K. Cohen, 1955; Messner & Rosenfeld, 2001) as well as collective violence (Baumgartner, 1984; Black, 2004; Senechal de la Roche, 1996; Smelser, 1963). Several of these approaches share in common a distinct neutrality regarding the perception of right and wrong, or offender and victim. In fact, the idea that the perpetrators of collective violence often see themselves as holding their targets collectively liable for perceived injustice, particularly in an asymmetric power dynamic, is a central theme of this theoretical perspective. Rather than reserving the term "social control" to refer only to actions taken by those in positions of power to punish those deemed deviant, some scholars conceive of violent behavior like terrorism as a general form of social control in response to injustice or wrongdoing not unlike that exercised by those in power (Baumgartner, 1984; Black, 2004; Senechal de la Roche, 1996).

Agnew (1992) also expands the strain framework into a much more general theory of crime and delinquency. Like Gurr, but unlike many other strain theorists, Agnew conceives of strain as an individual-level social-psychological mechanism that varies with respect to magnitude, duration, recency, and clustering. He argues that several types

of strain are possible, resulting from the prevention of achieving goals, removal of positive stimuli, and presentation of negative or noxious stimuli. More specifically, these can be manifested as tension between aspirations, expectations, and achievements, or as a perception of injustice. Furthermore, Agnew goes on to identify cognitive, behavioral, and emotional coping strategies that may allow individuals to adapt in pro-social ways to the fear and anger caused by strain.

Though Agnew's general strain theory departs considerably from Merton's original framework, it does include a number of constructs commonly considered by scholars who seek to explain engagement in terrorism: perceived injustice, grievance, frustration, and availability of legitimate means for resolving grievances. In fact, Agnew (2010) synthesizes a broad swath of scholarly literature on the topic of terrorism under the banner of general strain theory. He suggests that terrorism is more likely when individuals experience collective strain that is widespread and injurious, high in magnitude, impacts civilians, is perceived to be unjust, and is inflicted by more powerful entities. According to Agnew's general strain paradigm, these conditions lead to anger, humiliation, and hopelessness. In the absence of social support and social control to provide the necessary resources to respond to these conditions through legal, non-violent channels they promote beliefs and conditions favorable to terrorism.

Agnew's all-inclusive, and partly tautological (e.g., beliefs favorable to terrorism are favorable to terrorism) framework posits a number of hypotheses about the relationships between strain, intervening factors, and terrorism, but what does this mean for the study

of collective desistance? How should constructs like scope and magnitude of strain be operationalized in the context of terrorism? If strain theorists have identified the conditions under which terrorism will occur, can we assume causal symmetry and infer that existing terrorist campaigns will end if the magnitude, scope, injustice, or injuriousness of the grievance is abated, or if the aggrieved parties gain the capacity or desire to respond to the strain in non-violent, pro-social ways? Are these processes that develop rapidly or gradually among groups and individuals? While these unanswered questions must be addressed in order for strain-based theories to offer a viable explanation of collective desistance from terrorism, consideration of these potentially relevant factors begins to illustrate the complexity of collective offending dynamics.

Organizational Mobilization

In the fields of psychology, sociology, criminology, and terrorism studies, classical forms of frustration-aggression or strain models have received limited empirical support and considerable criticism (Agnew, 1992; Barkan & Snowden, 2001; Bernard, 1984; Gurr, 2011; Kornhauser, 1978; Schmid & Jongman, 2005; Tilly, 1978). One key source of criticism is the fact that these models over-predict offending. That is, to some extent frustrations and strain are universal, yet not everyone responds to perceived injustice with aggression or violence. Efforts to accommodate this criticism by more fully specifying sources of strain and intervening mechanisms have received marginally better empirical support (Agnew, 2006). However, they sacrifice theoretical clarity and parsimony, and can be difficult if not impossible to operationalize or falsify (Barkan & Snowden, 2001; Rule, 1988).

In contrast, a second theoretical framework suggests that since grievance is essentially universal, explanations of violence must focus on differentiating aggrieved individuals who engage in violence from those who do not (Barkan & Snowden, 2001; Rule, 1988). In comparison to theories based on strain, grievance, and coping, which hinge on individual mechanisms, this perspective focuses much more on the influence of groups or organizations. For example, one of the principal theorists from this school of thought is Tilly (1978), who suggests that organization, resources, and mobilization are the key conditions influencing the use of violence in pursuit of interests. Furthermore, violent actions are not exceptional, but rational and arise out of normal, nonviolent action.

Within this basic premise, a number of other scholars have considered the dynamics and characteristics of organizations to be particularly influential to patterns of terrorism and political violence. Rule (1988) expands upon Tilly's work to accommodate the possibility that collective violence can be both instrumental (a means to an end) or expressive (an end in itself, such as an expression of solidarity). Crenshaw (1987, 2001) adopts a similar dichotomy as the central framework of her theory of terrorism, distinguishing between group processes that are oriented around instrumental goals, and those that are oriented around organizational processes related to the continued existence of the group rather than explicit political goals (Wilson, 1973). Crenshaw suggests that these conditions are not mutually exclusive; both types of objectives are important, and in fact groups that are formed around instrumental goals often evolve into groups that are motivated by survival as political objectives are overshadowed by social relationships among group members.

Regardless, like Tilly, Crenshaw maintains that the factors that influence patterns of terrorism have to do with the formation and endurance of organizations, including entrepreneurship, a committed constituency for mobilizable resources, and the salience of incentives that legitimize violence.

With respect to collective desistance in particular, Crenshaw points out that the appropriate policy prescriptions for terrorist groups that are instrumentally oriented may be at odds with those for groups that are organizationally oriented. Particularly with respect to terrorist groups with primarily organizational objectives, much like we see with criminal gangs (Klein, 1997; Klein & Crawford, 1967; Thrasher, 1927), group cohesion and solidarity are of utmost importance. Conflict with security forces or other groups can serve to reinforce the solidarity of terrorist groups. Furthermore, like commercial firms, terrorist organizations do not operate in a vacuum, but instead exist among other groups, often in competition for scarce resources, support, and personnel.

Several recent empirical analyses of the duration or longevity of terrorist groups are based on this premise (Dugan et al., 2008; Phillips, 2014a, 2015; Young & Dugan, 2014). Dugan and her colleagues (2008) focus on the case of the Armenian Secret Army for the Liberation of Armenia (ASALA) to address the question of how the tactics of a terrorist group impacts its survival through constituency support. Specifically, they find support for the hypothesis that, while constituents do support violence against targets they believe to be collectively liable for perceived injustice (Baumgartner, 1984; Black, 2004), there are limits to a diaspora's willingness to support a perpetrator group's indiscriminately

brutal attacks. In the case of ASALA, they argue that the group's tactics, which came to a tipping point in a particularly reckless attack at Orly airport in Paris in 1983, undermined its legitimacy and ultimately led to its demise (Dugan et al., 2008).

Young and Dugan (2014) 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 (carrying out their last recorded attack) in a given year. 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 some other type of relation, such as collaborators. Phillips uses a similar analytical strategy, in addition to in-depth case studies, to examine the specific effects of violent rivalries (2015) and cooperation (2014a) on group longevity. In contrast to Young and Dugan's (2014) results, Phillips (2015) 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" (1927, p. 116).

Phillips, drawing on the organizational mobilization framework described above, suggests that rivalry is a specific type of competition, and that the effect he finds is potentially a result of multiple mechanisms. First, he argues that otherwise ambivalent civilians may be more inclined to engage and support a particular side of a rivalry. Second, violent rivalries encourage innovation. Third, such rivalries incentivize group members by engaging their sense of solidarity. And fourth, violent rivalries reduce the

likelihood of successful peace agreements. Phillips (2014a) also finds that terrorist groups engaged in cooperative relationships with other groups are more likely to survive, and that the strength of this relationship is greater in contexts where the groups face greater obstacles for survival, such as autocratic states. Others have also investigated the impact of mobilization-related variables on terrorist group survival, including state support (Carter, 2012), duration dependence (Blomberg et al., 2010), and group size, tactics, geography, and ideology (Blomberg et al., 2011; Gaibulloev & Sandler, 2013). 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.

Because the organizational mobilization framework focuses on the salience of group-level mechanisms, it is somewhat better suited than the strain/grievance framework for generating hypotheses about patterns of activity among terrorist groups. As Table 1 shows, theorists have established a very general framework for understanding what organizational attributes promote terrorism, however we must still make certain inferences regarding the causal symmetry of these influences in order to adapt them for understanding the decline of groups. For example, if resources and constituency support allow an aggrieved group to mobilize, we must assume that the lack thereof would cause the group to fail. Although this basic premise involves some degree of tautology—the continued existence of a group could easily be taken as evidence of effective

mobilization—researchers have sought to operationalize it in ways that are falsifiable and have generated interesting initial findings.

What is important about this literature, and most relevant to the present study, 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 seems clear that active terrorist organizations rarely disappear over night. Instead, even the "sudden desistance" investigated by Dugan, Huang, LaFree, and McCauley (2008, p. 231) in the case of ASALA took place over a period of approximately seven years. 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 with no consideration for the trajectory of decline that characterizes failure as a process, perhaps a very long one, rather than a discrete state (Blomberg et al., 2010, 2011; Gaibulloev & Sandler, 2013; Phillips, 2014a, 2015; Young & Dugan, 2014). This methodological limitation will be discussed in greater detail in the next chapter.

Typologies

A third conceptual approach to understanding collective desistance from terrorism involves the development of typologies to classify reasons for organizational decline and desistance from terrorism. This empirically grounded strategy has been popular among terrorism researchers in recent decades, and a number of competing typologies have emerged. Table 1 shows several typologies of reasons for collective desistance that

terrorism researchers have developed based primarily on in-depth case studies. Although they vary in terms of level of specificity and terminology, there is considerable overlap in substance and scholars agree that groups are unlikely to end for a single, straightforward reason. Instead, factors internal and external to the group interact to influence its longevity (Crenshaw, 1991; Cronin, 2006, 2009; Ross & Gurr, 1989; United States Institute of Peace, 1999).

The typical analytical strategy used in these studies is to propose a set of possible mechanisms by which terrorist groups decline, and then evaluate them in the context of several case studies. For example, Ross and Gurr (1989) identify four reasons that terrorist groups might decline, based on a two-by-two matrix of influences *internal* or *external* to the group that impact the group's *military* or *political* strength. Ross and Gurr refer to external influences on a group's military strength as *preemption*, which is most similar to target hardening with respect to conventional crime. *Deterrence*, or increases in the perceived risks of participating in terrorism, impacts the group's military strength through internal mechanisms. They refer to disintegration of the cohesion of the group's members as *burnout*, which represents an internal influence on the group's political strength. And *backlash*, or a loss of support among the group's constituency, represents an external threat to a group's political strength. Ross and Gurr illustrate this typology in the context of two terrorist organizations: Front de Liberation du Quebec (FLQ) in Canada, and the Weather Underground in the United States.

As Table 1 shows, several key mechanisms that are reminiscent of the organizational mobilization framework appear across several of the typologies. Namely, these include loss of support (either internal or external), and organizational disintegration, which is essentially a reference to internal cohesion and cross-generational transmission of the cause. Repression by security forces and success or engagement in politics are also featured in several of the typologies. The more recent typologies developed by Cronin (2006, 2009) and Jones and Libicki (2008) increase in specificity, including several proximate causes of organizational dissolution such as killing/capturing a leader, and splintering into other terrorist organizations.

Unlike earlier studies that rely heavily on case studies to illustrate types of organizational decline, Jones and Libicki (2008) apply the typological approach to data collected by the RAND-MIPT partnership to conduct the first quantitative analysis of desistance among a relatively large sample of terrorist organizations. They use data on 648 groups active between 1968 and 2006, and define the end of a terrorist group as "the earliest evidence that the group no longer existed or that the group no longer used terrorism to achieve its goals… Regardless of the reason, the group did not commit further terrorist attacks under its name" (2008, p. 5). The typology of reasons for ending they use includes: policing, military force, politics, victory, and splintering. Jones and Libicki classify 268 terrorist groups as having ended, and an additional 136 entities as having superficially ended because they splintered into new entities. Transition to politics, including peace processes that allowed the organization to engage in electoral politics, was the most common reason for desistance from violence (43% of 268 organizations). The next most common cause

of desistance was counterterrorism efforts by law enforcement and security forces (40%). This includes legislation and prosecution, as well as policing functions such as surveillance, infiltration of groups, and arrest of group members. Jones and Libicki observe that 10 percent of the groups stopped carrying out terrorist attacks because they had achieved their goals, and that military force is the cause for desistance in only 7 percent of their sample.

Jones and Libicki's systematic analysis of a relatively large number of terrorist organizations made a critical contribution to understanding how terrorist groups end. However, there are several key limitations to this analysis. First, it is not clear how they determined whether or not a group desisted from terrorism. Second, and perhaps more importantly, it is not clear how the classified a single cause for the organizational desistance of each terrorist group, when scholars routinely indicate that the decline of terrorist groups is a product of many factors (Crenshaw, 1991; McCauley, 2008; Ross & Gurr, 1989; United States Institute of Peace, 1999). Finally, in their discussion of the results, Jones and Libicki (2008) make note of the fact that the use of military force is so rarely the reason for organizational desistance from terrorism. However, they, as well as many of their readers (e.g., Adams & Barrie, 2013; Bapat, 2014; Malkki, 2009), seemingly misinterpret this as an assessment of the relative effectiveness of military force as a counterterrorism mechanism. Because Jones and Libicki do not evaluate all cases in which military force (or policing, or political processes) were used in order to determine how frequently each led to the decline of an organization rather than its persistence, their analysis in no way provides information about the suitability of one particular strategy

over another. In fact, the use of military strategies to counter terrorist organizations is likely fairly rare, and a function of the level of threat posed by the group. They may actually be highly effective, but excessively costly and unnecessary for countering terrorist organizations. In comparison, addressing violence through law enforcement is a fairly typical approach and the fact that it is more commonly the cause for organizational demise is not necessarily indicative that policing is a more effective strategy. Although this practice of selecting on the dependent variable is susceptible to misinterpretation, Jones and Libicki's efforts to apply quantitative statistical analysis to the question of collective desistance from terrorism demonstrates a great deal of potential that many others have expanded upon (Blomberg et al., 2010, 2011; Gaibulloev & Sandler, 2013; E. Miller, 2012a; Phillips, 2014a, 2015; Young & Dugan, 2014).

Having identified the basic principles and limitations of these three approaches to understanding collective desistance from terrorist violence, we can see that they vary on multiple dimensions. The strain/grievance perspective and the organizational mobilization perspective are deductive, while the efforts to develop typologies are primarily inductive though not inconsistent with certain theoretical principles. The strain/grievance perspective is somewhat more suited to explain the behavior of individuals rather than the behavior of groups, while the organizational mobilization perspective and the typologies were developed specifically to explain the dynamics of groups. Likewise, the strain/grievance perspective was developed with the intention of explaining the occurrence of violence, but its implications for desistance rely on a questionable assumption of causal symmetry. In contrast, the organizational mobilization

perspective more directly addresses the question of group dynamics, including decline, and the typologies were specifically generated to classify the ways in which terrorist organizations end.

What all three approaches have in common is the proposition that myriad factors internal and external to a perpetrator group can influence patterns of group activity. Furthermore, they each raise important implications for the operationalization of desistance and hypothesis testing. Specifically, before we are able to adequately evaluate *why* terrorist groups decline, we must better understand *how* terrorist groups decline. In order to move the field forward based on any or all of these frameworks, we require a better empirical understanding of the phenomenon, and thus better tools for quantifying and characterizing patterns of collective desistance from terrorism. In the next chapter I examine several of the methodological challenges to studying collective desistance from terrorist violence and how the current research aims to address them.

CHAPTER THREE: Data and Methodology[3]

Before detailing the methodology of the current study, it is important to address two key challenges that motivate this research: the operational definition of terrorist organizations, and the operational definition of organizational desistance. In contrast to research on individuals, which, aliases and mistaken identity notwithstanding, are fairly straightforward to conceive of as individuals, gangs (Esbensen, Winfree, Jr., He, & Taylor, 2001; Weisel, 2002) and terrorist organizations (E. Miller, 2013b; Phillips, 2014b) are extremely difficult to define and operationalize. The challenge of defining terrorist organizations involves all of the difficulties of defining terrorism itself, which is discussed at length elsewhere (Schmid, 2004; Schmid & Jongman, 2005), 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* (Campbell, 1958; Yzerbyt, Judd, & Corneille, 2004). 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

[3] An earlier version of this chapter was previously published in:
Miller, E. (2012). Patterns of Onset and Decline Among Terrorist Organizations. *Journal of Quantitative Criminology*, *28*(1), 77–101.

resistance, or formally established, hierarchical organizations that are explicit about their existence and their objectives" (E. Miller, 2013b, p. 5146).

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. Not unlike Maslow's (1966, p. 15) observation that "it is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail," if the only data you have are about terrorist violence, it is tempting to treat all perpetrator groups as if they were terrorist organizations.

For example, several recent studies that examine the longevity of terrorist organizations using quantitative analyses of terrorist attack data corroborate Rapoport's (1992) often cited estimation that the vast majority of terrorist organizations last for less than one year (Dugan, 2012; Dugan et al., 2012; LaFree et al., 2015; Young & Dugan, 2014). Other studies, which use more conservatively curated sets of data, estimate that the average life span of terrorist groups is somewhat longer (Blomberg et al., 2010; Cronin, 2009;

Phillips, 2014a, 2015; Vittori, 2009). 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 (Cronin, 2012).

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. In particular, studies that analyze the terrorist activity of all perpetrator groups that have carried out at least one terrorist attack risk mischaracterizing the many groups that have been responsible for only a few attacks over the course of a short period of time. Dugan (2012, p. 188) and colleagues (Dugan et al., 2012, p. 10; LaFree et al., 2015, p. 81) characterize perpetrator groups that engage in terrorism for less than one year as "short-lived terrorist organizations" or "short-lasting terrorist organizations." 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 loosely linked

to al Qa'ida, calling themselves "Liberation Army Fifth Battalion" (Mitchell, 1993, p. 1). Or, it could be that 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 groups whose engagement in terrorism is extremely unusual. In any case, the organizations may not be short-lived at all, but their activity makes them appear as such as an artifact of event-level data collection.

LaFree, Dugan, and Miller (2015, p. 84) 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. 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 electoral politics rather than the use of terrorist violence.

Related to the challenge of operationalizing terrorist organizations, the second important definitional issue relevant to the current research involves the operationalization of collective desistance. Operationalizing any type of desistance is complex, because it involves quantifying the prolonged cessation of behavior or activity. Regardless of the behavior in question, this raises a number of difficult 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?

Each of these questions pose challenges for understanding desistance from conventional crime. 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 (LaFree & Miller, 2008; Laub & Sampson, 2001; E. Miller, 2012a). 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 (Glaser, 1964; Laub & Sampson, 2001; Maruna, 2001; Matza, 1964). The same is true of terrorist organizations, however the measurement of non-offending is further complicated because they, unlike human beings, can be resurrected following a period of inactivity due to non-existence. 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 Olympic team in Munich, Germany (Associated Press, 1984; E. Miller, 2011, 2012a). Following this pivotal attack, Black September was the target of Israeli counterterrorism operations named *Wrath of God* and *Spring of Youth*, which involved the capture or death 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, or any, organization (Associated Press, 1984).

Beyond the fact that there are no definitive measures of organizational desistance, the frequency of terrorist violence groups engage in over time varies dramatically in ways that are easily overlooked by analyses that measure only the duration of activity. Perhaps the greatest limitation of existing quantitative research on collective desistance from terrorism is that it typically relies on duration analysis or analysis of life spans. 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 (Blomberg et al., 2010, 2011; Dugan, 2012; Gaibulloev & Sandler, 2013; LaFree et al., 2015; Phillips, 2014a, 2015; Young & Dugan, 2014). 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.

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 (Crenshaw, 1991; Cronin, 2006; S. G. Jones & Libicki, 2008; Ross &

Gurr, 1989; United States Institute of Peace, 1999). In contrast, those relying on statistical analysis of quantitative event data representing only a group's terrorist activity must be careful to avoid mistaken assumptions about the groups themselves or the processes by which they desist from terrorism or decline altogether. In the following description of the data and analytical methodology, I attempt to account for these methodological challenges in three ways. First, I use a dataset on terrorist violence that is comprehensive, rather than excluding particular types of terrorist violence, such as domestic terrorist attacks. Second, for my primary analysis I use a statistical method that models the fluctuations in a group's trajectory of terrorist violence rather than just the span of its activity. And finally, I adopt a critical, multi-method approach that includes strategic case study information as well as quantitative analysis with the aim of challenging assumptions based on either case studies or aggregate statistics and assessing robustness.

Perpetrator Organizations Identified in the Global Terrorism Database (GTD)

In order to investigate patterns of collective desistance from terrorism I use data on the violent terrorist activity of 632 organizations identified as perpetrators of attacks in the Global Terrorism Database (START, 2014). 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. It defines terrorism as "acts by non-state actors involving the threatened or actual use of illegal force and violence to attain a political, economic, religious or social goal through fear, coercion, or intimidation" (LaFree et al., 2015, p. 13). 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.[4] 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 (LaFree et al., 2015; Schmid & Jongman, 2005), and well-suited for the current study. Although certain research questions require more conservative or refined characterizations of terrorism, the fact that the focus of my investigation is on understanding of the ways in which perpetrator organizations desist from engaging in terrorist violence, and in some cases disband, it is important to leverage comprehensive data. Although the data collection process for the GTD is described at length elsewhere (e.g., Dugan, 2012; Jensen, 2013; LaFree et al., 2015; E. Miller, 2012a; START, 2015), here I outline key details that are relevant to the current research.

GTD data collectors typically rely on media articles and newswires, but have also supplemented these sources with information from various published reports and chronologies of terrorist attacks. Thus, the variables included in the database are those customarily found in these types of unclassified sources. Each record routinely includes information about the date and location of the attack, the target or victims of the attack, the weapons and tactics used, and the outcome of the attack (e.g., details on casualties,

[4] The GTD is missing data on attacks that occurred in 1993 because the original records were lost prior to being transferred 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. However, note that organizations that carried out attacks for more than one, but less than two years, including in 1993, are excluded from the analysis. Likewise, organizations whose peak of activity took place in 1993 will have this value replaced with their next-highest peak year.

damages, and hostages). Source materials provided information about the perpetrator of the attack in 55% of all cases. However, for some cases the only available information about the perpetrator is limited to generic descriptions such as "Protestant extremists" or "right-wing militants" that do not represent organized entities. The GTD also includes terrorist attacks carried out by unaffiliated individuals; however, given my interest in patterns of collective desistance I exclude them from my analysis. Excluding generic descriptions and unaffiliated individuals leaves 2,437 non-generic, named perpetrator groups in the database.

The data collection team records attributions of perpetrator responsibility for each attack in the GTD as reported in the original source 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, spokespeople, or other group members. In some cases source articles report attributions of responsibility that are 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.[5]

[5] Exceptions to this include the Baader-Meinhof gang, active in Western Europe in the 1970s, and so-named by authorities and the media after two of the group's leaders. The group referred to itself as the Red Army Faction (Aust & Bell, 2009).

As I have documented previously (E. Miller, 2012a, p. 83): "There is no requirement that a group is particularly well-organized or well-established. Thus, the perpetrators in the full dataset range from formalized hierarchical organizations to looser networks and groups with very few members. The GTD attributes attacks carried out by factions of a group to the "parent" group, with the sole exception of the relatively autonomous factions of the Palestine Liberation Organization (PLO), which represent unique entities in the data. The [data collectors attribute] attacks by splinter groups to the name of the splinter, based on the inference that the reasons for the splinter sufficiently justify the decision to distinguish their attacks from those of the "parent" entity. A similar rationale is applied to situations in which a group changes its name; the newly named group is coded as a separate entity, although this practice raises some important considerations for evaluating the decline of groups, which I will address in the discussion of the results. These coding practices rely on supplemental research by GTD staff to identify group names, aliases, and relationships between groups. The sources of this information vary extensively and include media reports, scholarly analysis, and various Internet-based resources. Although formal tests of inter-coder reliability have not been used, every effort is made to corroborate supporting information with multiple valid sources and the perpetrator group attributions are routinely reviewed for accuracy and consistency."

In order to concentrate on patterns of collective desistance from terrorism, I exclude from the analysis of desistance any groups that carried out attacks for fewer than 365 days and those whose peak number of terrorist attacks occurred in 2013, the last year of the time series. In order to minimize the potential bias of right-censoring among perpetrator

groups that have not been active long enough to run their course, I also exclude organizations whose first attack was after 2008, leaving 632 observations. These selection criteria have three purposes. First, they aim to exclude perpetrators that are not within the scope of my population of interest—terrorist perpetrator organizations—such as unaffiliated individuals, unknown perpetrators, and generic perpetrator attributions that do not represent cohesive entities. Second, by excluding groups that do not engage in terrorism for a span of at least 365 days, the analysis is not inappropriately influenced by groups that are likely not fully engaged in terrorism and therefore have very little terrorist activity from which to desist. This is consistent with Cronin's (2012) practice of excluding groups that have only carried out a few attacks over a short period of time. In fact, in many cases source materials provide little or no information about these entities aside from their attribution of responsibility for an attack recorded in the GTD. Or, they are groups that primarily engage in other types of activity and the use of terrorist violence is atypical. Finally, this criterion also eliminates observations for which I have too few data points to assess statistical trends over time.

Because the selection process is intended to isolate the population of interest, the implications for the representativeness of the data are generally not problematic. Indeed, the removal of perpetrator groups that are likely to be either terrorist groups that never fully formed, or other types of organizations that only momentarily engaged in terrorism, improves my ability to draw conclusions about patterns of collective desistance from terrorism.

However, the possibility remains that some of the excluded attacks were carried out by operatives of the groups included the analysis, causing their terrorist activity is underrepresented in the data. With respect to named organizations that I excluded because they engaged in terrorism for fewer than 365 days— it is possible that these perpetrators were actually part of the population of interest, but temporarily adopted a new name that GTD coders failed to recognize as a faction or alias of another, more active group. However, it is unlikely that these attacks are timed in a way that systematically biases the data.

In contrast, attacks that I exclude because they were attributed to generic or unidentified perpetrators may also be the work of a more active group, and the possibility of systematic bias is somewhat more likely. In particular, one might speculate that members of an organization that is under increasing pressure to desist, either because the group has been legally banned, or is engaging in a peace process, or is subject to a military crackdown, may be less inclined to publicly claim responsibility for its attacks (LaFree et al., 2015, pp. 78–79). If this is systematically the case, it could certainly influence the results of an analysis of how perpetrator organizations desist from terrorism. Before presenting the central analysis of this study, in Chapter 4 I will examine the patterns of activity among perpetrator groups that have been removed from the sample.

Analytical Strategy

In this study I use group-based trajectory analysis (GBTA) to study patterns of desistance among terrorist perpetrator groups (E. Miller, 2012a). GBTA was developed by Nagin

and Land (Nagin, 2005; Nagin & Land, 1993) as a technique for studying patterns of behavior over the life course of individuals. This method allows analysts to estimate discrete classes of trajectories of activity over time that represent predicted patterns of activity that are derived from a set of observed values of change over time. Researchers also estimate the probability of a observation's membership to a particular trajectory class of activity that is consistent with its patterns of behavior. Group-based trajectory modeling has been applied in numerous different contexts, including the life course of individuals (Bushway et al., 2001; Laub, Nagin, & Sampson, 1998; Nagin, Farrington, & Moffitt, 1995; Nagin & Land, 1993), crime trends over time among geographic locations such as neighborhoods (Weisburd, Bushway, Lum, & Yang, 2004), and patterns of terrorism across countries (LaFree, Morris, & Dugan, 2010; N. A. Morris & Slocum, 2012). LaFree, Yang, and Crenshaw (2009) use this method to study patterns of terrorism between 1970 and 2004 among a sample of 53 perpetrator groups that they identified as anti-American. Beginning the analysis in 1970, they used GBTA to identify waves of terrorist activity in a historical context.

In the current study I apply GBTA to the life course of perpetrator groups, where the first year of analysis is the peak year of the group's recorded terrorist violence (E. Miller, 2012a). I focus on the group-year as a unit of analysis because it is a reasonable middle-point among perpetrator groups that carry out many terrorist attacks and perpetrator groups that carry out few terrorist attacks, with respect to intermittency of offending. A longer period of observation would sacrifice potentially informative granularity, and a shorter period of observation would likely introduce many observations of inactivity that

mask broad patterns of the perpetrator groups' terrorist activity.[6] Dugan and colleagues (2012) used a similar strategy to investigate various dimensions of threat among terrorist perpetrator groups, using the first year of a group's recorded terrorist activity as the start of the trajectory.

In order to operationalize collective desistance from terrorism, I draw on the existing theoretical and conceptual literature that characterizes it as a process rather than a discrete state. Specifically, I investigate organizational desistance from terrorism as the *pattern of a perpetrator group's terrorist violence following its peak year of terrorist violence*. By isolating post-peak trajectories, this study is very different from those that investigate the overall longevity of perpetrator groups' engagement in terrorism. With the goal of understanding the ways in which perpetrator groups desist from terrorist violence, I acknowledge that a group might exist for one year or many years prior to reaching its peak level of activity. Having identified distinct patterns of post-peak terrorist violence, I next explore the extent to which these patterns are correlated with the perpetrator groups' patterns of activity in ways that might be useful for informing theory and policy development regarding collective desistance from terrorism.

The goal of this analysis is to identify and explore meaningful classifications of trajectories of activity over time. It is important to note that GBTA does not allow analysts to test for the existence of classifications, instead we assume a priori that the

[6] Nonetheless, there remains the possibility that quarterly or monthly changes in activity could reveal interesting patterns (Behlendorf, LaFree, & Legault, 2012) that can be investigated in future analyses.

classifications exist. Instead is simply a useful method for summarizing large amounts of longitudinal data on the violent terrorist activity of the perpetrator organizations. It allows researchers to estimate the parameters of the trajectories, the distribution of perpetrator groups across trajectories, and the probability of each group's membership to each trajectory class.

In order to analyze patterns of organizational desistance independent of patterns of onset, I specify the model starting with the peak year of each group's terrorist activity. The peak year of activity marks the beginning of the groups' decline in terrorist activity and I disregard any offending that took place prior to the peak year so that the model will cluster together organizations with distinctively similar patterns of decline.[7] Note that trajectory analyses based on the entire series from the group's first attack to its last, like that conducted by Dugan and colleagues (2012), are informative, but do not to provide clear insight into patterns of desistance in particular. Instead, the resulting trajectory classifications are heavily influenced by variation at the beginning of the series thereby potentially obscuring distinct patterns of desistance.

As I described in an earlier publication in which I used this method (E. Miller, 2012a, p. 85): "The attack data in this analysis is count data, which necessitates the use of the Poisson probability distribution in the model (Nagin, 2005). Furthermore, perpetrator organizations are likely subject to periods of intermittency that prompts us to distinguish

[7] Note: if a perpetrator organization has multiple peaks with the same number of attacks, I use the first one.

between zeros that result from inactivity and zeros that result from the absence of offending during a period of activity. To accommodate this characteristic of the data, I specify the model using a zero-inflated Poisson distribution, which estimates the probability that $y_{it} = 0$ separately such that it accounts for the probability of inactivity, or $\lambda_{jt} = 0$ (Nagin, 2005). Thus,

Equation 1:

$$p^j(y_{it} = 0) = \alpha_t^j + \left(1 - \alpha_t^j\right)e^{-\lambda jt}$$

where α_t^j represents the probability that the perpetrator organization is inactive and $e^{-\lambda jt}$ is the probability that a zero occurs when the group is active, or $\lambda_{jt} > 0$. To calculate the probability of non-zero values for each group j:

Equation 2:

$$p^j(y_{it}) = \left(1 - \alpha_t^j\right)\frac{\lambda_{jt}^{y_{it}} e^{-\lambda jt}}{y_{it}!} \; (y_{it} = 1, 2, \dots)$$

In the first model, which is based on annual frequency of terrorist attacks, the assignment of perpetrator organizations to trajectory groups is a function of both the shape of the decline and the overall magnitude of activity. Both of these dimensions of activity are important elements of a group's declining threat level, however this approach could potentially isolate those few perpetrator groups whose remarkably high levels of activity definitively distinguish them from all other perpetrator groups despite the fact that their

trajectories have little else uniquely in common. Therefore, it is useful to estimate a second model that isolates the rate of decline from the overall annual frequency of attacks. By doing this, the model assigns perpetrator groups to common trajectory categories not because of similarities in the overall frequency of offending, but rather because they share a distinctively similar shape of decline, regardless of overall magnitude. To achieve this, I estimate a second model where each yearly observation is a ratio of the number of attacks that year to the number of terrorist attacks at the perpetrator group's peak year of activity.

Because this computation transforms count data into a continuous scale of values between 1 and 0, this model is based on an uncensored normal distribution. The uncensored normal distribution is a specific case of the censored normal distribution and is computed as follows:"

Equation 3:

$$p^j(y_{it}) = \frac{1}{\sigma}\phi\left(\frac{y_{it} - \beta^j X_{it}}{\sigma}\right)$$

Finally, in order to explore how the groups' patterns of activity relate to their trajectory of desistance, I investigate the relationship between of several independent variables and trajectory group membership. These variables include onset trajectory membership (estimated separately based on year of first attack to peak year), lethality of attacks, use of suicide tactics, and execution of logistically international attacks. Although not intended to comprehensively or formally test specific theoretical constructs, each of these

variables potentially bears relevance to the paradigms discussed in the previous chapter. In particular, onset trajectories represent organizational mechanisms or logistics relevant to the ability or willingness of the group to carry out a large number of attacks from the point of its initial engagement in terrorism, thus positioning it as either a major or minor threat to the state. The remaining variables: lethality, use of suicide tactics, and capacity to carry out attacks that physically cross state borders (i.e., logistically international attacks (LaFree et al., 2015 Chapter 8)) similarly assess certain elements of the perpetrator groups' capabilities and willingness to adopt severe tactics, which may correlate to their patterns of desistance from terrorism.

Model Selection

"Identification of the most appropriate trajectory model is an iterative process that involves repeated maximum likelihood estimations of varying specifications that can be compared across several metrics. By repeatedly fitting the data with a comprehensive range of models that vary with respect to number of trajectory groups extracted and the order of the polynomial that defines the trajectories, I evaluate the models on the basis of formal fit statistics as well as substantively meaningful characteristics of the trajectories. One such statistic recommended by Nagin (2005) is the Bayesian Information Criterion (BIC).

Equation 4:

$$\mathrm{BIC} = \log(L) - 0.5k \log(N)$$

where L is the model's maximum likelihood value, k is the number of parameters estimated, which is a function of both the number of groups and the order of the polynomial, and N is the sample size. When comparing BIC statistics across model variations, a larger value indicates superior model fit. The mechanics of this formula are fairly straightforward insofar as the first term evaluates the capacity of the model to accurately predict the observed data based on its estimated parameters. While this likelihood inherently improves as the number of estimated parameters (groups and higher order polynomials) increases, the second element of the BIC equation favors model parsimony by essentially penalizing the addition of parameters. This penalty is proportionately greater as the sample size increases and increasing the number of parameters in the model will only improve the BIC statistic if the benefits outweigh the cost.

Continued improvement of the BIC statistic necessitates the consideration of other model comparisons, both statistical and substantive. First, even when the BIC value continues to increase, in the interest of parsimony a marked decline in the incremental improvement of subsequent models should be taken into account.

Second, calculations of the mean posterior probability of group membership are indicators of model favorability. The posterior probability of group membership is the probability that a particular perpetrator organization's activity most closely follows the pattern of a particular trajectory group, relative to the other trajectory groups. This value can be calculated for each perpetrator organization's likelihood of membership to each

trajectory group, and is used to classify the organizations accordingly. Each perpetrator organization is essentially assigned to the trajectory group for which it has the highest posterior probability of membership. When the mean posterior probabilities of group membership are calculated for each trajectory group, they collectively provide a useful indication of whether or not the model is extracting sufficiently distinct groups. Nagin (2005) suggests that a reasonable diagnostic is that the mean posterior probabilities of group membership for all trajectory groups are greater than 0.7.

Third, Nagin (2005) recommends computing the Odds of Correct Classification (OCC) for each group, which represents the ratio of the likelihood of correct classification based on the model to the likelihood of correct classification based on random assignment. He uses simulated data to illustrate that models that produce accurate classification typically generate OCC values greater than five for each trajectory group.

Finally, in addition to the statistical assessments of model performance discussed thus far, model selection must also account for substantively relevant characteristics of the trajectory groups that are identified (Nagin, 2005). This typically involves two types of considerations. Not only must the selection process value parsimony mathematically, but also the analyst must be cognizant that as successive trajectory groups are extracted they represent a meaningfully distinct pattern of activity. Improved fit statistics are of little value if the resulting classification of perpetrator groups fails to distinguish substantively meaningful trajectory groups. Similarly, the perpetrator groups should be reasonably dispersed across trajectory groups such that none of the trajectory groups are comprised

of an extremely low number of perpetrator groups. An important caveat to this methodological goal, however, is that criminologists have long observed that a fairly select few tends to be responsible for a disproportionately large share of offending and the ability to isolate those entities can be particularly informative (Farrington & West, 1993; Wolfgang, Figlio, & Sellin, 1972)" (E. Miller, 2012a, pp. 86–87).

Multi-Method Analysis

While group-based trajectory analysis addresses some of the main limitations of methods commonly used to study terrorist group longevity and decline in terrorist activity among perpetrator groups, it is certainly not without limitations and in fact, introduces its own potential sources of error. For example, the analytical strategy I adopt—applying trajectory analysis to the post-peak terrorist activity of organizations that have carried out attacks over a span of more than 365 days—is poorly suited for evaluating the activity of perpetrator groups that were active for fewer than 365 days, or perpetrator groups that peak at the end of the data series, leaving no activity eligible for analysis. Furthermore, despite satisfactory fit statistics, group-based trajectory analysis can produce trajectory classes that are poor approximations of the underlying observed activity, and fail to account for important contextual phenomena.

Although the analytical strategy I pursue here takes into account many more data points than calculations of life span or duration, quantitative analysis of a relatively large dataset remains susceptible to oversimplification of complex patterns of activity that can impact both substantive conclusions and resulting theoretical constructs. For example, Dugan

and colleagues (2012) adopt group-based trajectory analysis to study patterns of attack frequency, lethality, and duration among 535 perpetrator organizations identified in the GTD as active for more than 365 days between 1970 and 2008. Several of the assumptions the authors make about perpetrator groups are inconsistent with what qualitative analyses have found. In particular, the authors state that "a group's longevity is not a decision; it is a desirable outcome," (Dugan et al., 2012, p. 7) despite the fact that numerous studies of the reasons for terrorist groups' decline or failure indicate that involuntary dissolution is one of many reasons, both internal and external, that a group might fail to survive (Crenshaw, 1991, 2001; Cronin, 2006, 2009; S. G. Jones & Libicki, 2008; Ross & Gurr, 1989). In fact, Jones and Libicki (2008) observe that less than half (47%) of all terrorist organizations that ended did so as a result of police, security forces, or military suppression, while the remaining organizations ended because of internal conflict, decisions to transition to politics, or because they were successful at achieving their goals. The assumption made by Dugan and colleagues inherently, and perhaps problematically, influences the rational choice model that serves as the foundation for their eight hypotheses. The premise that organizations end only when they are "captured" (Dugan et al., 2012, p. 11)—and that frequency and lethality of terrorist attacks are operational choices made by organizations to increase constituency support and minimize the likelihood of capture—overlooks the diversity of influences on group behavior identified by qualitative researchers (Crenshaw, 1991, 2001; Cronin, 2006, 2009; S. G. Jones & Libicki, 2008; Ross & Gurr, 1989).

In order to evaluate and challenge these limitations I adopt a nested mixed-method strategy that leverages the benefits of both relatively large-N analysis and relatively

small-N analysis (Lieberman, 2005). Within the framework of the group-based trajectory analysis, I conduct a comprehensive analysis of descriptive statistics for each of the trajectory classes, as well as the set of perpetrator groups that were excluded from the trajectory analysis. The purpose of this analysis is to independently investigate the ways in which measures of central tendency and deviation with respect to duration of terrorist activity, frequency of terrorist activity, and lethality of terrorist activity both pre- and post-peak align with the statistical approximations produced by the trajectory model. This will support a critical evaluation of variations in observed patterns of activity among perpetrator groups with the same trajectory classification.

Case Studies

To further illustrate the strengths and limitations of fitting a group-based trajectory model to diverse patterns of activity among groups that carry out terrorist attacks, I conduct brief case studies on patterns of desistance from terrorism for two perpetrator organizations associated with each trajectory classification. The purpose of these case studies is to demonstrate the various contexts in which perpetrator groups operate, including the ways in which they relate to other organizations, the ways in which they engage with authorities, as well as the variety of ideologies or objectives they pursue, and the tactics they use to pursue them. For example, terrorist attacks are not all equivalent, but vary in their lethality, targeting, and weapon use in ways that could substantively impact a perpetrator organization's overall trajectory (Dugan et al., 2008, 2012). Furthermore, while the trajectories of terrorist attacks carried out by the perpetrator groups are limited to a single type of event, the case studies also allow me to analyze the

relevance of events other than terrorist attacks that may influence the perpetrator groups' trajectory of terrorist violence.

Because the purpose of the case studies is to both assess the ability of the trajectory model to capture the essential pattern of the perpetrator groups' desistance from terrorist violence and to highlight the extensive contextual variation of the groups, I select multiple cases for comparison—a total of twelve. The process of selecting cases is based on several considerations. First, the observed activity of the perpetrator groups selected represent both *typical* and *deviant* examples of the statistical approximation generated by the trajectory model (Seawright & Gerring, 2008). In some cases, the trajectory model provides a particular estimation that is a good representation of an individual organization's trajectory. In other cases extenuating circumstances not accounted for in the statistical analysis reveal that the best fitting trajectory based on the model is actually a poor characterization of the group's activity. Likewise, some perpetrator organizations follow a fairly symmetrical pattern of increasing and decreasing use of terrorism, while others are much more erratic or driven by anomalous events.

Second, the selected perpetrator groups represent contrasting ideologies, following Crenshaw's (1987, 1991) assertion that a group's ideology is likely to influence longevity, particularly in terms of its ability to maintain engagement among future generations. Third, the selected groups represent contrasting tactics, to include both highly lethal organizations as well as those that have limited their activities to primarily property damage rather than human casualties. Fourth, the selected cases represent

organizations with contrasting structures, including both loose networks of operatives and formal hierarchical paramilitary groups. Fifth, the selected perpetrator groups illustrate different mechanisms for decline, including various combinations of law enforcement efforts, military engagement, peace processes, and conversion to non-violent politics. Finally, they demonstrate different degrees of desistance, ranging from complete dissolution of an organization, to relative decline in violence to low-intensity terrorist activity, to minimal desistance and continued engagement in high-intensity violence.

To analyze the selected organizations with respect to their desistance from terrorism, I leverage available data from historical documents such as government reports, media articles, and communiqués, essays by reputable security analysts, and scholarly content including published manuscripts and journal articles. In addition, I consult the Global Terrorism Database for detailed information about the perpetrators' use of terrorist violence. Each of these types of sources contributes a unique perspective of information, albeit not always an unbiased perspective. The use of open-source materials to gather information on a sensitive topic like terrorism requires careful consideration of sources and impact of bias. For example, media reports have varying degrees of bias, both intentional and unintentional, that can be assessed in a number of ways to identify a pool of generally useful sources (LaFree & Dugan, 2004). These include consulting independent assessments of a media source's validity and editorial objectivity, reviewing source articles for the presence of inflammatory rhetoric, and considering the extent to which facts reported by a particular source are generally corroborated by other, independent sources.

The GTD collection team uses an unpublished four-point scale of source validity that includes the following values: 1- inherently biased (includes perpetrator sources and sources from governments party to the conflict in question), 2- generally valid, but potentially somewhat biased or lacking editorial rigor, 3- highly valid, and 4- preferred (a short list of rigorous media sources from around the world that consistently report valid event data).

It is important to note that the impact of source validity varies depending on the type of information in question. For example, highly rigorous professional media sources are useful to verify that an event took place, or pertinent details of the event like the number of casualties caused. However, inherently biased sources such as perpetrator websites or communiqués may be less reliable for information on the impact of an attack, but critically important for information on the motives or ideological influences of the organization. I adopt a similar approach to gather source materials for the case studies, by including information from a diverse array of sources, attempting to corroborate key details wherever possible, and linking consideration of source validity to the type of information in question. One key limitation of this process is my reliance on English-language sources.

The analytic technique that I adopt for the case studies is "complex time series" (Yin, 2014, p. 152), which is suitable when the primary phenomena in question are likely to follow a mixed, or non-linear pattern over time. Using the GTD and various source

materials described above, I details of the organizations' desistance, or lack thereof, from terrorism, as well as other actions taken by other organizations, the government, or the groups themselves. This will allow me to identify the extent to which the statistical approximation generated by the trajectory analysis accurately represents underlying patterns of activity. It will also serve to illustrate the ways in which desistance from terrorism can be intertwined with engagement in other violent or non-violent activities.

CHAPTER FOUR: Descriptive Statistics

Before presenting the principal analysis of this study, I first analyze descriptive statistics beginning with the full set of perpetrators identified in the GTD. The purpose of this is to document how I arrive at the set of perpetrator organizations on which I base the analysis, consider the ways in which perpetrators excluded from the analysis differ from those that are included, and illustrate some of the key patterns of activity that motivate the research. This chapter begins with 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 sometimes include proper names of perpetrator organizations, but often include no information about perpetrators, generic information about perpetrators, or only names of unaffiliated individuals. Accordingly, three of the 3,120 entries are "Unknown," "Individual," and "Other," which is a term data collectors at one time used to reference informal generic descriptors of perpetrators. In addition to these three entries, 680 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

Removing these entries from the analysis leaves 2,437 formally named entities that have carried out 57,240 terrorist attacks, resulting in 152,498 deaths between 1970 and 2013.

More than 70 percent of these named entities (70.8%) 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; 69.4%) 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.[8] ISIL is also responsible for 1,431 fatalities from terrorist attacks, one-fifth (20.3%) of the fatalities caused by these short-term organizations. 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.

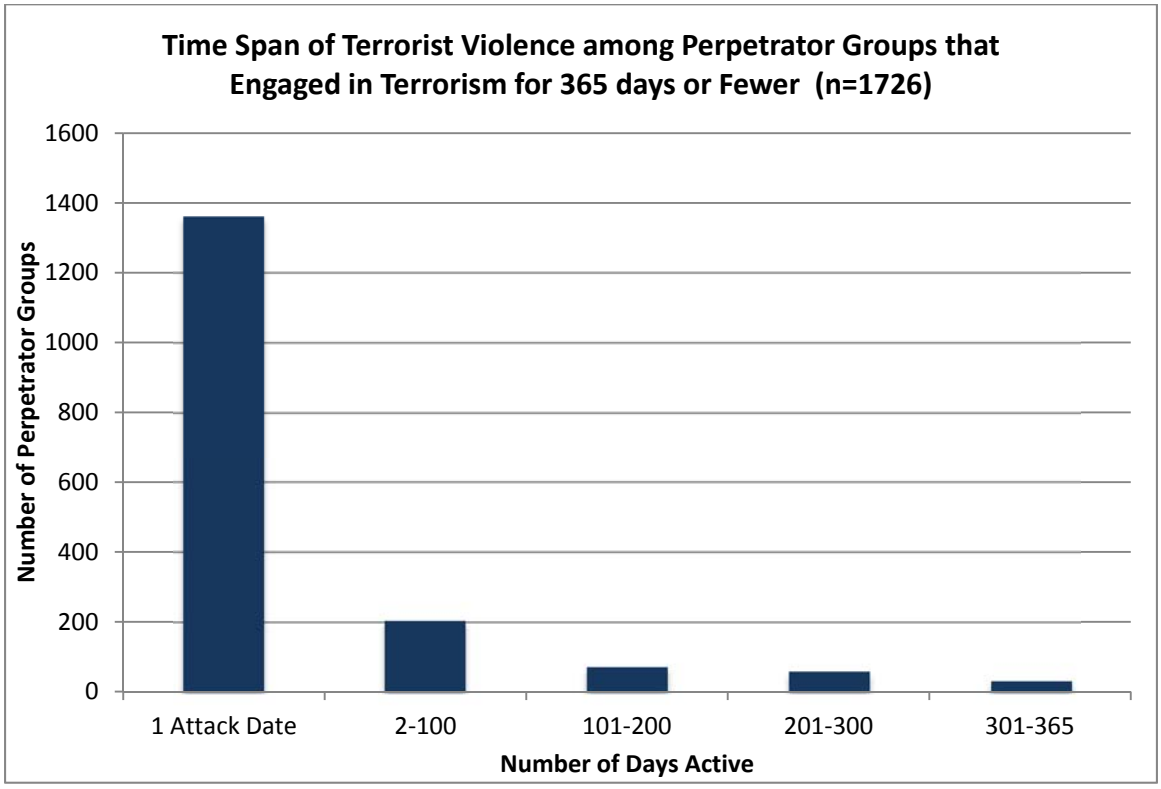


Figure 4.1 Time span of terrorist violence, perpetrator groups active ≤ 365 days

[8] Note that ISIL is ultimately excluded from the analyses in subsequent chapters because they fail to meet several of the inclusion criteria, not only the requirement that a group is active for more than 365 days. ISIL also began carrying out attacks after 2008, and 2013 is its peak year of terrorist activity under its current name.

Figure 4.1 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 (78.9%) 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 less than a day. One possibility is that law enforcement or security forces rapidly and effectively countered these organizations. For example, Smith (1994, p. 26) observes, "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." 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 limited information, this is likely the case for the French anti-nuclear group that called itself "Commandos Opposing with Explosives the Self Destruction of the Universe (COPO)" (Bangor Daily News, 1976, p. 1)

A third possibility 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 note 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 (Associated Press, 1985).

A fourth possible explanation for the perpetrator entries in the GTD that engaged in terrorism for less than a year is that the attacks were carried out by individuals or groups of individuals who are genuinely committed to terrorist violence, or perhaps even part of established terrorist networks, but did not actually carry out many violent attacks. This is likely true of Saudi Hizballah, which was founded in 1987 as “an alternative political network” (T. Jones, 2012, p. 144). The only terrorist attack attributed to Saudi Hizballah in the GTD is the 1996 attack on the United States military barracks at al Khobar towers, a relatively sophisticated truck bomb attack that killed 19 airmen and wounded 386 people. Jones (2012) reports that following the al Khobar attack, Saudi authorities made numerous arrests of Saudi Hizballah members, essentially decimating the organization.

In all, the organizations that carried out terrorist attacks for less than a year are a product of a diverse array of processes. I ultimately exclude these organizations from the trajectory analyses for two reasons. First, some of them, particularly those that were neutralized by law enforcement, bear particular relevance to an investigation of patterns of collective desistance from terrorism. However others, such as those that never managed to become fully-fledged organizations, hold less significance for the present research. It is not possible to disentangle these various scenarios in order to quantify them given currently available data. Second, the vast majority of these organizations were only

active for a single day. This is both a practical and a conceptual issue in that a series of data points is needed to perform longitudinal statistical analysis, but also there is little else of substance to glean from the available data regarding patterns of activity among organizations that discontinue the use of terrorism in a very short period of time. Nevertheless, it is important to note that perpetrator organizations have been known to engage and disengage from terrorist violence in less than one year, which has important implications for future research and policy.

Long-term Perpetrator Organizations

Once I exclude the perpetrator groups that engage in terrorist violence for less than a year, 711 organizations remain. These groups carried out 53,679 attacks, causing 145,439 deaths between 1970 and 2013. These perpetrator organizations make up 29.2 percent of all non-generic perpetrators, but their terrorist activity comprises 93.8 percent of attacks and 95.4 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 4.2 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 (54.9%) carried out attacks for five years or fewer.

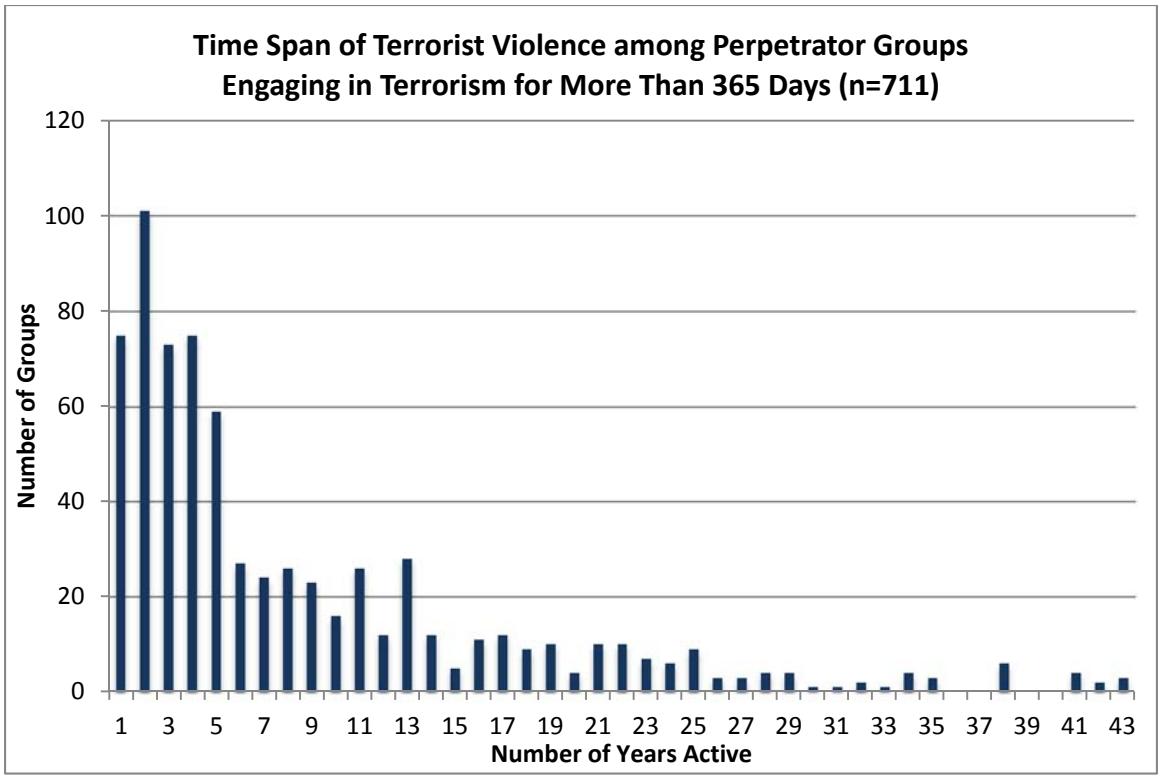


Figure 4.2 Time span of terrorist violence, perpetrator groups active > 365 days

Because the analysis that follows uses the peak year of activity as a pivot point for patterns of desistance or decline and patterns of onset, I examine the pre-peak and post-peak time span for the 711 organizations in Figure 4.3. The pre-peak time span is the number of years between an organization's first terrorist attack and its peak year of terrorist violence. The post-peak time span is the number of years between the organization's peak year of terrorist violence and its last recorded attack. As Figure 4.3 illustrates, a very large number of organizations (305) peaked during their first year of activity. Examining the year of onset for these organizations, it appears that there is likely some degree of left-censoring among organizations that were active prior to the 1970 start date of the GTD. The distribution of onset years among the 305 organizations is not

uniform over time, however 17 of them started in 1970, 2.4 times as many as one would expect from a uniform distribution.

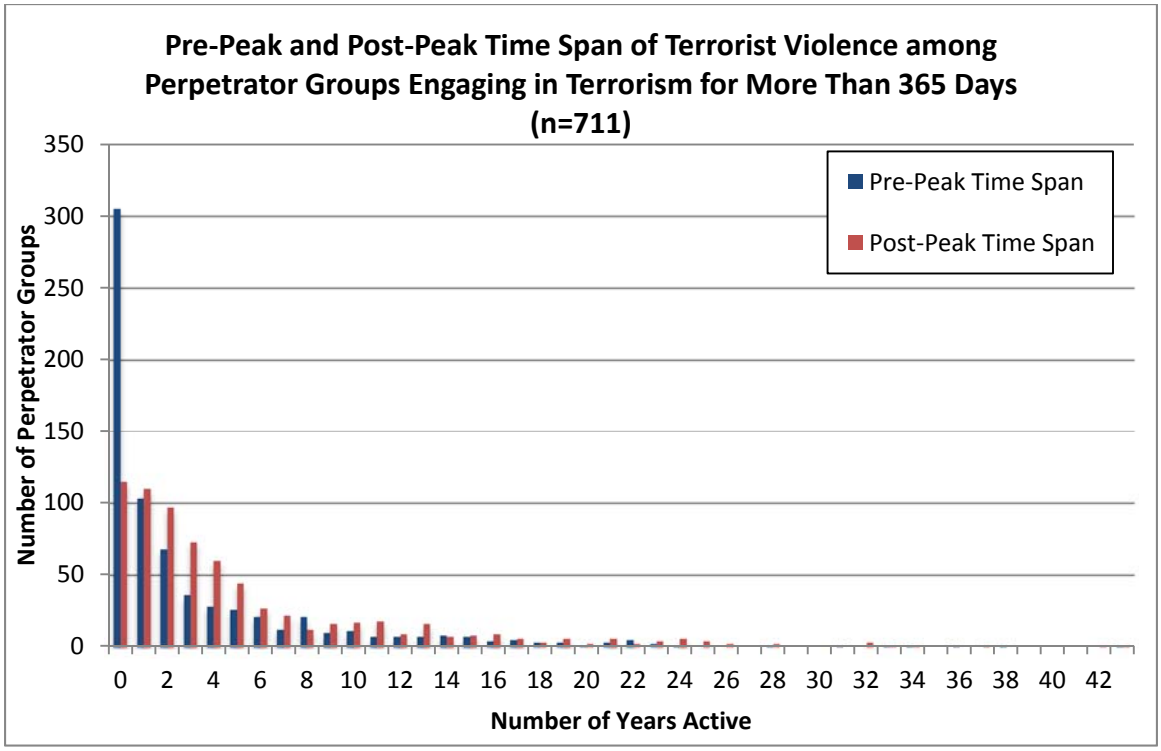


Figure 4.3 Pre-peak and post-peak time span of terrorist violence

The next inclusion criterion relates to the organizations' peak year of activity. Figure 4.4 shows the distribution of peak years for the 711 non-generic perpetrator groups that engaged in terrorist violence for more than one year. The distribution is fairly variable and almost appears to fluctuate in waves over time. However, note that the largest number of perpetrator organizations experienced their peak year of activity in 2013, the last year of the series. This suggests the possibility of right-censoring, as these organizations may not have genuinely peaked by this point in time. I exclude these 43 organizations from the trajectory analyses that follow because they have no indication of desistance to contribute to an analysis of patterns of collective desistance from terrorism. This reduces the sample to 668 perpetrator organizations.

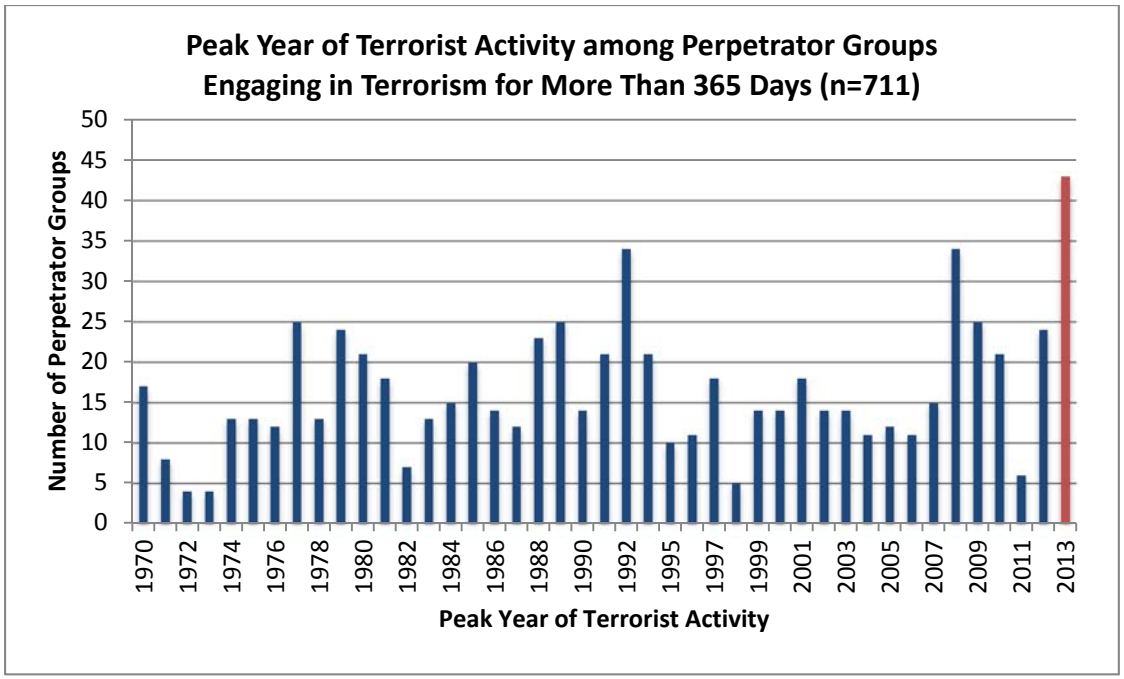
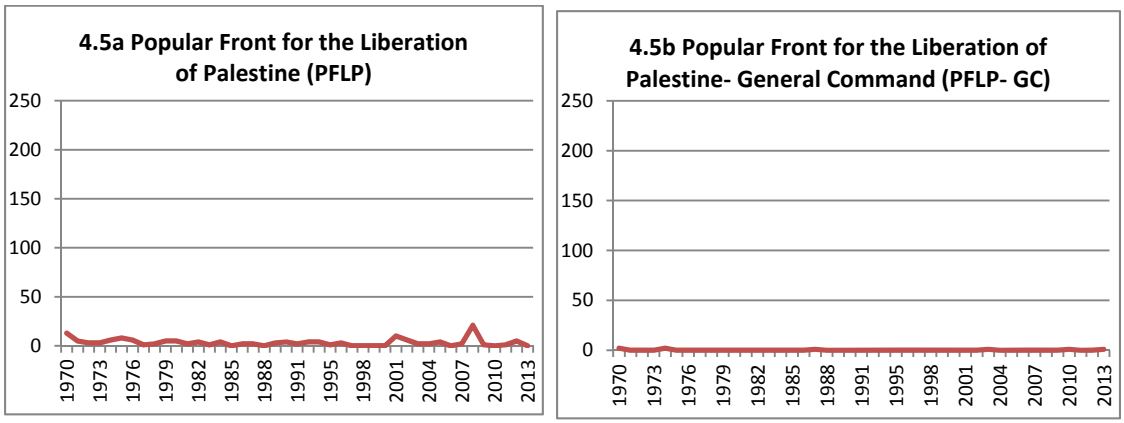


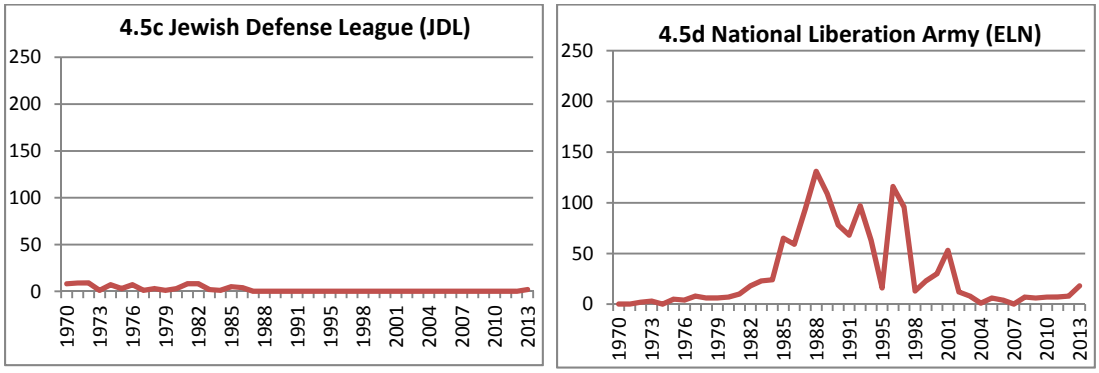
Figure 4.4 Peak year of terrorist activity

The final inclusion criterion pertains to the year the organizations began carrying out terrorist attacks. Of the remaining 668 perpetrator organizations, 36 carried out their first attack less than five years before then end of the time series in 2013. In order to avoid biasing the analysis by including perpetrator organizations that have not at least had an opportunity to run their course, I exclude groups that carried out their first attack after 2008. While the five year threshold is an arbitrary cutoff, it is informed by the finding in Figure 4.2 (above), indicating that more than half of the perpetrator groups were active for a total time span of five years or fewer. Removing these 36 perpetrator organizations from the analysis reduces the sample to a final count of 632.

Finally, before presenting the results of the trajectory analysis, I illustrate one of the main advantages of this methodology using the trajectories of perpetrator organizations that have engaged in terrorism for more than 40 years between 1970 and 2013. There are

eight 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), and the Ulster Volunteer Force (UVF).[9] Figures 4.5a-h show the individual trajectories of terrorist attacks over time for each of these organizations. Note that although these eight organizations were active for similar lengths of time according to the GTD, their patterns of activity are dramatically different.





[9] Note that a ninth organization was active for more than 40 years: the New People's Army in the Philippines (NPA). However, this organization is excluded from the subsequent analysis because it has recently undergone a resurgence and peaked in 2013.

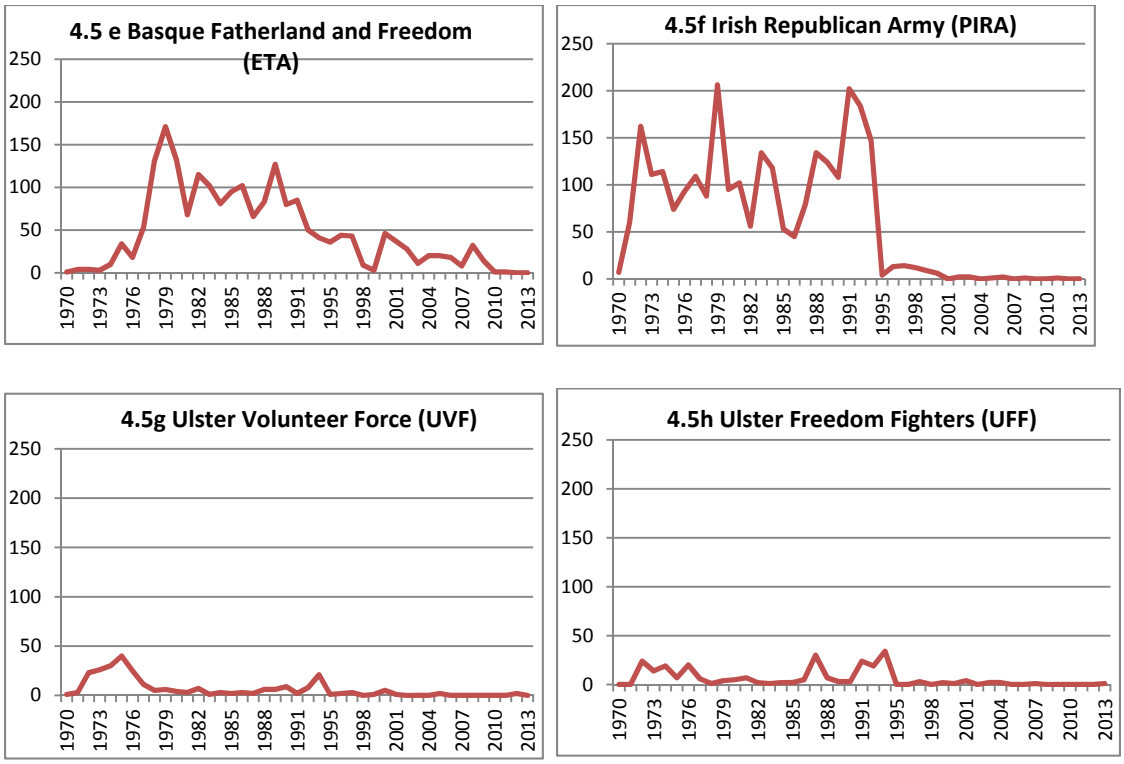


Figure 4.5a-h Indiviual trajectories, where time span > 40 years

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, and the PIRA 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 on total number of years of terrorist activity or a 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 central tendency for almost any point in the PIRA's 41-year history. In the next chapter I discuss the results of a trajectory analysis based on the premise that these dynamics have important implications for how we conceive of collective desistance from terrorism.

CHAPTER FIVE: Baseline Patterns of Decline

The analysis in the previous chapter illustrates that the violent terrorist activity of perpetrator groups follows a variety of patterns. While it is informative to study the number of years a group engages in terrorist violence or the average frequency of attacks per year, this does not fully capture variation in the shape of the groups' trajectories. In this chapter I present the results of a group-based trajectory analysis (GBTA), a maximum likelihood statistical method that summarizes large amounts of raw data on the trajectories of perpetrator organizations in the GTD by modeling trajectories for discrete, heterogeneous classes of observations. The goal of the GBTA is to determine the best fitting, most substantively informative approximation of types of trajectories a perpetrator group might follow. This strategy will allow me to address my first research question: What are the ways in which organizations that engage in terrorist violence desist from engaging in terrorist violence?

I begin this chapter by presenting what I consider to be the most defensible trajectory model, as well as the process of model selection by which I arrived at this particular specification. The process of model selection is not absolute, but is instead a matter of interpretation that reflects a number of different goals. Model fit statistics provide an assessment of how closely the trajectories represent the underlying observed data, and these typically improve as the complexity of the model specification increases and allows for greater flexibility to reflect diverse patterns of activity. However, with increasing complexity comes decreasing substantive utility. One can imagine that a maximally

complex trajectory model is not much more informative for analysis than the observed data, while a minimally complex model offers a poor representation of the heterogeneity of the observed data. Thus, a balance between model fit and model parsimony is ideal; and, it is useful to present a transparent explanation of the decisions that impact model selection.

It is also important to note that the best fitting approximation is not always a particularly good approximation of the groups' terrorist activity. For this reason, the second component of this chapter is a critical analysis of the perpetrator groups' patterns of decline as they relates to the trajectory model. This addresses the third research question identified in Chapter 1: What are the implications of measurement and analytical strategy for the study of collective desistance from terrorism? While the benefits of GBTA allow for more nuanced analysis of the shape of the perpetrator groups' terrorist activity, the results must be interpreted with caution because they can be misleading in cases where the best approximation is a poor approximation. For ease of interpretation I use the classes of the trajectory model as a framework for this analysis, but urge the reader to bear in mind that these classes are merely estimates informed by the models, rather than true representations of their constituent groups. In fact, the primary goal of this part of the analysis is to assess the extent to which the GBTA approach is appropriate for representing the underlying data.

A key component of the critical analysis of the trajectory estimates is a series of twelve brief case studies intended to provide contextual examples and challenge the assumptions

of the model. I select two perpetrator groups best characterized by each trajectory and use various sources of information—including media articles, reports produced by governmental and non-governmental agencies, and scholarly research—to illustrate the circumstances that generated the observed data. In selecting cases for further investigation, I attempt to compare and contrast examples that are both well- and poorly-represented by the model estimates.

I conclude this chapter with a summary of my baseline model of collective desistance, its implications for our understanding of the ways in which perpetrator groups' use of terrorist violence declines, and the limitations of this approach that prompt further investigation.

Trajectory Model

As I described in Chapter 3, because I am particularly interested in better understanding the ways in which perpetrator groups *desist* from carrying out terrorist attacks, I initially focus my analysis on the groups' trajectories following their peak year of terrorist violence. Additionally, this analysis excludes groups that are identified as perpetrators of attacks in the Global Terrorism Database, but have carried out terrorist attacks for fewer than 365 days. As described in Chapters 3 and 4, many of these groups have not fully engaged in terrorist violence for a variety of reasons, making them poor representatives of desistance from terrorist violence. Likewise, I exclude from the analysis perpetrator groups that began their engagement in terrorism fewer than five years before the end of the data series from this analysis. The effect of truncated data prevents me from

observing the natural trajectory of these groups, so I remove them from the analysis in an effort to minimize the potential bias created by groups whose engagement in terrorist violence is potentially artificially short-lived. Finally, I exclude from this analysis all groups whose peak year of activity is at the end of the series, which is to say those groups whose terrorist violence is still increasing. In addition to having no post-peak terrorist violence with which to build the model, these organizations are substantively interesting due to their lack of desistance and therefore appropriate for separate analysis (see Chapter 4). These decisions yield a set of 632 GTD perpetrator groups to include in the trajectory analysis.

Identifying the most appropriate trajectory model is an iterative process by which an analyst estimates an array of model specifications and determines which is the most appropriate based on several criteria. For the present analysis, I estimated a series of models ranging from four trajectories to seven trajectories, each defined by second-, third-, and fourth-order polynomials, for a total of twelve different models. The final model I selected for further analysis is specified with six discrete trajectories, each based on a fourth-order polynomial.

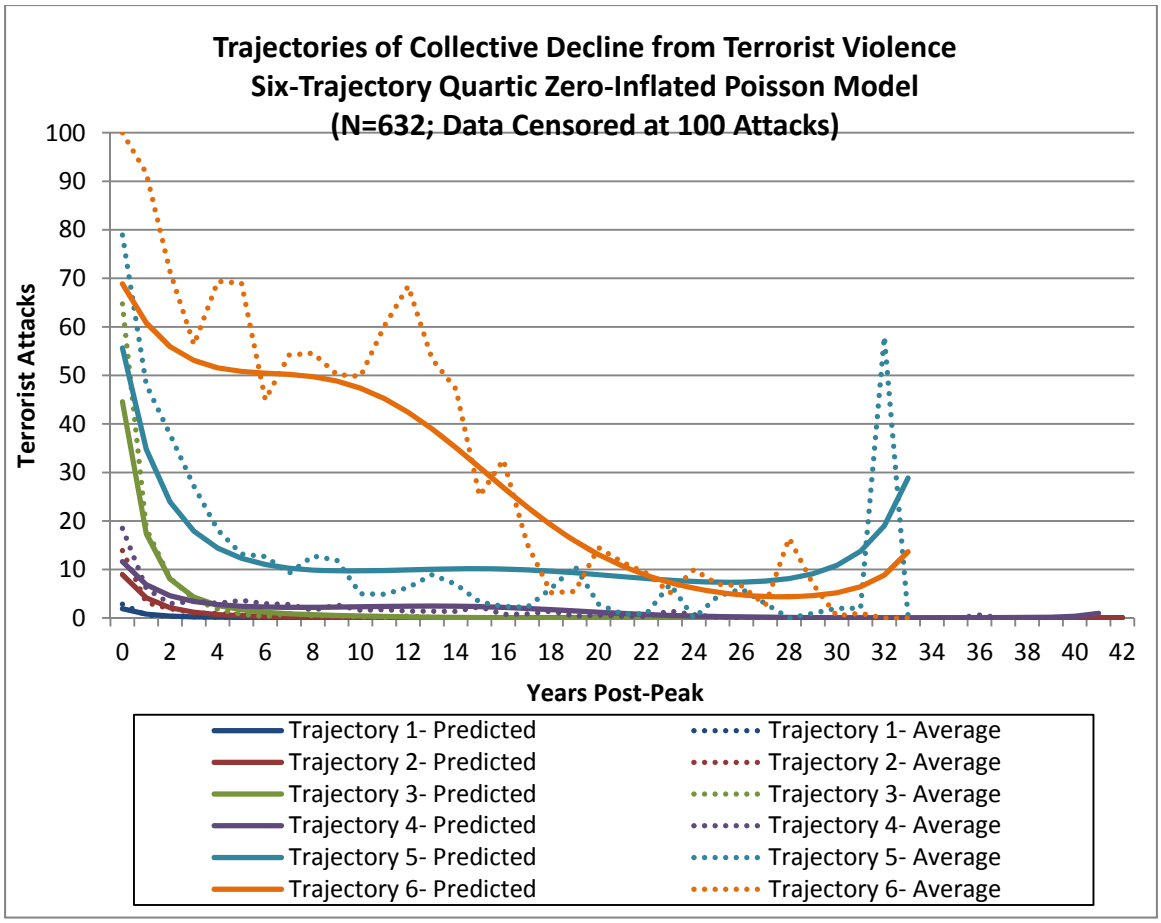


Figure 5.1a Trajectories of collective decline from terrorist violence.

Figure 5.1a shows the six trajectories estimated in the final model, which vary with respect to peak level of terrorist violence (point 0 on the x-axis) and shape, or rate of decline. Figures 5.1b and 5.1c display the same information, but separate those trajectories with relatively low peak levels of terrorist violence (1, 2, and 4) from those with relatively high peak levels of terrorist violence (3, 5, and 6), for clarity. The solid lines on these figures represent the six trajectories estimated by the model, and the dotted lines represent the average observed terrorist activity of the perpetrator organizations whose behavior best fits each trajectory. For example Trajectory 1 represents a pattern of terrorist activity that involves a very low peak level of activity (approximately two terrorist attacks during the peak year), and rapid decline following the peak year of

activity. This pattern is the closest fit for 397 of the 632 (62.8%) perpetrator organizations analyzed. The dotted line for Trajectory 1 shows the average annual number of terrorist attacks for those groups for which this Trajectory 1 is the best fit of the six possible trajectories.

Overall, three of the six trajectories (1, 2, and 3) represent relatively rapid declines from various peak levels of terrorist violence (low, moderate, and high, respectively). The other three trajectories (4, 5, and 6) represent patterns characterized by much slower rates of decline following moderate and high peak levels of activity. I will describe these patterns in greater detail below, but there are several important considerations regarding the model selection process worth noting.

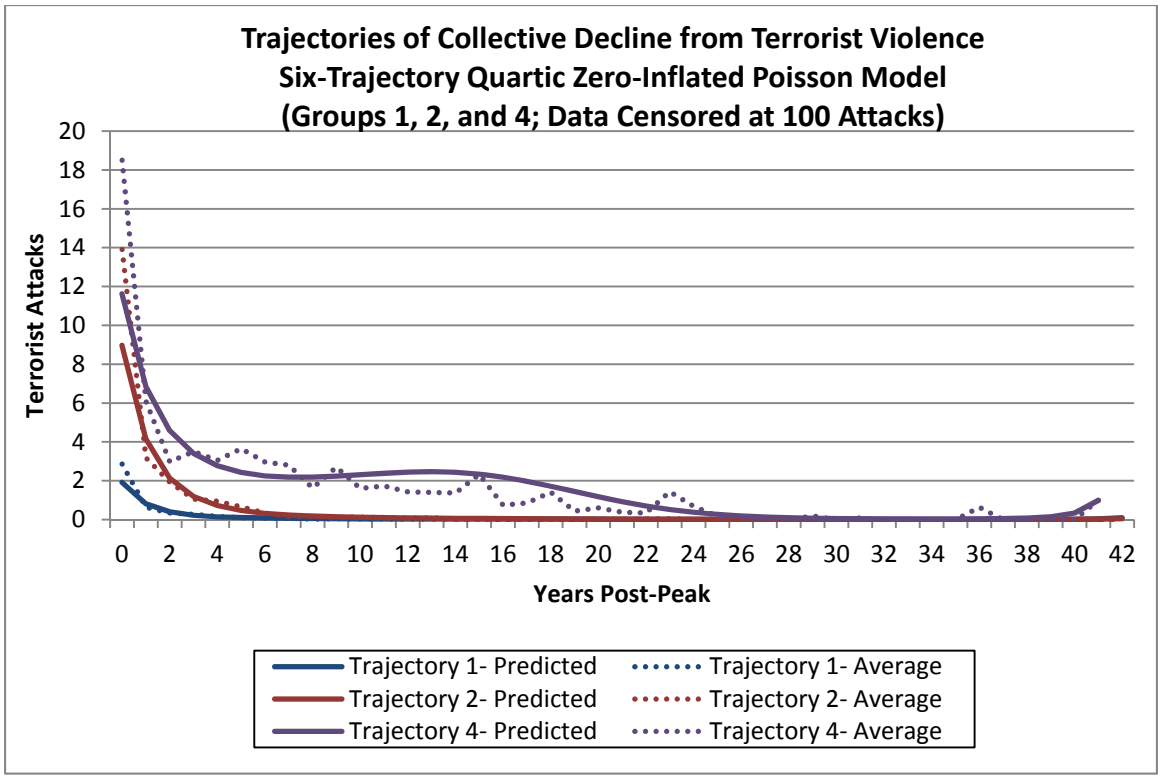


Figure 5.1b Trajectories 1, 2, and 4 of collective decline from terrorist violence.

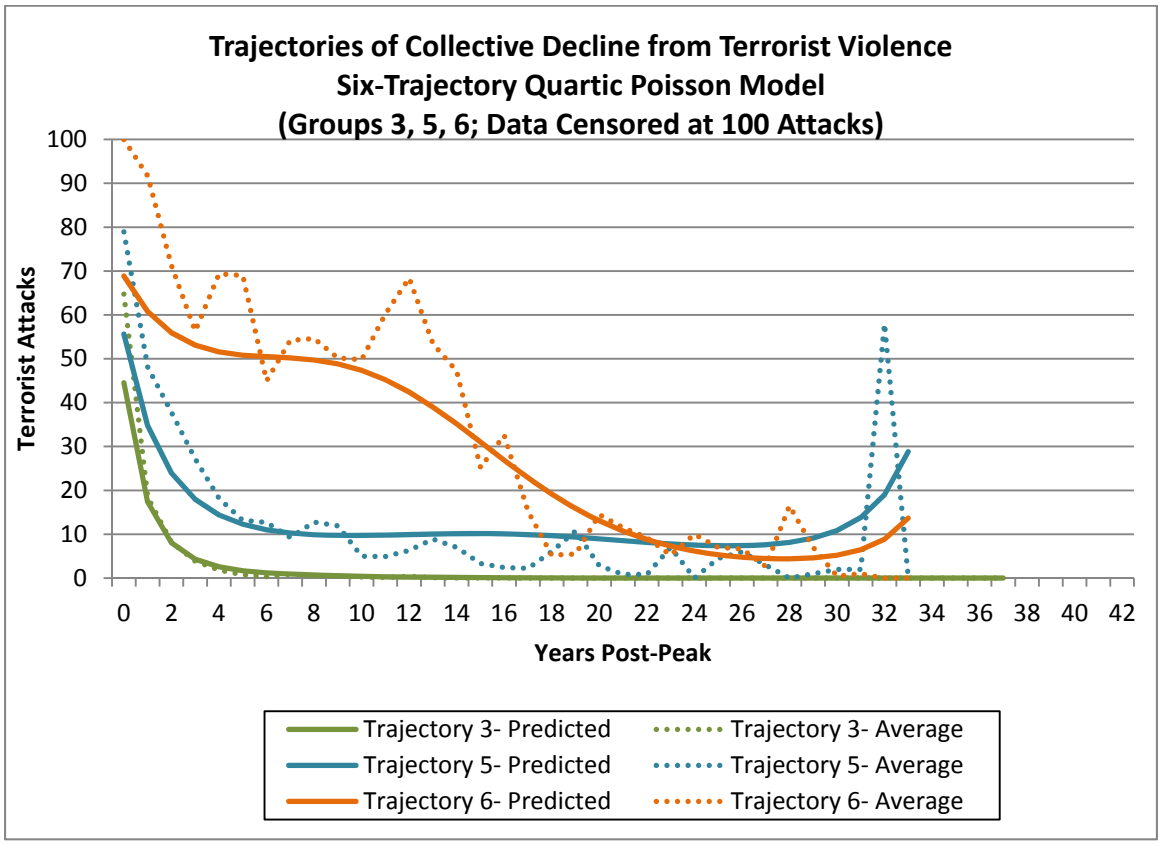


Figure 5.1c Trajectories 3, 5, and 6 of collective decline from terrorist violence.

Model Selection

First, before estimating the 12 different permutations of trajectory models, I censored the annual data on number of terrorist attacks at 100. The purpose of this is to facilitate model estimation, as few organizations carried out exceptionally high numbers of attacks in a given year. These outliers make the maximum likelihood estimation computationally intensive and can result in a failure of the model to converge. Censoring the data at 100 attacks impacts 28 perpetrator organizations that carried out more than 100 attacks at their peak. I converted a total of 61 observed values to 100. This retains sufficient heterogeneity among the groups' upper levels of activity, and using the censored values to calculate the averages in the graphs simplifies the display of the model. However, this

adaptation must be kept in mind while interpreting the results of the model. Figure 5.1d (Appendix II) shows the final model with the original observed values used to compute the trajectories.

Second, relying solely on model fit statistics, such as the Bayesian Information Criterion (BIC) failed to indicate a single, clearly preferable model. Figure 5.2 shows the BIC values for each of the 12 models, as they increased in complexity from three trajectory groups to seven trajectory groups, each estimated with quadratic, cubic, and quartic polynomials. With the exception of the quadratic models, the BIC values generally continued to improve as model complexity increased.

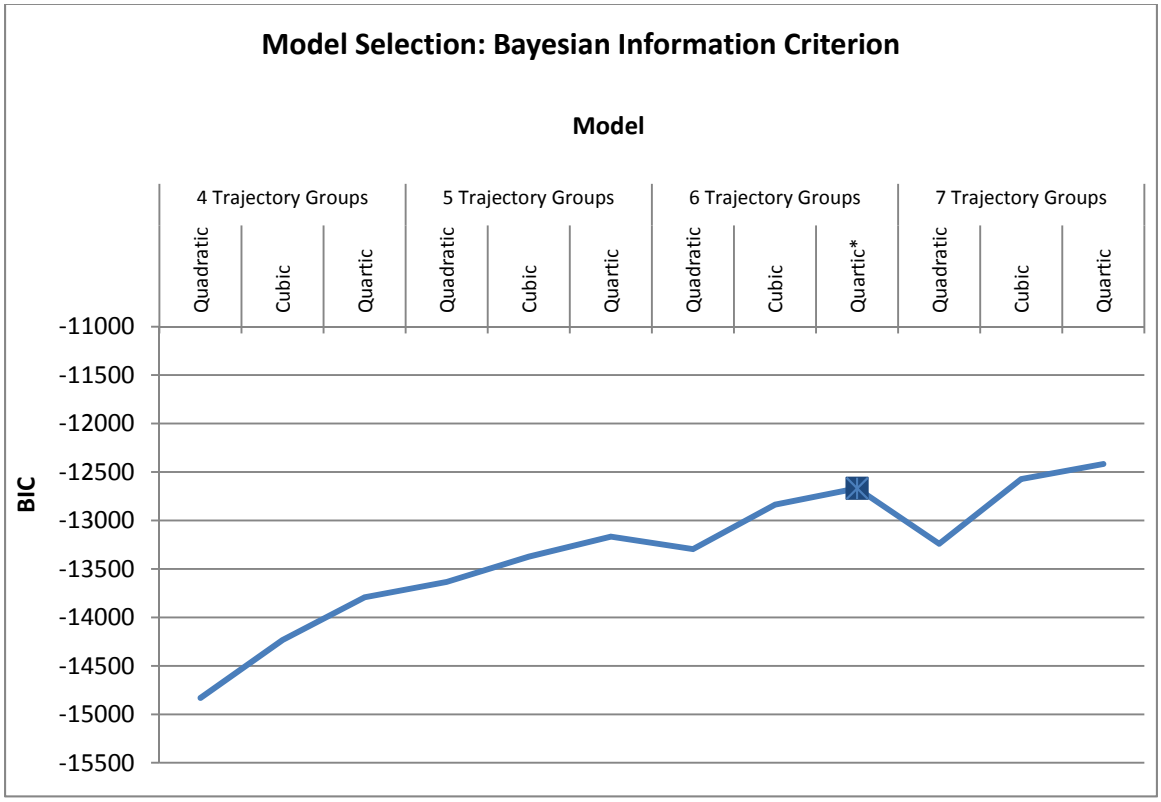


Figure 5.2 Model selection: Bayesian Information Criterion

Third, several of the distinct trajectories that emerge in the final model are robust, and persistently appear across the various model specifications. The posterior probabilities of group assignment—the average likelihood that a perpetrator organization is best aligned with one trajectory rather than the others—is greater than .9 in all cases and greater than .98 for 38 of the 66 trajectories estimated. Likewise, the Odds of Correct Classification (OCC) were routinely higher than the threshold established by Nagin (2005) of 5. In particular, the trajectories that best represent the activity of exceptionally small numbers of perpetrator organizations (e.g., Trajectory 5 and Trajectory 6) emerge in all variations of the model. Increasing the number of trajectories estimated from four to seven does not increase the likelihood that these atypical trajectories emerge; rather, it more precisely parses the most typical trajectories, like Trajectory 1, into more diverse patterns. For example the main difference between a model with five trajectories and the selected model with six trajectories is that the six-trajectory model includes Trajectory 2. Most of the 130 (20.6%) perpetrator groups for which Trajectory 2 is the best fit in the 6-trajectory model would best fit into the equivalent of Trajectory 1 or Trajectory 3 in the 5-trajectory model, where these two patterns were more similar to each other. Estimating Trajectory 2 as a distinct, sixth pattern of activity improves the overall fit of the model, but also better serves to distinguish a unique pattern of high peak terrorist activity and dramatic decline (Trajectory 3) from a pattern of low peak activity and rapid decline (Trajectory 1). In contrast, the 7-trajectory model extracts an additional pattern that essentially splits the difference between Trajectory 1 and Trajectory 2 in the 6-trajectory model. While it is statistically distinct enough to improve the model fit statistics, I posit

that the seventh trajectory does not represent a pattern that is substantively meaningful enough to warrant further investigation as a unique pattern of post-peak terrorist activity.

Analysis of Individual Trajectories

Each of the six trajectories in the final model represents a distinct pattern of post-peak terrorist violence. Using the posterior probabilities of group 'membership' estimated by the model I identify which trajectory best characterizes each perpetrator organization. In the final model, the average posterior probabilities are greater than .93 for all six trajectories. Table 5.1 shows descriptive profiles of each trajectory class and its corresponding perpetrator organizations. The attributes presented in Table 5.1 include the number of perpetrator organization for which each trajectory is the best approximation of post-peak activity, as well as the average, minimum, and maximum posterior probabilities of trajectory group membership produced by the trajectory model. This provides an estimate of the likelihood that each perpetrator group is best represented by a particular trajectory, relative to the other five trajectories. Table 5.1 also shows information about the span of terrorist violence (in years) among the perpetrator groups most closely aligned with each trajectory, including the total number of years for which the perpetrator groups actively carried out terrorist attacks and the number of years for which they carried out terrorist attacks prior to reaching their peak level of terrorist violence, as well as the year they began engaging in terrorist violence, and the year their use of terrorist violence peaked.

Table 5.1 Attributes of Trajectory Groups	Trajectory 1	Trajectory 2	Trajectory 3	Trajectory 4	Trajectory 5	Trajectory 6
Description	Low Peak; Rapid Decline	Moderate Peak; Rapid Decline	High Peak; Rapid Decline	Moderate Peak; Slow Decline	High Peak; Slow Decline	High Peak; Very Slow Decline
Number of Perpetrator Organizations (%)	397 (62.8)	130 (20.6)	36 (5.7)	42 (6.6)	17 (2.7)	10 (1.6)
Average Posterior Probability of Trajectory Group Membership	0.99	0.95	0.99	0.97	1.00	1.00
Minimum Posterior Probability of Trajectory Group Membership	0.59	0.58	0.88	0.59	1.00	1.00
Maximum Posterior Probability of Trajectory Group Membership	1.00	1.00	1.00	1.00	1.00	1.00
Average Total Years of Terrorist Violence	6	10	14	19	24	22
Minimum Total Years of Terrorist Violence	1	1	2	2	7	4
Maximum Total Years of Terrorist Violence	43	43	42	43	39	41
Average Pre-Peak Years of Terrorist Violence	2	4	7	7	9	10
Minimum Pre-Peak Years of Terrorist Violence	0	0	0	0	0	2
Maximum Pre-Peak Years of Terrorist Violence	21	37	23	32	30	21
Average Year of Onset of Terrorist Violence	1989	1985	1982	1989	1985	1989
Average Peak Year of Terrorist Violence	1991	1989	1989	1995	1994	1999
Total Number of Terrorist Attacks	2353	4265	9539	3372	13024	15929
Total Number of Fatalities from Terrorist Attacks	7780	8831	22074	12311	40160	39030
Average Number of Terrorist Attacks at Peak (Uncensored)	2.87	13.93	84.94	18.52	135.82	286.00
Average Number of Terrorist Attacks Two Years Post-Peak (Uncensored)	0.34	1.95	8.17	3.03	58.59	71.83
Average Number of Terrorist Attacks Five Years Post-Peak (Uncensored)	0.10	0.70	0.79	3.69	13.18	74.80

Finally, Table 5.1 shows statistics about the perpetrator groups' terrorist activity including the total number of terrorist attacks and fatalities from terrorist attacks, the average number of terrorist attacks carried out during the peak year of terrorist violence, and indicators of the perpetrator groups' rate of decline two years, and five years after their peak year of terrorist violence. For the remainder of this chapter, I will describe each of the trajectories in detail, using the statistics presented in Table 5.1 as well as individual graphs of each trajectory.

Trajectory 1: Low Peak and Rapid Decline

In Figure 5.3 the colored trend lines represent the post-peak trajectories of terrorist violence by individual perpetrator organizations, and the black curve represents the prediction line estimated by the model for each trajectory classification. The main purpose of these graphs is not to identify each specific perpetrator organization's trajectory, but rather to give an overall sense of the trajectory estimated by the model and the individual organizations' variation from that predicted pattern. Erosheva, Matsueda, and Telesca (2014) review the literature on latent group trajectory analysis and note that researchers using these statistical techniques on individual-level data almost never examine the degree of individual variation around the group mean. They suggest that, in fact, patterns of activity among individuals are highly variable around group means, indicating that they adhere to a continuous, common distribution rather than a distribution marked by discrete, distinctive groups. By examining the variation of individual group trajectories around the mean trajectory, I can evaluate whether or not the same is true of perpetrator organizations.

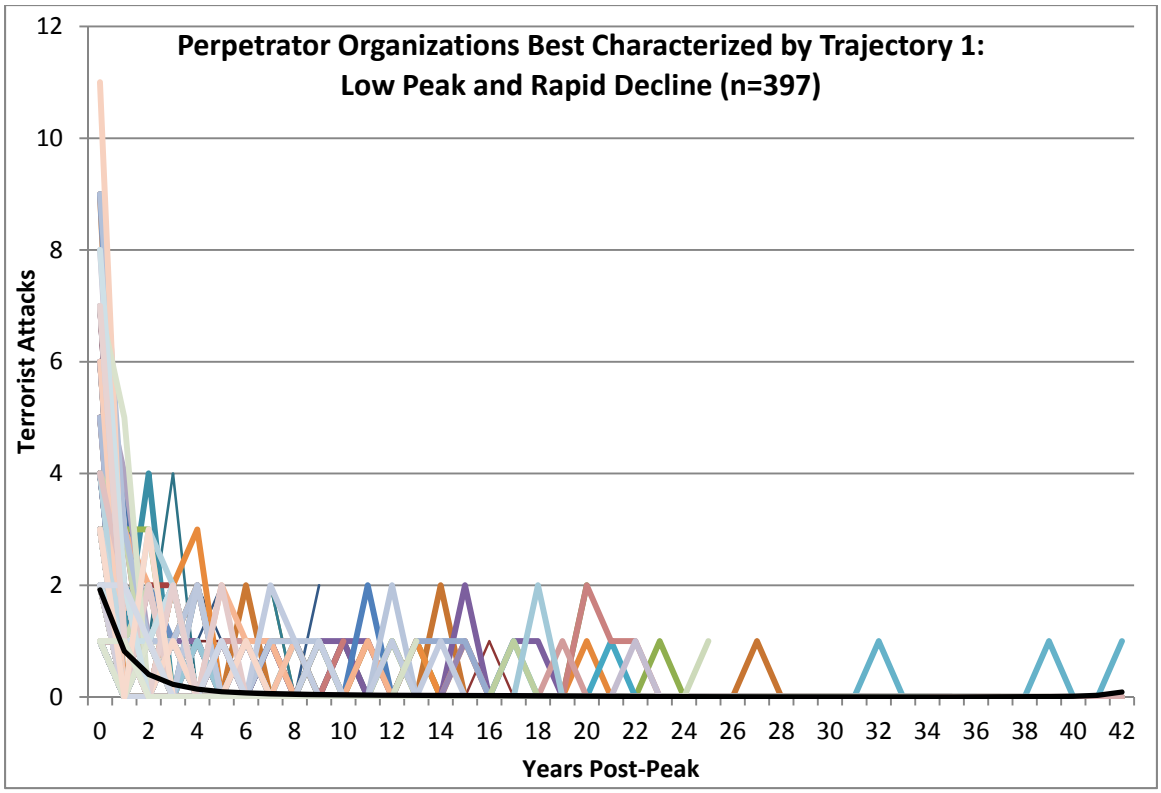


Figure 5.3 Perpetrator organizations best characterized by Trajectory 1

Of the six trajectories, Trajectory 1 provides the best approximation of post-peak terrorist violence for the largest number of perpetrator organizations. Shown in Figure 5.3, more than half (62.8%) of the perpetrator organizations are best characterized by this pattern—a relatively *low peak* number of terrorist attacks, followed by a *rapid decline* to a point of minimal activity for the remainder of the series. The average posterior probability of group membership for the perpetrator organizations represented by Trajectory 1 is very high, at 0.99. Among these perpetrator organizations, for those with the lowest posterior probability of being characterized by the low peak and rapid decline of Trajectory 1 the most likely alternative classification is a moderate peak and rapid decline represented by Trajectory 2.

The peak number of terrorist attacks for perpetrator groups represented by Trajectory 1 ranges from one (130 organizations) to 11 (two organizations: the East Asia Anti-Japanese Armed Front, from Japan, and Union Guerra Blanca (UGB), from El Salvador). The total number of years for which these organizations engaged in terrorist attacks ranges from one to 43, though the 19 organizations whose terrorist violence spans several decades maintained lengthy periods of inactivity or minimal terrorist activity. Several of these perpetrator organizations are not entrenched terrorist organizations, but instead established political parties, including the Communist Party of India- Marxist, the Kurdish Democratic Party (KDP) in Iraq, and the Pakistani People's Party. The 397 perpetrator organizations represented by the low peak and rapid decline of Trajectory 1 engaged in terrorist violence for an average of six years total, and for an average of two years prior to reaching their peak numbers of terrorist attacks. For 245 of the 397 perpetrator organizations (61.7%), the first year of engagement in terrorist violence was the peak year of engagement in terrorist violence.

Although Trajectory 1 represents the largest number of perpetrator organizations, their relatively low peak and rapid decline yields an overall infrequency and short duration of the organizations' terrorist activity. This means that they comprise the fewest terrorist attacks (2,353) and fatalities from terrorist attacks (7,780) of all of the trajectory classifications. On average, the perpetrator organizations best characterized by a low peak and rapid decline carried out a total of 5.9 terrorist attacks, and caused an average of 19.7 fatalities. Although these perpetrator organizations share in common a similar overall trajectory of post-peak activity, they are diverse in the frequency and especially

the lethality of their terrorist violence. The total number of deaths caused by their terrorist attacks ranges from zero (111 organizations) to 582, with 19 organizations causing more than 100 total deaths.

Due to the relatively low impact of their terrorist activity, many of the organizations represented by the low peak and rapid decline of Trajectory 1 are obscure, and have unfamiliar names such as "Avengers of the Infants," "Forest Brothers," and "Comite d'Action Viticole" (CAV; Committee for Viticultural Action)—a "shadowy organization with an estimated 1,000 members… who believe the French government is not doing enough to protect small wine producers from globalization" (Frank, 2006, p. 1). Members of CAV have been engaging in occasional violent and non-violent actions since 1998, motivated by the economic struggle facing France's winemakers.

Some of the other perpetrator organizations best characterized by a low peak and rapid decline also illustrate the ways in which terrorism is but one strategy for addressing perceived grievances or attempting to achieve political goals. In addition to the political parties referenced above in the context of organizations with sporadic and rare, but long-term engagement in terrorist violence, there are many other political parties with even more tenuous involvement in terrorist violence in that their attacks and their trajectories are extremely short. Organizations like the Likud Party in Israel, the Jamaica Labor Party, and the al Da'wah Party, a Shi'a political party in Iraq, are each attributed responsibility for two or three terrorist attacks, despite having existed as political parties for decades. In contrast, other perpetrator organizations best characterized by a low peak and rapid rate

of decline, such as the Cali and Medellin drug cartels operating in Colombia, engage in a wide variety of illegal activity—including violent activity—though most of their violent attacks take place in the context of the drug trade and few satisfy the definitional criteria for inclusion in the Global Terrorism Database.

Several of the organizations best characterized by the low peak and rapid decline of Trajectory 1 highlight limitations of event-level data on terrorist organizations. For example, although the GTD spans more than four decades, providing a comprehensive set of data on terrorist violence over time, naturally there are organizations that began engaging in terrorism before the GTD's 1970 start date. For example, the Ku Klux Klan (KKK) was founded in 1865 in the United States, and came to be known as one of America's first terrorist groups (Bartoletti, 2010; Bond, 1997). By 1970, however, the KKK was a shadow of its former strength and since then it has been attributed responsibility for 23 terrorist attacks over the span of 43 years. Given the KKK's lengthy history, Trajectory 1's low peak and rapid decline is likely a poor representation of the group's actual decline in terrorist violence.

Trajectory 1 Case Study: People's Liberation Organization of Tamil Eelam (PLOTE)

The first case I selected for further investigation is the People's Liberation Organization of Tamil Eelam (PLOTE). The PLOTE was one of five main Tamil independence organizations in Sri Lanka. It emerged in 1979, founded by Uma Maheswaran, a former member of the Liberation Tigers of Tamil Eelam (LTTE) (Immigration and Refugee Board of Canada, 1992). A key point of conflict between the PLOTE and the LTTE was

the LTTE's use of guerrilla tactics, which the PLOTE did not adopt. Nearly all of the violence the PLOTE engaged in was inter-group feuding with the LTTE, which would not qualify for inclusion in the GTD (Immigration and Refugee Board of Canada, 1992; Reuters, 1989). In 1987, following extensive violent conflict with the LTTE, the Sri Lankan and Indian governments entered into an agreement with several Tamil organizations, including the PLOTE. At that time the group continued fighting the LTTE, but in cooperation with the Indian military (Johnson, 1987). Since then, the PLOTE has claimed to be active only as a political group (Daily Mirror, 2009).

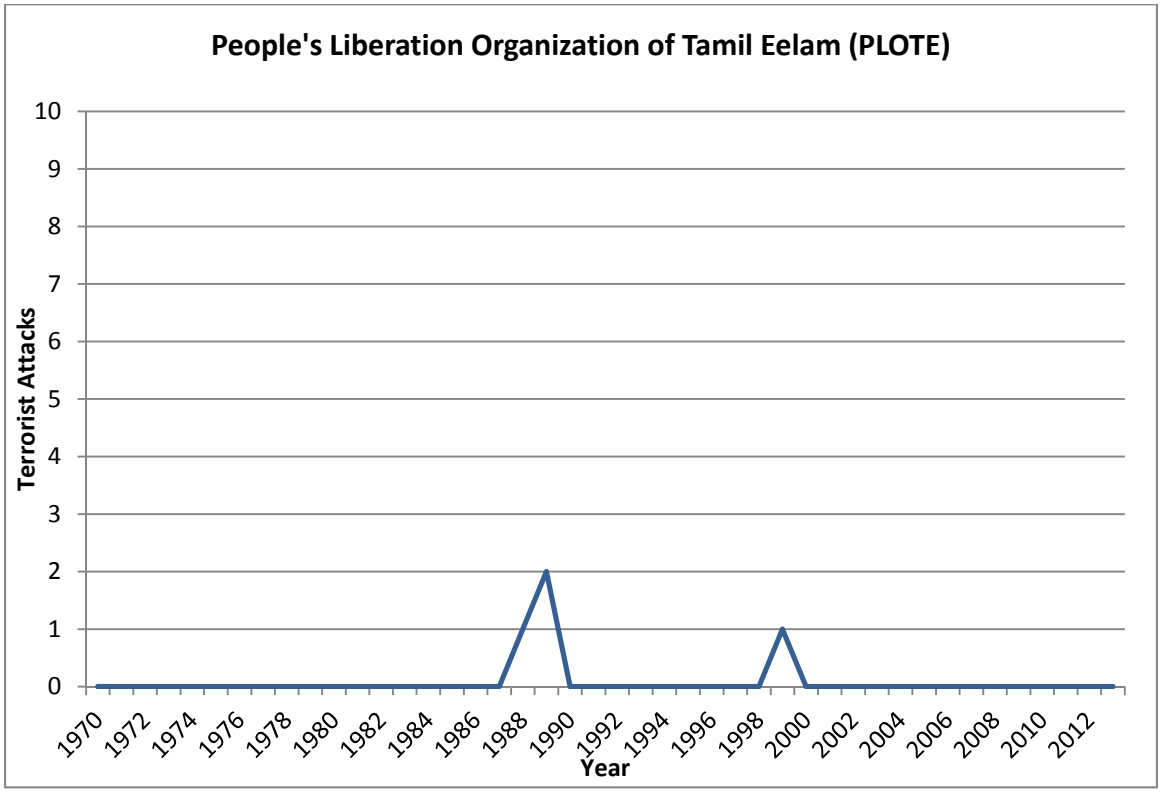


Figure 5.4 People's Liberation Organization of Tamil Eelam (PLOTE)

As Figure 5.4 shows, the PLOTE is responsible for four attacks in the GTD: one in 1988 (an incendiary attack targeting a bus company), two in 1989 (an attack against the Sri Lankan military that killed 12, and the kidnapping of Batticaloa Deputy Municipal Commissioner), and in 1999 the group was suspected of involvement in an attack in which two Tamil politicians—members of a rival group—were killed. In fact, the PLOTE appears in the GTD as the target of at least three times as many attacks. Despite the fact that the PLOTE was active in an extremely violent context, the fact that this perpetrator organization was generally opposed to guerrilla tactics, that its engagement in violence was almost entirely restricted to clashes with rival militant groups, and that it ultimately fought in cooperation with the government, makes it problematic to conceive of PLOTE as a typical terrorist organization with a clear trajectory of terrorist violence. Indeed, the PLOTE is perhaps more appropriately identified as an organization that has political goals, but with few exceptions its chosen means for achieving those goals generally do not involve violence directed at the public or the government.

I selected the PLOTE for further investigation because the organization represents several characteristics relevant to desistance from terrorism and the study of desistance from terrorism. The PLOTE existed in the context of an extremely volatile conflict between the Sri Lankan government and several militant groups (United Nations, 2011). Despite this, and despite its inclusion in the GTD as a perpetrator group, the PLOTE did not carry out large numbers of attacks, either against government or civilian targets. While its trajectory classification characterizes the PLOTE as an organization with a low peak and a rapid decline, the PLOTE was responsible for attacks over the span of a decade

following its peak year of activity. In addition, the way in which the PLOTE desisted from terrorism does not appear to be consistent with many of the typical explanations advanced by theorists. It was not overwhelmed by government response or law enforcement, it was not successful in achieving its goals or resolving its grievances, and it was not made stronger by opposition, either from the state or other militant groups. Indeed, it appears that the PLOTE desisted from terrorist violence because it lacked commitment to the use of terrorist violence in the first place.

Trajectory 1 Case Study: Aum Shinrikyo

Another organization characterized by the low peak number of attacks and rapid decline of Trajectory 1 is Aum Shinrikyo, based primarily in Japan. Aum Shinrikyo is an apocalyptic cult that was established in 1987 by a charismatic spiritual leader, Shoko Asahara (Fletcher, 2012; US Department of State, 2015b). Aum Shinrikyo is best known for its sarin gas attack on the Tokyo subway in 1995 that killed 13 and injured at least 5,500. However, the group carried out a number of chemical and biological attacks as early as 1990, with varying degrees of success. As Figure 5.5 illustrates, the organization's terrorist violence peaked and ended in 1995 with five attacks, including two prior to the subway attack on March 20, the attempted assassination of the chief of the National Police Agency ten days later (The Japan Times, 1998), and a parcel bomb that was sent to the governor of Tokyo in May (Langeland & Yamamura, 2012). Also in May 1995, police arrested Asahara for his role in planning the subway attack. He was convicted and sentenced to death in 2004. In 2010 and 2011 other members of Aum

Shinrikyo were also sentenced to death for their involvement in various attacks (Langeland & Yamamura, 2012; US Department of State, 2015b).

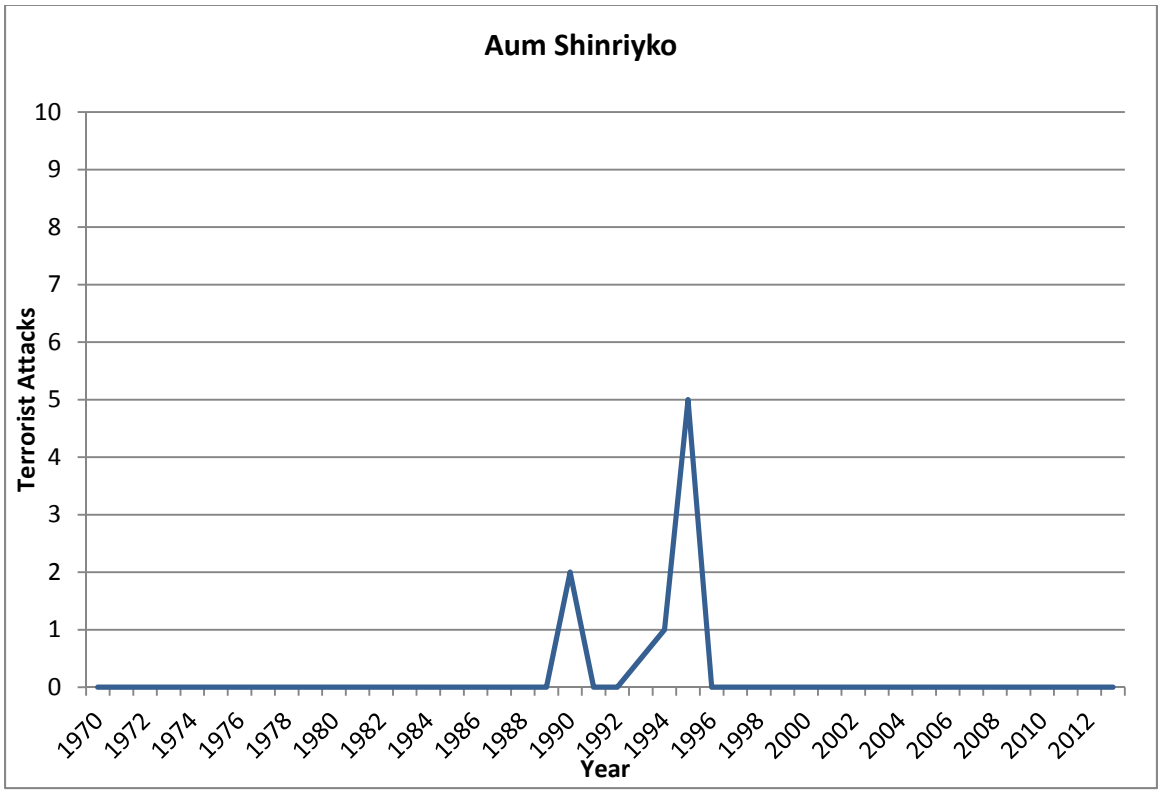


Figure 5.5 Aum Shinrikyo

Although Aum Shinrikyo has not carried out any terrorist attacks since May 1995, the United States Department of State designated the group as a Foreign Terrorist Organization (FTO) in 1997 (US Department of State, 2015b). Since then, somewhat conflicting reports indicate that the organization has remained active in various ways (Fletcher, 2012; Langeland & Yamamura, 2012; Onishi, 2004; US Department of State, 2015b). In 1999, and again in 2004 when Asahara was sentenced to death, the group apologized for the 1995 attack (Langeland & Yamamura, 2012; Onishi, 2004). In 2000 Aum Shinrikyo changed its name to Aelph and renounced violence and Asahara's leadership, but also reportedly planned that year or in 2001 to carry out a bombing attack

against the Imperial Palace in Japan in an attempt to free Asahara from prison (Fletcher, 2012; US Department of State, 2015b). In either 2003 (Fletcher, 2012) or 2007 (Langeland & Yamamura, 2012) Aelph reportedly split into two groups due to internal disputes regarding strategy. In 2012, a bomb threat was made via email against a Japan Airlines flight, demanding the release of Asahara (US Department of State, 2015b; Westlake, 2012).

As of 2015, the assessment of the US Department of State regarding Aum Shinrikyo is "Although AUM has not conducted a terrorist attack since 1995, concerns remain regarding its continued adherence to the violent teachings of Asahara" (US Department of State, 2015b, p. 340). After Asahara's conviction, Japanese authorities continued to monitor the organization's activity in accordance with surveillance laws established in the wake of the 1995 attack, and renewed in 2003 (Onishi, 2004). Based on the sequence of events following the organization's most recent terrorist attacks in 1995, it is somewhat difficult to characterize its desistance from terrorism. Japanese authorities believe that at least some members of Aum Shinrikyo remain committed to violence, and the attempts of the group's leadership to improve its image are superficial (Fletcher, 2012; Onishi, 2004). Nonetheless, due to incompetence, lack of organizational cohesion and support, or effective policing, no terrorist attacks have come to fruition.

I selected Aum Shinrikyo for further analysis because, unlike the PLOTE, Aum existed in an environment that experienced few terrorist attacks, the group held especially idiosyncratic goals, and it was notably characterized by a charismatic leader who was

ultimately incarcerated. While Aum was not successful at carrying out terrorist attacks after 1995, the conviction of Asahara in some ways promoted the group's continued efforts to carry out terrorist attacks, simply due to their interest in using the threat of violence to coerce authorities to release him from prison. This illustrates the possibility that capturing a key leader may in fact produce a greater motivation to carry out attacks in the interest of group preservation.

Consistent with the pattern represented by Trajectory 1, Aum Shinrikyo's involvement in terrorism is characterized by a relatively low peak number of attacks and a clearly rapid rate of decline. Aum differs from PLOTE in that the group was committed to carrying out attacks, yet failed in spite of the will to make repeated attempts, while PLOTE's interest in engaging in terrorist violence was certainly an exception to their usual repertoire of clashing with other militant groups.

Trajectory 2: Moderate Peak and Rapid Decline

Figure 5.6 shows that the shape of Trajectory 2 closely resembles that of Trajectory 1, although with a much higher average peak number of terrorist attacks (13.93 compared to 2.87). It is similarly characterized by a rapid decline to a minimal number of attacks following the perpetrator organizations' peak level of terrorist violence. This pattern, a *moderate peak* and *rapid decline*, is the best representation for 130 of the perpetrator organizations analyzed (20.6%). The peak number of terrorist attacks among perpetrator groups best characterized by the moderate peak and rapid decline of Trajectory 2 ranges from four attacks (six organizations) to 42 attacks (one organization). Like organizations

characterized by the low peak and rapid decline of Trajectory 1, the average posterior probability of Trajectory 2 classification is high (0.95). For those individual organizations for which the posterior probability of membership to Trajectory 2 (moderate peak and rapid decline) is lower, the next best alternative classification is either Trajectory 1 (low peak and rapid decline) or Trajectory 4 (moderate peak and slow decline).

Given higher peak levels of terrorist violence, the perpetrator organizations best represented by Trajectory 2 do appear to maintain engagement in terrorist violence for somewhat longer than those organizations best represented by the low peak and rapid decline of Trajectory 1. Two years following the peak of their terrorist violence, the organizations best represented by the moderate peak and rapid decline of Trajectory 2 carried out an average of 1.95 terrorist attacks annually, compared to an average of .36 attacks carried out by the perpetrator organizations best characterized by the low peak and rapid decline represented by Trajectory 1.

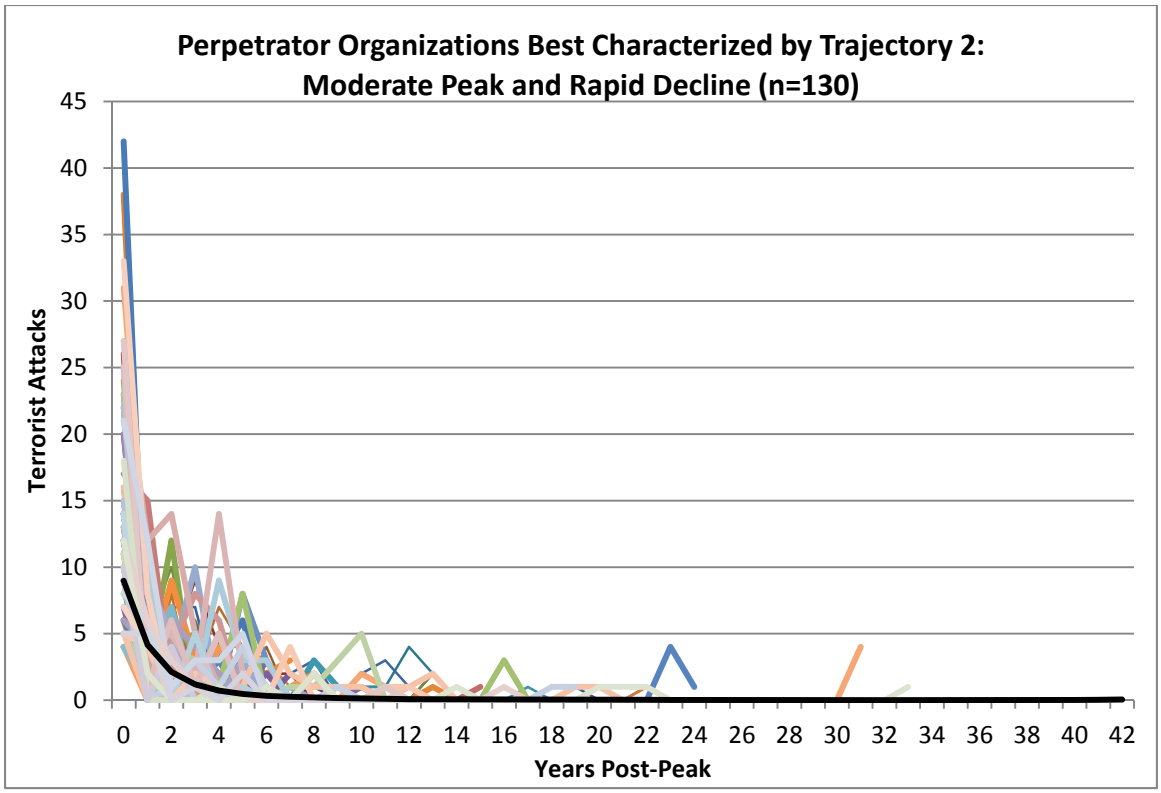


Figure 5.6 Perpetrator organizations best characterized by Trajectory 2

Like the perpetrator organizations characterized by a low peak and rapid decline, the perpetrator organizations characterized by a moderate peak and rapid decline carried out terrorist attacks for as few as 1 or as many as 43 years. Specifically, eight different organizations were actively engaged in terrorist violence for one year, and one organization, the Popular Front for the Liberation of Palestine (PFLP) carried out 161 terrorist attacks—the most of any organization represented by Trajectory 2— over a period of 43 years. However, unlike the groups best characterized by Trajectory 1's low peak and rapid decline, the average time span of terrorist violence among Trajectory 2 perpetrator organizations was somewhat longer, at 10 years, compared to six. Likewise, the average time span of terrorist violence before the organizations' peak was longer

among organizations best characterized by the moderate peak and rapid decline of Trajectory 2—four years, rather than two.

Despite the fact that the number of perpetrator groups represented by a moderate peak and rapid decline (Trajectory 2) is less than one-third of the number of perpetrator groups represented by a low peak and rapid decline (Trajectory 1), these differences in the frequency and time span of terrorist attacks produced nearly twice as many total attacks among Trajectory 2 perpetrator organizations (180%), compared to the Trajectory 1 perpetrator organizations. Although the difference is not as large, the perpetrator organizations best characterized by the moderate peak and rapid decline of Trajectory 2 were also responsible for 13.5 percent more fatalities than the organizations represented by the low peak and rapid decline of Trajectory 1. The specific number of fatalities caused by perpetrator organizations best represented by Trajectory 2 ranged from zero (10 organizations) to 654 (by the Communist Party of Nepal-Maoist).

The perpetrator organizations best represented by Trajectory 2's moderate peak and rapid decline include several well-known historical terrorist organizations, including both the Baader-Meinhof Group and its successor the Red Army Faction (RAF) from Germany, as well as the Weather Underground from the United States. In addition, many of the perpetrator groups that are best characterized by Trajectory 2 were linked to major terrorist conflicts, but were not necessarily the primary actors. These include, for example, the Continuity Irish Republican Army (CIRA), the Irish People's Liberation Organization (IPLO), the Loyalist Volunteer Force (LVF), and the Official Irish

Republican Army (OIRA), all of which were involved in "The Troubles" in Northern Ireland and Great Britain. Likewise, al-Fatah, Black September, the Democratic Front for the Liberation of Palestine (DFLP), Force 17, and the Popular Front for the Liberation of Palestine (PFLP), are all factions of the Palestine Liberation Organization (PLO).

Trajectory 2 Case Study: Popular Front for the Liberation of Palestine (PFLP)

The PFLP's first recorded attacks in the GTD occurred in 1970; however, the organization emerged from the Arab Nationalist Movement in 1967 following the Israeli occupation of the West Bank and became the second largest faction of the PLO in 1968 (BBC News, 2014; US Department of State, 2015b). In the late 1960s and 1970s, the PFLP carried out a number of high profile, 'spectacular,' hijackings of international airliners aimed at drawing the attention of the global community to the Palestinian cause, including a series of coordinated attacks in 1970 known as the "Black September" hijackings (Becker, 2014, p. 92). Early in its existence, several other groups emerged from the PFLP due to internal conflict regarding politics and strategy. These include the Popular Democratic Front for the Liberation of Palestine (PDFLP), which later changed its name to the Democratic Front for the Liberation of Palestine (DFLP); the Popular Front for the Liberation of Palestine- General Command (PFLP-GC); and the Palestinian Popular Struggle Front (PPSF) (Baracskay, 2011; Bröning, 2013).

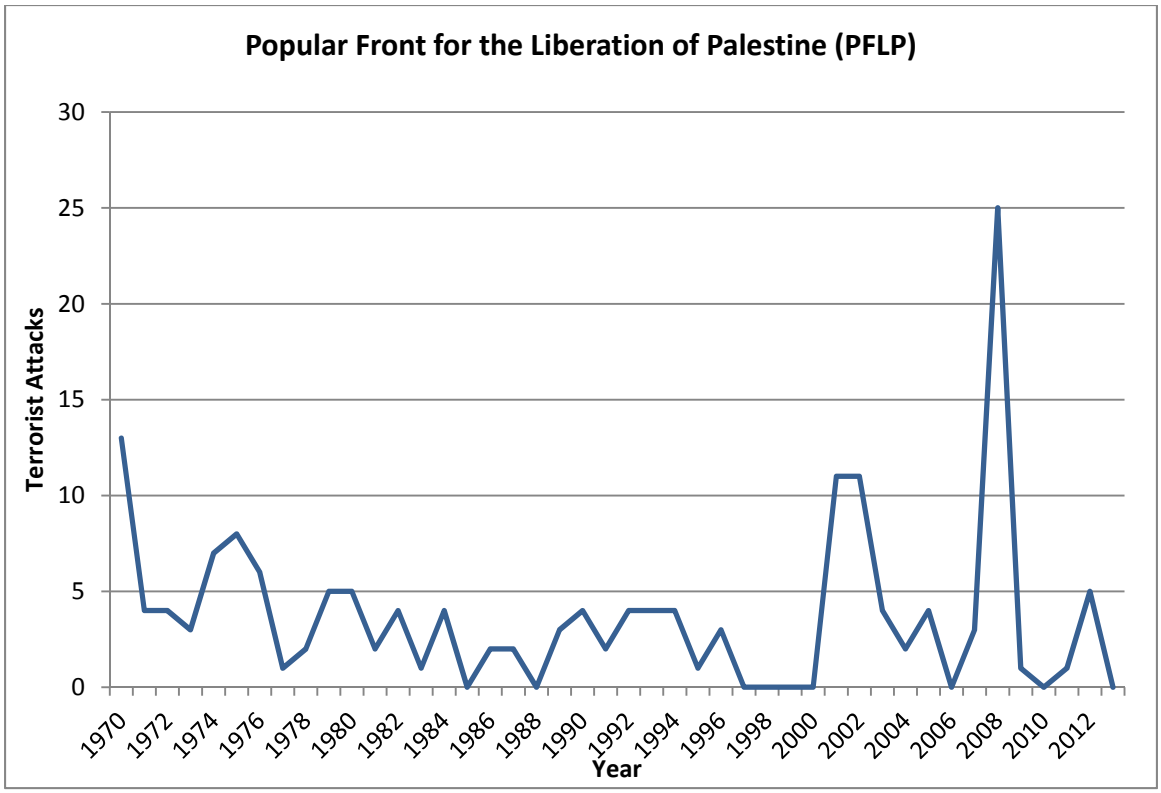


Figure 5.7 Popular Front for the Liberation of Palestine (PFLP)

From 1970 to 2013, the PFLP averaged 3.7 attacks per year, ranging from zero to a peak of 25 in 2008. Figure 5.7 indicates that the frequency of its attacks varied considerably, declining somewhat in the 1980s and 1990s when the strength of the secular, Marxist-Leninist organization was undermined by decline of the Soviet Union. While the PFLP opposed the 1993 Oslo peace agreement, it began engaging in Palestinian politics in 1999 (BBC News, 2014). The group's militant wing, the Abu Ali Mustafa Brigades, continued to carry out terrorist attacks, claiming responsibility for 10 suicide bombings between 2001 and 2004, during the Second Intifada. However, unlike the sensational, well-orchestrated hijackings of the 1960s and 1970s, more than half of all PFLP attacks in the 21st century (59.3%) involved rockets, missiles, or mortars fired at Israeli cities near the Gaza Strip. This tactic, which is less risky and challenging than hijacking airliners,

allowed the PFLP to increase the number of attacks they carried out, despite the impact being qualitatively different. Rather than commanding worldwide attention, the PFLP has primarily been contributing to an atmosphere of fear in Israeli communities.

I selected the PFLP for further investigation because it represents several key issues related to desistance from terrorism. Notably, the PFLP is best represented by the moderate peak and rapid decline of Trajectory 2 because of its sharp decline in terrorist violence from a peak of 25 attacks in 2008, to one in 2009, and zero in 2010. However, 21 of the 25 attacks in its peak year were rocket attacks which, compared to the high-profile hijackings of the 1970s represent a desistance from one type of tactic in favor of another that is not captured by the statistical analysis. Furthermore, the frequency of PFLP attacks has declined to zero several times throughout its history, and, as it has in the past, the group resumed its use of violence in 2011 and 2012. Although this illustrates the challenge of operationalizing desistance, especially given periods of intermittency, in general it is clear that the impact of the PFLP has declined considerably.

Trajectory 2 Case Study: Baader-Meinhof Group & Red Army Faction (RAF)

The Baader-Meinhof Group and the Red Army Faction are both characterized by a moderate peak number of attacks and rapid decline. However, it is important to note that these are two distinct generations of the same organization (Merkl, 1995). Formed in West Germany in 1970 by Andreas Baader, Gudrun Ensslin, and Ulrike Meinhof, the group originally called itself the Rote Armee Fraktion (RAF; Red Army Faction) while the media and authorities referred to it as the Baader-Meinhof gang. The GTD uses

"Baader-Meinhof Group" to represent the first generation and "Red Army Faction" to represent the second generation.

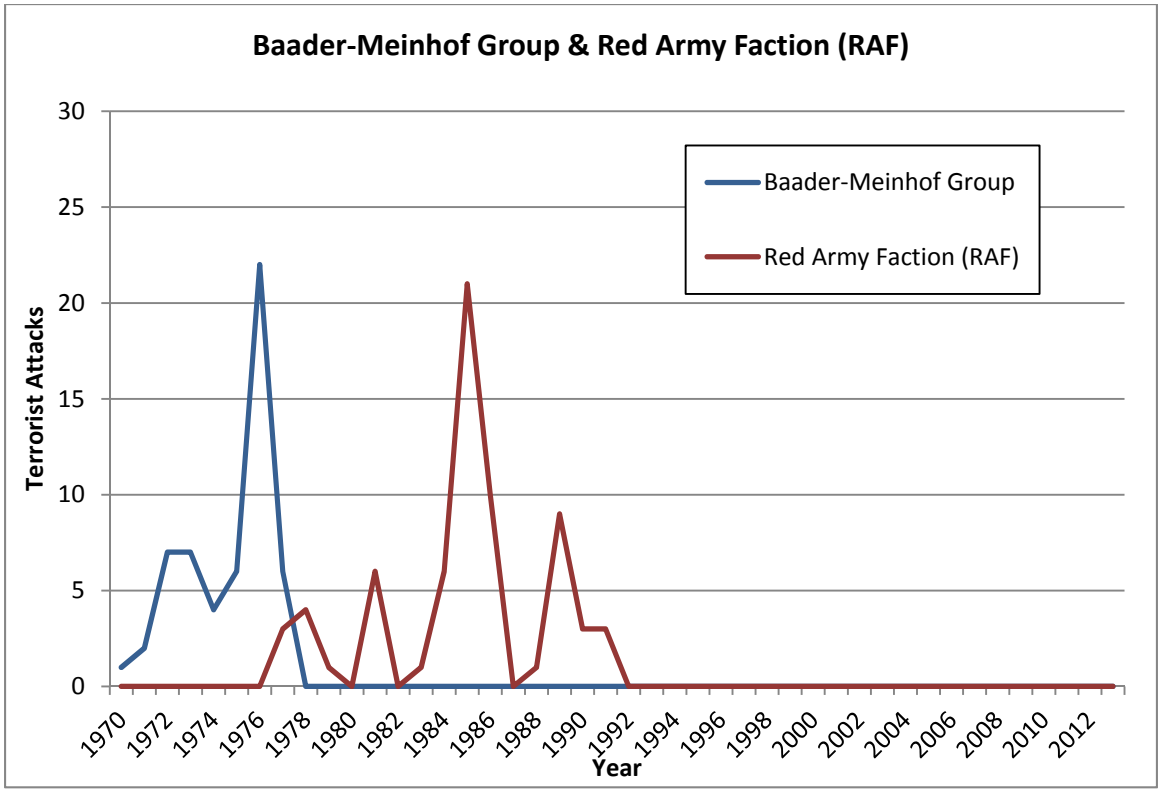


Figure 5.8 Baader-Meinhof Group & Red Army Faction (RAF)

The Baader-Meinhof group grew out of the West German anti-Vietnam war movement and a history of militant socialist groups. It espoused an anti-imperialist, anti-capitalist, communist ideology, opposing the United States and its involvement in Vietnam, and supporting the Palestinian cause (Varon, 2004). Frustrated by an inability to mobilize the working class, the founders focused their efforts on anti-imperialism on an international level. For two years, the Baader-Meinhof group carried out armed assaults and bombings in West Germany against business, government, police, and US military targets that they believed represented the establishment. In June 1972, Baader, Ensslin, Meinhof, and several accomplices were arrested. While they were in prison awaiting trial their

associates carried out 47 attacks in West Germany, Italy, France, and Switzerland, primarily in attempt to negotiate the release of the group's leadership from prison (BBC News, 2007). The Baader-Meinhof group's terrorist violence peaked in 1976 when it carried out 22 attacks; however, it was still unsuccessful in securing the release of Baader, Ensslin, Meinhof and other members of the group. That same year, Meinhof committed suicide in prison and the others were convicted and sentenced to life in prison. In October 1977, they committed suicide as well, effectively ending the entity known as the Baader-Meinhof group (BBC News, 2007).

The remaining RAF members continued to carry out terrorist attacks, though Merkl (1995) argues that they lacked the ideological focus of the Baader-Meinhof gang. Nonetheless, between 1977 and 1991 they were responsible for 68 attacks, peaking in 1985 with 21 attacks and declining to zero within two years, followed by a minor resurgence. Not unlike the PFLP and the fall of the Soviet Union, the RAF was weakened by the fall of the Berlin Wall in 1989 (BBC News, 2007). In 1992 the few remaining RAF members announced that they were abandoning violence; the group announced its dissolution on April 20, 1998, indicating that their cause was "a dead end" (Cowell, 1998, p. 9).

The use of terrorism by the RAF as a tool to try and secure the release of the group's imprisoned leaders suggests, like the experience of Aum Shinrikyo, that capturing key leaders can have a complex impact on the activity of the remaining group members. In one sense, the goal of securing the release of the leaders further motivated the ongoing

use of violence. However, the absence of the leaders made it difficult for the group to maintain a coherent political objective that was effectively transmitted to future generations (Crenshaw, 1991; Merkl, 1995). Furthermore, although both of these organizations declined fairly rapidly following their peak year of activity, the link between them represents an artifact of the data that obscures the fact that, combined, they engaged in fairly widespread terrorist violence for more than two decades.

Trajectory 3: High Peak and Rapid Decline

Trajectory 3 is the last of the three rapidly declining trajectories, and the one with the highest peak number of terrorist attacks. Trajectory 3's *high peak* and *rapid decline* is the best approximation for 36 of the 632 perpetrator organizations analyzed (5.7%), which appear fairly tightly clustered together in Figure 5.9. These perpetrator organizations have a very high average probability of being classified as Trajectory 3 organizations, at 0.99, with Trajectory 2 (moderate peak and rapid decline) or Trajectory 4 (moderate peak and slow decline) representing the best alternative for the four organizations whose posterior probability is not 1.00.

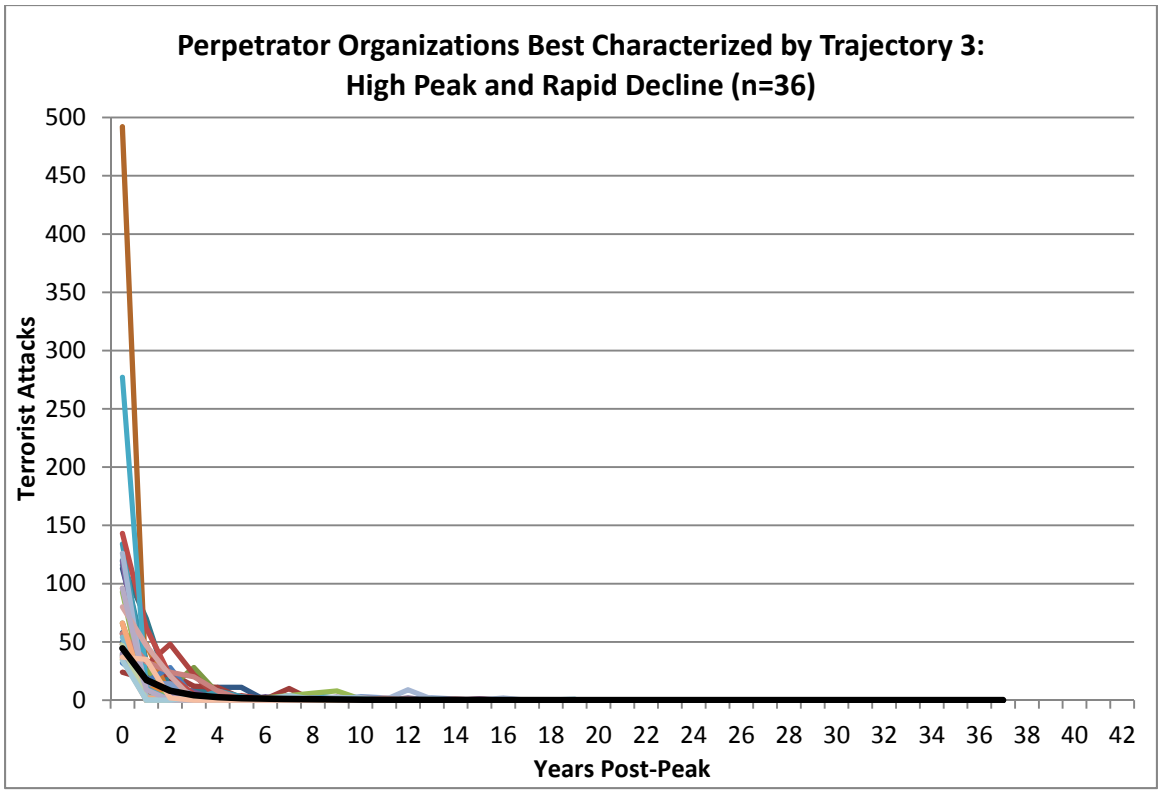


Figure 5.9 Perpetrator organizations best characterized by Trajectory 3

Like Trajectory 1, which is characterized by a low peak number of attacks, and Trajectory 2, which is characterized by a moderate peak number of attacks, Trajectory 3 is characterized by a sharp pattern of declining terrorist violence following the peak. However, it is distinct in that the average peak number of attacks among groups best represented by Trajectory 3 is extremely high at 84.9—6.1 times as high as the average peak number of attacks for Trajectory 2 organizations, and 29.6 times as high as the average peak number of attacks for Trajectory 1 organizations. The peak number of terrorist attacks for perpetrator organizations best characterized by Trajectory 3 ranges from 24 (Fuerzas Armadas de Liberacion Nacional (FALN) in Puerto Rico) to 492 (Farabundo Marti National Liberation Front (FMLN) in El Salvador).

In addition to extremely high peak levels of terrorist violence, the 36 perpetrator organizations best represented by Trajectory 3 also carry out terrorist attacks for longer spans of time—14 years on average, with an average of 7 years of involvement in terrorist violence prior to reaching a peak number of attacks. Although the average number of terrorist attacks among Trajectory 3 perpetrator organizations two years following the peak is still more than four times as many as the average number of terrorist attacks among the perpetrator organizations best characterized by the moderate peak and rapid decline of Trajectory 2, the rate of decline among the perpetrator organizations best characterized by Trajectory 3 is so steep that by five years after the peak, the average number of terrorist attacks is comparably low for both trajectory classes (0.70 for Trajectory 2 and 0.79 for Trajectory 3). Collectively, the 36 perpetrator organizations represented by the high peak and rapid decline of Trajectory 3 were responsible for 9,539 terrorist attacks, which resulted in 22,074 deaths—more than twice as many terrorist attacks and deaths as the 130 perpetrator organizations represented by the moderate peak and rapid decline of Trajectory 2.

For counterterrorism policymakers the perpetrator organizations characterized by Trajectory 3 appear to represent a highly desirable outcome in that fully engaged, highly active terrorist groups rapidly desist from terrorist violence within a relatively short time frame. This certainly warrants further investigation into the mechanisms for these apparent counterterrorism success stories, as well as any contextual information that might reveal that this finding is misleading. For example, several of the organizations aligned with Trajectory 3's high peak and rapid decline are those that converted from

primarily militant groups into primarily political organizations. These include the African National Congress (ANC) in South Africa, the FMLN in El Salvador, and even the Palestine Liberation Organization (PLO) whose decline in direct attribution of responsibility for terrorist attacks loosely coincides with the 1993 Oslo Peace Accords.

In contrast, however, several of the named organizations best represented by Trajectory 3 are characterized by a sharp decline not because they desisted from terrorism, but because they changed their name. Examples of this include Dev Sol in Turkey, which changed its name to Devrimici Halk Kurtulus Cephesi (DHKP/C), Islamic State of Iraq (ISI), which changed its name to Islamic State of Iraq and the Levant (ISIL), the Salafist Group for Preaching and Fighting (GSPC) in Algeria, which changed its name to al Qa'ida in the Land of the Islamic Maghreb (AQLIM), and 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), Islamic State of Iraq and the Levant (ISIL), and ultimately Islamic State (IS). In many cases, not only did these name changes not signal the death of the organization or a real decline in their terrorist activity, but actually the opposite. The complex evolution of organizational dynamics, personnel, geography, and naming conventions proves to be one of the most challenging aspects of studying collective desistance among perpetrators of terrorism.

Trajectory 3 Case Study: Farabundo Marti National Liberation (FMLN)

The FMLN formed in 1980 as an alliance of five existing leftist revolutionary organizations engaged in the Salvadoran Civil War (Uppsala Conflict Data Program,

2015). Rather than undergoing a gradual process of group formation and radicalization, the FMLN carried out 159 attacks during its first year of existence, shown in Figure 5.10. Between 1980 and 1991, the organization was extraordinarily and consistently active, averaging 278.4 terrorist attacks per year, most frequently targeting the Salvadoran military (36.4%), utilities infrastructure (27.6%), and private citizens and property (11.0%). In 1992, only eight attacks were attributed to the FLMN, and since then the organization has not carried out any terrorist attacks.

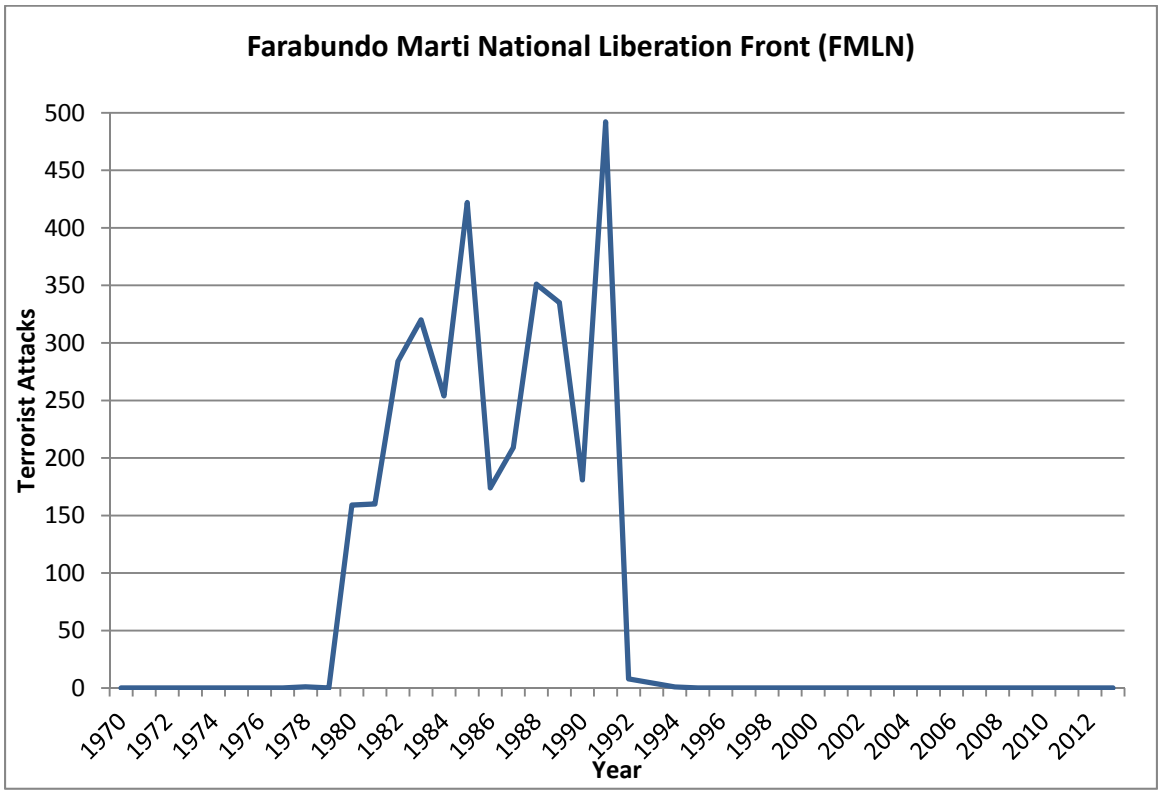


Figure 5.10 Farabundo Marti National Liberation Front (FMLN)

Despite the fact that the Salvadoran Civil War killed as many as 70,000 people, in terms of political change the FMLN was ultimately successful (Farah, 1993). Rather than evolving into another type of militant group the FMLN effectively transitioned to

electoral politics as part of the ceasefire and peace agreement that ended the Civil War in 1992. Two observations are important. First, during the war agents of the Salvadoran government—security forces, the military, and affiliated "death squads"—carried out thousands of acts of extrajudicial executions, torture, and disappearances (United Nations Security Council, 1993, p. IV–D). In fact, the United Nations Commission on the Truth for El Salvador estimates that the United States-backed Salvadoran government bears responsibility for 85 percent of the 22,000 atrocities reportedly committed during the Civil War, and the FMLN was responsible for the other 15 percent (Gugliotta & Farah, 1993; United Nations Security Council, 1993). In this context, the organization's attacks on civilian targets coincided with attacks on the military that many would consider acts of insurgency rather than terrorism (Abrahms, 2012; Asal, De La Calle, Findley, & Young, 2012; Chenoweth, 2012; de la Calle & Sanchez-Cuenca, 2011; Sandler, 2014; Schmid & Jongman, 2005). Jones and Libicki (2008) point out that the injustices carried out by the Salvadoran state specifically motivated many to join the ranks of the FMLN.

Second, the 1992 Chapultepec Peace Accords, which brought an end to the conflict, were brokered by the United Nations at a time when the FMLN saw its outside support begin to wane with the dissolution of the Soviet Union in 1991. Jones and Libicki (2008) argue that a peaceful transition to politics was only possible in El Salvador because the war was at a military stalemate, and the FMLN had narrowly-defined, policy-oriented goals, including democracy, an end to repressive authoritarian rule and human rights abuses, and reallocation of land rights. The experience of the FMLN illustrates a case of

genuinely stark collective desistance from terrorism that reflects real-world events rather than artifacts of data structure or analytical methods.

Trajectory 3 Case Study: Tawhid and Jihad & Islamic State of Iraq (ISI)

In contrast to the FMLN, two organizations characterized by the steep decline in terrorist activity did not have positive outcomes. Both Tawhid and Jihad and the Islamic State of Iraq (ISI) were precursors to what has been referred to since 2014 as the Islamic State (Crenshaw, 2015). The organization began to form in the late 1990s and early 2000s, initially led Abu Musab al-Zarqawi and Sheikh Abu Muhammad al-Maqdisi, and operating in Afghanistan, Iraq, and Jordan (BBC News, 2004; Hafez, 2007; Moghadam, 2008; Stewart, 2014). Its first terrorist attack was the assassination of a US diplomat in Jordan in October 2002. Beginning the following year the group began carrying out kidnappings and devastating suicide bombings aimed primarily at civilian targets, but also against Iraqi and coalition security forces. The frequency of attacks carried out by Tawhid and Jihad is shown in Figure 5.11. Between 2003 and October 2004, Tawhid and Jihad carried out 50 attacks in Iraq, killing 842 people and wounding 1,688. These attacks included numerous coordinated bombings of multiple targets at the same time.

According to the GTD, 2004 was the peak year of terrorist activity for Tawhid and Jihad; it carried out 47 attacks through October of that year and none the following year, which is why it is best characterized by Trajectory 3. However, in reality the organization evolved and expanded rather than declined. In October 2004, Zarqawi pledged his group's allegiance to Osama bin Laden's al Qa'ida, and changed the organization's name

to al Qa'ida in Iraq (AQI) (Crenshaw, 2015; Pincus, 2004). In the trajectory analysis, AQI is estimated to follow a pattern most like Trajectory 6, characterized by an extremely high peak number of terrorist attacks followed by a very gradual post-peak decline. AQI's activity is presented in Figure 5.11 for comparison. Indeed, AQI killed 4,141 people in 636 terrorist attacks between 2004 and 2013, including 304 attacks during its peak year in 2012. Its activity declined to 79 attacks in 2013, the last year of the data series. Given no additional data beyond 2013, the model estimates are based on the pattern of known data. However, according to the GTD, AQI ceased its involvement in terrorism entirely as of April 2013.

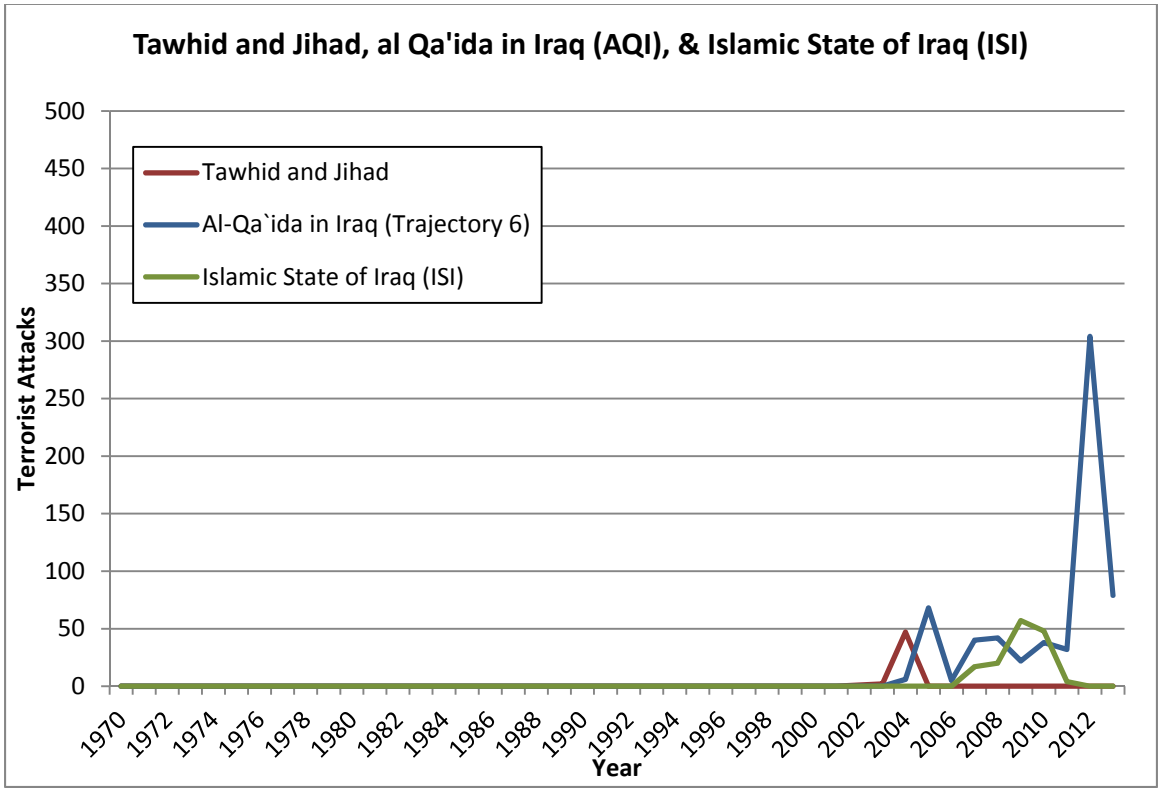


Figure 5.11 Tawhid and Jihad, al Qa'ida in Iraq (AQI) & Islamic State of Iraq (ISI)

Once again, however, the event data fail to accommodate the complex reality of this organization for the purpose of group-level analysis. In June 2006, Zarqawi was killed by a US airstrike and his successor, Abu Ayub al-Masri, sought to rebrand the organization by forming an alliance between AQI and several smaller Iraqi Sunni militant groups (Crenshaw, 2015; Fishman, 2006). The new group was called the Islamic State of Iraq (ISI) and led by Abdallah bin Rashid al-Baghdadi (also known as Abu Umar al-Baghdadi). Beginning in 2007, the names ISI and AQI were both used to refer to the activity of this group. Because ISI technically referred to the broader umbrella organization that included other groups, the two names are not precisely synonymous. As Figure 5.11 illustrates, ISI was attributed responsibility for 146 terrorist attacks and 1,738 deaths between 2007 and 2011, peaking in 2009 with 57 attacks before declining to four attacks in 2011, and zero since then.

Rather than desisting from terrorism, the organization continued to evolve. In April 2010 al-Masri and al-Baghdadi were killed in a joint US-Iraqi raid, and succeeded by a new leader, Abu Bakr al-Baghdadi (Crenshaw, 2015; Roggio, 2010a). The names ISI and AQI were discontinued in 2013 in favor of the Islamic State of Iraq and the Levant (ISIL) to signal its expansion into Syria, which coincided with considerable conflict both within the group and with core al Qa'ida (Crenshaw, 2015). In June 2014, al-Baghdadi changed the group's name to the Islamic State to indicate his intention of establishing a global caliphate (Al Jazeera, 2014; Dearden, 2014). Numerous Salafi jihadi organizations on several continents have since pledged support or allegiance to al-Baghdadi's organization while maintaining independent operations (IntelCenter, 2015). These include several

major actors such as Boko Haram in Nigeria, as well as Jemaah Islamiyah (JI) and Abu Sayyaf Group (ASG) in the Philippines. Reports are mixed regarding whether or not al Qa'ida in the Arabian Peninsula (AQAP), the most powerful member of the core al Qa'ida network, has broken ties with al Qa'ida to ally itself to the Islamic State (Browning, 2015).

In spite of, or perhaps because of, the complex evolution of this group, it is alive and well as of the conclusion of this study. In 2014 and 2015 it carried out some of the most high profile, deadliest terrorist attacks that have happened since GTD collection began. While the Islamic State and its constituent groups present a worst case scenario for many reasons—least of which is the challenge for studying collective desistance from terrorism—it remains true that the name changes, organizational splits, and fluid allegiances they illustrate are the rule rather than the exception among perpetrator organizations (E. Miller, 2012b, 2014).

Not unlike the Baader-Meinhof Group and the Red Army Faction, this case raises important questions about how to best address these challenges in the context of studying organizational desistance. Specifically, what's in a name? Where are the edges of an organization, especially one as complex as the Islamic State? How do these boundaries shift over time as leadership and membership varies in solidarity and cohesiveness? Should a systematic, quantitative analysis of perpetrator organizations begin and end with groups that evolve through name changes alone, or take into account the activity of a broader network of affiliates and allies? While it may seem relatively straightforward to

consolidate the activity of a group like the Islamic State into a single time series, in reality it is quite difficult to construct a dataset that accurately captures the complex evolution of the entity that underlies discrete name changes. Moreover, conducting the necessary research to accurately codify the evolution of hundreds of entity names based on event-level data is not only extremely resource-intensive, but in some cases impossible due to poor record keeping and reporting among clandestine groups. What are the implications of the assumptions researchers make in the absence of clear information about how these entity names relate to each other? These are difficult questions that must be considered in order for quantitative analysis to best inform theory and policy development regarding collective desistance from terrorism.

Trajectory 4: Moderate Peak and Slow Decline

Shown in Figure 5.12, Trajectory 4 is the first of three trajectories that represent a pattern of gradual or *slow decline* following a *moderate peak* number of attacks. This is the best representation of post-peak terrorist violence for 42 perpetrator organizations (6.6%). Although they appear to be somewhat poorly aligned to the model, note that the shorter scale of the Y-axis makes the variation in individual trajectories more visible than it is for the high peak and rapid decline of Trajectory 3 shown in Figure 5.9. The perpetrator groups best represented by the moderate peak and slow decline of Trajectory 4 have a very high average posterior probability of classification to Trajectory 4, at 0.97. The perpetrator organizations that are classified as Trajectory 4 organizations, but have the lowest posterior probability of being characterized by Trajectory 4's moderate peak and slow decline are most likely to be classified as Trajectory 2 (moderate peak and rapid

decline) organizations or Trajectory 3 (high peak and rapid decline) organizations as alternatives.

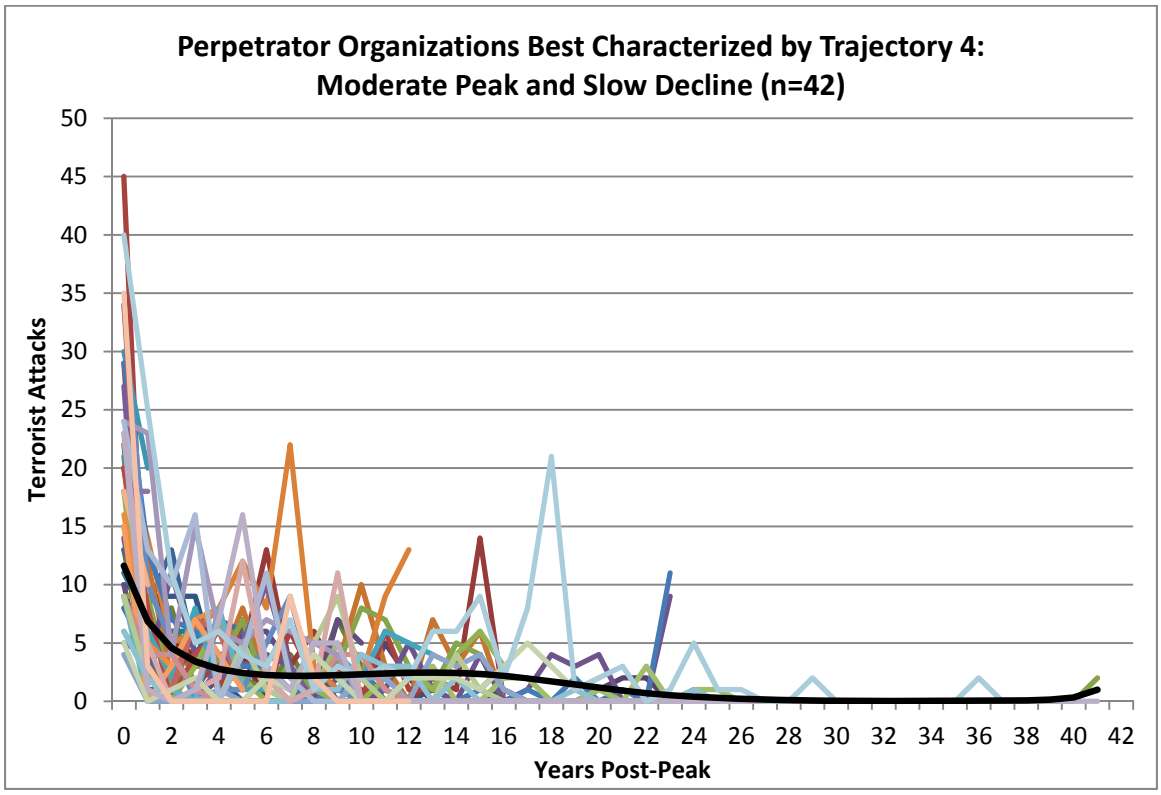


Figure 5.12 Perpetrator organizations best characterized by Trajectory 4

On average, the 42 perpetrator organizations best represented by the moderate peak and slow decline of Trajectory 4 carried out 18.52 terrorist attacks during their peak year of terrorist violence. This is most similar to the peak level of violence for perpetrator organizations best represented by Trajectory 2 (13.93 attacks). The key distinction between Trajectory 2 and Trajectory 4 is the much longer period of terrorist violence characterized by Trajectory 4, compared to Trajectory 2's rapid decline. Two years after their peak year of terrorist violence, Trajectory 4 perpetrator organizations continued to average 3.03 terrorist attacks per year, compared to 1.95 for the Trajectory 2

organizations. Five years after their peak year of terrorist violence at, least 32 of the 42 Trajectory 4 perpetrator organizations (76.19%) persist, with an even higher average of 3.69 terrorist attacks per year, compared to 0.70 attacks among perpetrator organizations best represented by the rapid decline of Trajectory 2. In total, the 42 perpetrator organizations best represented by Trajectory 4 carried out 3,372 terrorist attacks, resulting in 12,311 deaths.

The overall time span of terrorist violence among perpetrator groups represented by Trajectory 4 is naturally longer—14 years, on average—with an average of seven years of terrorist violence prior to the peak year of terrorist violence. However, the length of time for which these perpetrator groups engaged in terrorist violence ranges from two years to 43 years. The fact that a perpetrator organization that was engaged in terrorist violence for only two years would be best characterized by Trajectory 4 is somewhat surprising, given the overall pattern of persistence. The organization in question, Hizbul al Islam, has the lowest posterior probability of membership in Trajectory 4 of all Trajectory 4 organizations, at 0.59, with a posterior probability of a Trajectory 2 classification (moderate peak and rapid decline) of 0.41. Hizbul al Islam was active in Somalia from 2008 through 2010 at which time it merged with its rival group al-Shabaab (Roggio, 2010b). Al-Shabaab, in turn, is currently among the most active and deadly terrorist organizations in the world. In particular, this group is responsible for several high profile terrorist attacks including an assault on Westgate Mall in Nairobi in 2013 and a 2015 assault on Garissa University, also in Kenya (E. Miller, 2013a; Pate, Jensen, &

Miller, 2015). Because al-Shabaab's terrorist activity was still increasing at the time of this research, it is excluded from the group-based trajectory analysis.

Beyond Hizbul al Islam, many of the diverse perpetrator organizations best represented by a moderate peak and slow pattern of decline are relatively well known. In some cases, such as that of the animal rights group the Animal Liberation Front (ALF) and the environmental group Earth Liberation Front (ELF), this is primarily due to their relatively long period of time spent engaging in attacks (27 years and 16 years, respectively). In other cases, however, the organizations are also responsible for particularly high profile, deadly terrorist attacks. For example, the perpetrator organizations best represented by Trajectory 4 include core al Qa'ida, the group responsible for the September 11, 2001 attacks in the United States; Jemaah Islamiya, which has been active in Indonesia and the Philippines for 13 years and is likely best known for its involvement in the coordinated nightclub bombings in Bali that killed more than 200 people in 2002; and Lashkar-e-Taiba (LeT), the Pakistani organization responsible for the eight coordinated attacks in Mumbai in 2008 in which more than 170 people were killed over the course of three days.

Trajectory 4 Case Study: Jemaah Islamiya (JI)

Founded in Malaysia in the early 1990s, but primarily active in Indonesia and the Philippines, JI is a Salafi jihadi group that shares a similar ideological view to core al Qa'ida (Australian National Security, 2013). The group seeks an Islamic state in Indonesia, a pan-Islamic Caliphate in Southeast Asia, and ultimately worldwide.

Accordingly, the group's imprisoned leader Abu Bakar Bashir pledged his allegiance to al Baghdadi's Islamic State in 2014 (Bachelard, 2014).

As Figure 5.13 shows, JI's use of terrorism did not begin until 2000, when the group carried out a series of 39 nearly simultaneous bombings targeting churches across Indonesia on Christmas Eve. Many of the explosive devices failed to cause any casualties, however those that did killed a total of 19 people and wounded at least 118. The following week, JI members carried out five simultaneous attacks at various locations in the Philippines, killing 22 people and wounding approximately 100 others.

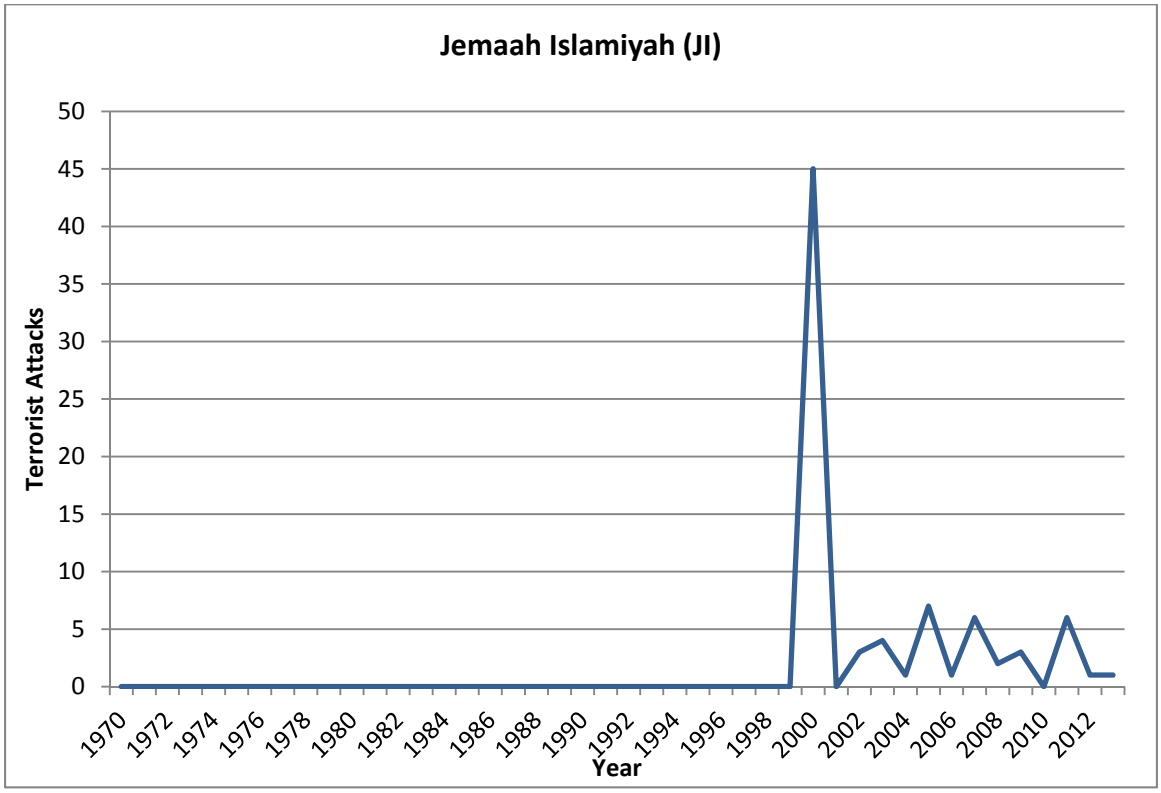


Figure 5.13 Jemaah Islamiyah (JI)

The Christmas and New Year's Eve attacks made 2000 JI's peak year of activity, with 45 attacks. It was not until 2002, however, that the organization attracted the attention of the

Western media with coordinated mass-casualty attacks at two adjacent nightclubs in Bali. The two massive explosions killed 202 people and wounded at least 300. Approximately three-quarters of the victims were tourists. JI continued to carry out a few attacks each year, often selectively using tactics designed to cause maximum casualties among tourists or other foreign targets. For example, in 2003 JI bombed the Australian Embassy and the JW Marriott Hotel in Jakarta in two separate mass-casualty suicide attacks. In 2005, the group again carried out simultaneous suicide bombings against restaurants frequented by tourists in Bali. The JW Marriott Hotel in Jakarta was targeted again in 2009, along with the Ritz-Carlton, when JI carried out two suicide bombings within 15 minutes of each other.

The group's repeated targeting of Western interests in mass-casualty attacks, and its goal of establishing an Islamic Caliphate in Southeast Asia has led authorities in Indonesia, Thailand, Malaysia, Singapore, the Philippines, Australia, and the United States to marshal tremendous resources in an effort to defeat the organization (Belford, 2010; US Department of State, 2015b). The US Department of State reports that more than 400 JI operatives have been captured or killed by authorities in Southeast Asia since it was designated a Foreign Terrorist Organization in 2002. In particular, JI's 77-year-old founder Abu Bakar Bashir was arrested in 2010 and sentenced to 15 years in prison in 2011 (Onishi, 2011). Although JI has remained active, the group has not carried out any major terrorist attacks since 2009.

The case of JI illustrates several important considerations about terrorist threat, collective desistance and the limitations of the statistical analysis, mainly having to do with the significance of attack frequency in comparison to attack lethality. JI's statistical trajectory with respect to number of attacks is quite distinct from its statistical trajectory with respect to lethality of attacks. The group carried out an especially high number of attacks during its peak year that represented somewhat of an anomaly in that they all took place during a concentrated period of time. Years later, while the group's trajectory of terrorism in terms of attack frequency is sharply declining, it carried out several of the most devastatingly deadly terrorist attacks Indonesia has ever experienced. Furthermore, JI has been the subject of massive counter-terrorism efforts. However, given the group's demonstrated capacity to carry out major attacks intermittently, it remains unclear what the exact impact of these efforts is with respect to its desistance from terrorism.

Trajectory 4 Case Study: Animal Liberation Front (ALF) & Earth Liberation Front (ELF)

The ALF and the ELF were each founded separately in England, but they share common goals and are perhaps the most active and well-known eco-terrorist groups (Deshpande & Ernst, 2012). The two groups have carried out terrorist attacks in Belgium, Canada, Chile, Mexico, the Netherlands, New Zealand, Sweden, and the United States. Both are loose networks or movements, rather than formally structured organizations, and they have at times claimed shared responsibility for attacks (Deshpande & Ernst, 2012; Leader & Probst, 2003).

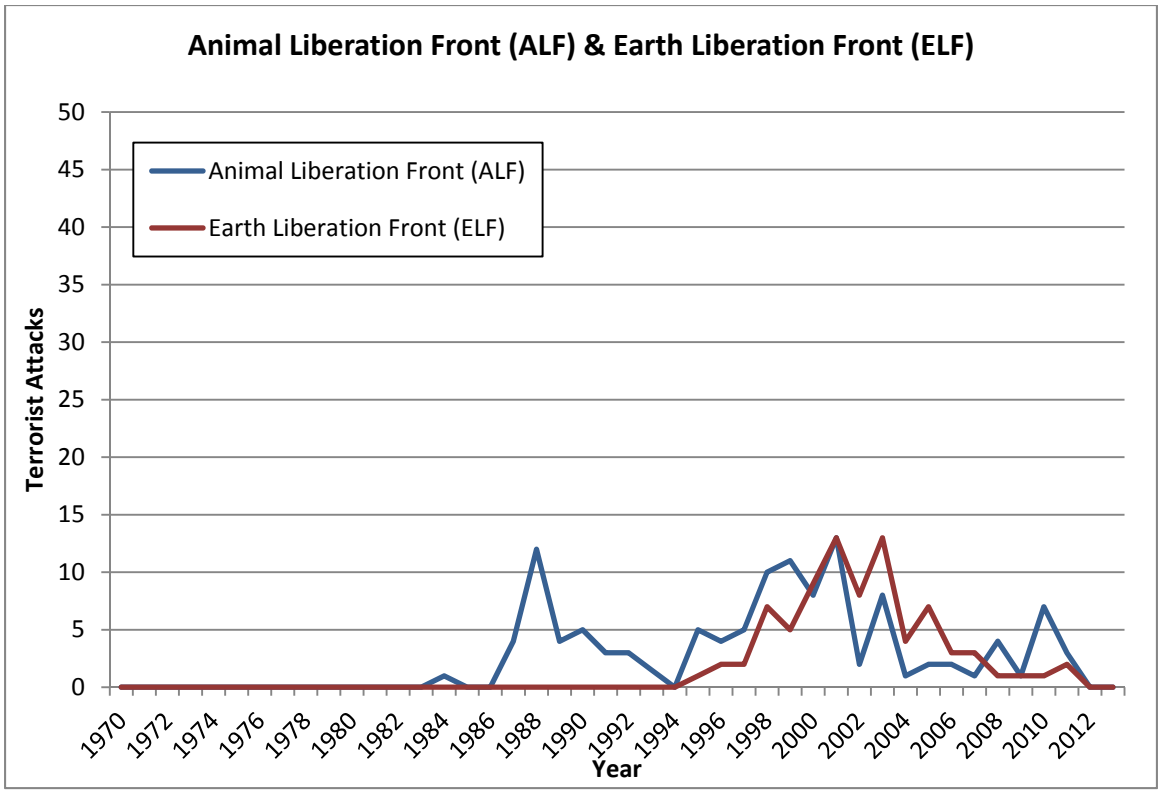


Figure 5.14 Animal Liberation Front (ALF) & Earth Liberation Front (ELF)

The ALF and ELF's use of primarily non-lethal terrorist violence is only a small percentage of their criminal activity, which includes extremely destructive vandalism and sabotage, particularly targeting businesses and research facilities they perceive to be harmful to the animals or the environment (Abbey, 1985; Carson, LaFree, & Dugan, 2012; Leader & Probst, 2003; Smith, 1994). Although the loose organization and leaderless resistance practiced by these groups make them difficult to counter, some research indicates that certain policies and law enforcement strategies have been somewhat effective at prosecuting individual perpetrators and, in some cases, reducing the likelihood of attacks (Carson, 2014; Deshpande & Ernst, 2012; Leader & Probst, 2003; Yang, Su, & Carson, 2014).

Founded in 1976, the ALF committed its first terrorist attacks in the mid-1980s, including an arson attack on a veterinary medicine research facility at the University of California-Davis (Deshpande & Ernst, 2012). As Figure 5.14 shows, its terrorist activity nearly peaked in 1988, when the group carried out 12 attacks, followed by a rapid decline and subsequent increase in attacks in the early 1990s. The ELF was not founded until 1992, however its involvement in terrorist violence followed an upward trajectory in the early 1990s that mirrored that of the ALF. With respect to terrorist attacks, the ALF's activity peaked in 2001 with 12 attacks and the ELF's activity peaked in 2001 with 13 attacks, and again in 2003. Both groups have followed a gradually declining pattern of terrorist activity since the late 1990s and early 2000s, generally consistent with Trajectory 4 estimated by the model.

Although neither group was responsible for terrorist attacks in 2012 or 2013, they remained engaged in recruitment and non-terrorist criminal activity such as vandalism and animal release (Bella, 2015; Cernetich, 2013; McKellar, 2013; Ng & Binkley, 2013; Tomlinson, 2013). In February 2014, ALF claimed responsibility for an arson attack at a Kentucky Fried Chicken (KFC) in New Zealand, and in March 2015 'ALF' was spray-painted at a KFC in Nevada where an attempted arson had occurred (Sonner & Ritter, 2015). Later that year, in the United Kingdom, ELF joined with the Informal Anarchist Federation to claim responsibility for an arson attack against five vehicles (S. Morris, 2014).

Given the ALF and the ELF's pattern of terrorist activity—somewhat decreased from peak level of violence, yet still persistent to some small degree—it appears that Trajectory 4's moderate peak and slow pattern of decline is a reasonable representation of their engagement in terrorism. The fact that these groups carry out violence aimed at causing economic impact rather than human casualties likely explains the fact that efforts to counter them typically rely on legal responses rather than use of force. It is possible that this, as well as their loosely networked organizational structure and involvement in other types of non-violent criminal activity, has influenced their overall trajectories of engagement in terrorist violence.

Trajectory 5: High Peak and Slow Decline

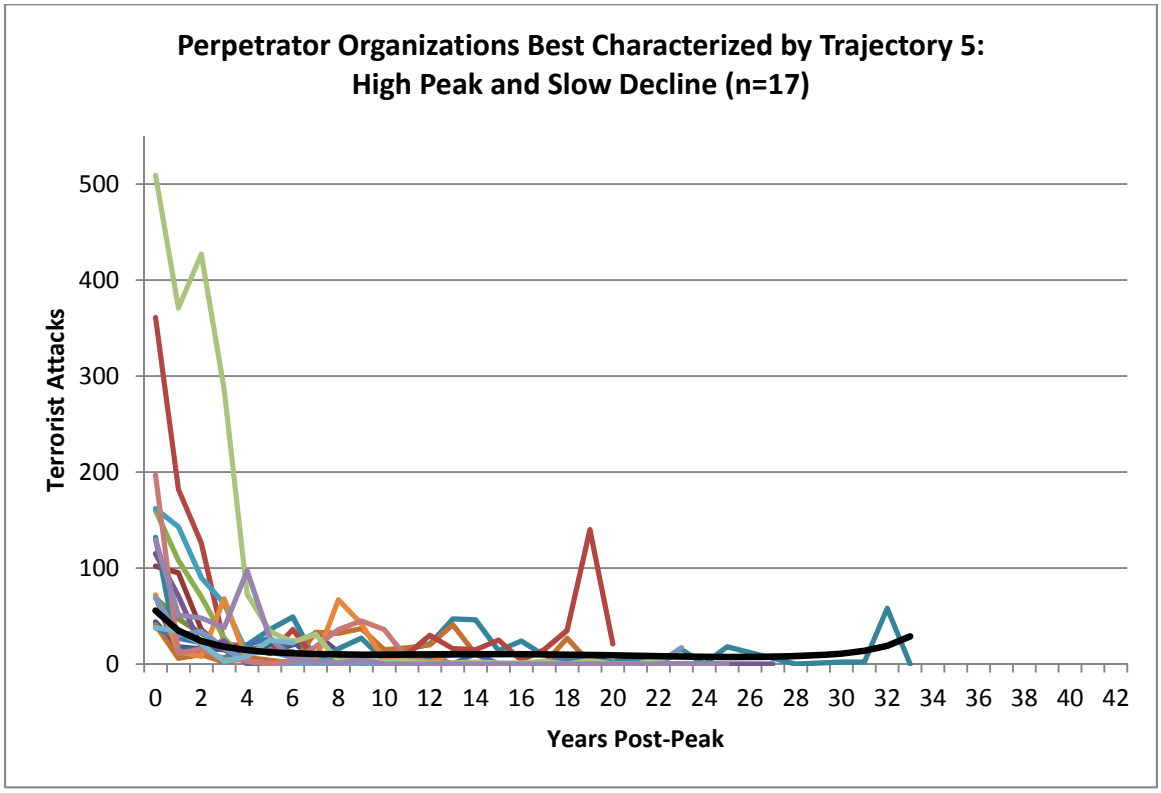


Figure 5.15 Perpetrator organizations best characterized by Trajectory 5

Figure 5.15 shows the individual trajectories for the 17 perpetrator organizations (2.7%) best represented by Trajectory 5. In general, the individual post-peak trajectories are somewhat diverse and difficult to summarize; however, on average Trajectory 5 is characterized by a *high peak* level of terrorist violence and a relatively *slow rate of decline*. The high peak number of terrorist attacks—135.82 on average—is heavily influenced by two outliers in particular, the Shining Path from Peru, which peaked at 509 attacks in 1989 and the Kurdistan Workers' Party (PKK) in Turkey, which peaked at 361 attacks in 1992. To some degree, the shape of the trajectories is characterized by prolonged involvement in terrorist violence; at least 15 of the 17 perpetrator organizations remained engaged in terrorist violence five years after their peak, carrying out an average of 13.2 terrorist attacks. However, despite this prolonged activity, some of the perpetrator organizations are also characterized by patterns of steep decline in number of attacks, including Shining Path; the PKK (albeit with a strong resurgence 19 years after peaking); the National Union for the Total Independence of Angola (UNITA), which declined from 197 terrorist attacks in 1990 to 11 attacks in 1991 and then averaged 17 terrorist attacks per year in the 10 years that followed; and the Liberation Tigers of Tamil Eelam (LTTE) which declined from 160 terrorist attacks to two terrorist attacks over the course of five years, having been heavily engaged in terrorist violence for 35 years.

Despite this apparent variation among the trajectories of individual perpetrator organizations, the posterior probability of membership to Trajectory 5 is 1.000 for all 17 organizations. That is, none of the other five trajectories modeled provides a potentially

suitable alternative classification. The groups best represented by the high peak and slow decline of Trajectory 5 were active for a minimum of seven years, and 24 years on average, which is the longest of all six trajectory classes. Also, these 17 perpetrator organizations were engaged in terrorism for an average of nine years before reaching their peak level of terrorist violence. Individually, it appears that they loosely follow a similar pattern, however it also appears that their commonality lies primarily in their high numbers of peak terrorist attacks, rather than the shape the attack trends that followed.

In a sense, this variation is not unexpected. While it is reasonably straightforward to cluster together perpetrator organizations whose activity dropped off suddenly, albeit for a variety of reasons, among those organizations whose activity did not drop off suddenly there is a nearly infinite potential for diversity in trajectory patterns. This is even moreso the case when perpetrator organizations peak with a high number of attacks—the subsequent trajectory can essentially follow many different patterns, except that which surpasses the peak (which would only establish a new peak). The fact that so few perpetrator organizations form the basis for Trajectory 5 (and Trajectory 6, which has a high peak and even more gradual pattern of decline) also causes the model to be very sensitive to variations influenced by a small number of organizations, or even only one organization. Thus, Trajectory 5 exhibits a distinct upward pattern at the end of the series, due entirely to the activity of the only organization to remain engaged in terrorist violence more than 23 years after its peak, the Corsican National Liberation Front (FLNC). The FLNC carried out 58 terrorist attacks over the course of three non-

consecutive days in 2012, causing only property damage, after a decade of averaging fewer than six attacks per year.

Despite the fact that only 17 perpetrator organizations are best represented by Trajectory 5, these organizations were responsible for a combined total of 13,024 terrorist attacks, causing 40,160 deaths—more fatalities than any other trajectory group. That said, the lethality of these perpetrator organizations is far from uniform. Trajectory 5 best represents Shining Path, to date the deadliest perpetrator group in the GTD, having carried out terrorist attacks that caused 11,581 fatalities between 1978 and 2013. The LTTE in Sri Lanka is third deadliest perpetrator organization in the GTD, bearing responsibility for 10,967 fatalities between 1975 and 2010. However, Trajectory 5 also best represents the FLNC, which carried out 639 attacks between 1974 and 2012 primarily in Corsica and mainland France, causing a total of 13 deaths.

Trajectory 5 Case Study: Kurdistan Workers' Party (PKK)

The PKK, a Marxist-Leninist organization that originally sought an independent Kurdish state in Turkey, formed in the late 1970s and began engaging in armed conflict in the mid-1980s (BBC News, 2013; US Department of State, 2015b). Figure 5.16 illustrates that the PKK increased its use of terrorist violence rapidly in the late 1980s and early 1990s, attacking both military and civilian targets, almost entirely in Turkey but occasionally in Western European countries as well. In 1992, the PKK's terrorist activity peaked with 361 attacks and declined rapidly to 22 attacks within four years. During this time period Turkish armed forces engaged in numerous human rights violations in the

interest of counterinsurgency, including torture, extrajudicial killings, and the destruction of villages and displacement of more than two million people, most of whom were non-combatants (Ron, 1995; US Department of State, 1995).

Figure 5.16 Kurdistan Workers' Party (PKK)

In 1999 Turkish authorities arrested the organization's leader, Abdullah Ocalan, and that same year the group attempted to re-focus its goals on engaging in the political process, establishing a five-year ceasefire that effectively minimized the intensity of the conflict while in effect (BBC News, 2013). At that time it may have appeared that the PKK had desisted from terrorist violence. However, Turkish authorities were not receptive to the PKK's interests in political participation, and the organization resumed the use of terrorist violence in 2004. The PKK and the Turkish government engaged in talks in

2009, at which point the PKK again declared a ceasefire that held until 2011 (US Department of State, 2015b). Peace negotiations resumed in late 2012, following a sharp increase in violence during which the PKK carried out 140 terrorist attacks. Ocalan again renounced the use of violence in 2013 while serving a life sentence in prison (BBC News, 2013). The conflict between the PKK and the Turkish government ultimately resulted in the deaths of more than 40,000 people, most of whom were Kurdish (BBC News, 2015).

The peak number of attacks estimated by Trajectory 5 fails to account for the exceptional level of terrorist violence carried out by the PKK in 1992. However, its lingering decline and uncertain end over the course of more than two decades is consistent with the predicted pattern. Although the PKK's terrorist activity decreased 85 percent between 2012 and 2013, it remains to be seen whether the efforts toward peace and increased Kurdish representation in Turkish politics will take hold. On June 23, 2015, Abdullah Ocalan's niece, Dilek Ocalan, was sworn in as a member of the Turkish parliament (Hurtas, 2015; Reuters, 2015). Observers suggest that this would have been unheard of 15 years earlier, and that it is indicative of a tremendous shift away from anti-Kurdish sentiment in Turkey. Since 2014, PKK members have been fighting to defend vulnerable areas of northern Iraq and Syria from ISIL incursions (Al Jazeera America, 2015; Beck, 2014; Malek, 2014).

I selected the PKK for further investigation because it represents the distinct possibility of resurgence following a sharp decline in terrorist activity. Certain organizations, like the PKK and the Liberation Tigers of Tamil Eelam (discussed below), are motivated by

deeply entrenched ethnic conflict and power dynamics. These provide a foundation for ongoing engagement in violence that transcends a single person or generation of people. Key considerations that might impact the trajectories of these groups include the ability and willingness of the government to forcefully suppress them, the ability of the militant organizations to maintain a cohesive unit and the support of a constituency, and the degree to which the organization is ultimately able to engage in non-violent means of achieving goals such as electoral politics.

Trajectory 5 Case Study: Liberation Tigers of Tamil Eelam (LTTE)

Like the PLOTE, the LTTE is one of five ethnic Tamil militant groups that operated in Sri Lanka in pursuit of an independent Tamil state they referred to as Tamil Eelam. Formed in 1975, the LTTE was by far the most dominant Tamil separatist group, and essentially defeated its far less active rivals. The group was extremely robust, including a political wing and a hierarchical structure not unlike that of a professional military. Specialized branches fulfilled various operational roles, including suicide attacks (the Black Tiger Squad), naval operations (the Sea Tigers), intelligence, research and development, and arms procurement (Al Jazeera, 2009; Crenshaw, 2013; Hogg, 2006). As Figure 5.17 shows, the LTTE began engaging in armed conflict using terrorist violence in earnest in the mid 1980s, triggering the start of the Sri Lankan Civil War (Crenshaw, 2013). Between 1984 and 2013, the group carried out more than 1,600 attacks that killed more than 10,900 people. The average lethality of the LTTE's terrorist attacks peaked at 23.60 deaths per attack in 1987, the year it carried out its first suicide attack. Approximately one-third (34.12%) of the LTTE's attacks targeted the Sri Lankan

(28.88%) or Indian (5.24%) military. One-fifth (19.78%) targeted private citizens and property, and 15.47 percent targeted the Sri Lankan police.

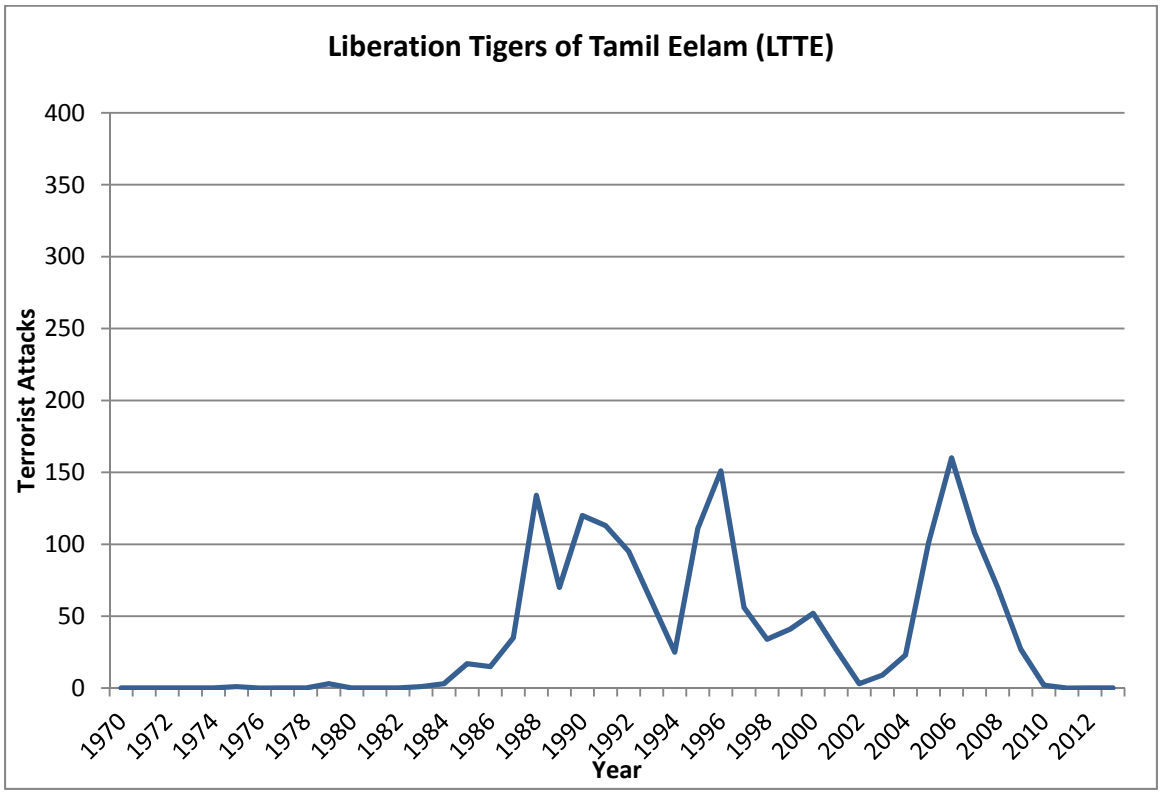


Figure 5.17 Liberation Tigers of Tamil Eelam (LTTE)

In the late 1980s the LTTE's terrorist activity rapidly increased to more than 100 attacks per year in 1988, 1990, and 1991, and more than 150 attacks in 1996, before finally peaking in 2006 with 160 attacks and rapidly declining thereafter. The trajectory of the LTTE is marked by several steep declines in terrorist activity that coincided with negotiations with the Sri Lankan government. For example, in 1989 LTTE terrorist attacks declined by nearly half (47.76%) while its political wing, the People's Front of Liberation Tigers, entered into several months of peace talks with a newly elected presidential administration (Crenshaw, 2013; Nubin, 2002). A new government was

elected in 1994, following the assassination of a presidential candidate by an LTTE suicide bomber (De Silva, 2012). Negotiations between the LTTE and the Sri Lankan government began in 1995, but failed following several major terrorist attacks (Nubin, 2002). Finally, in 2002, a ceasefire and a series of talks brokered by Norway brought the number of LTTE terrorist attacks down to just three that year and it appeared that the peace process was making real progress. However, these efforts were ultimately unsuccessful as well (Crenshaw, 2013; Hogg, 2006).

Following multiple unsuccessful attempts at negotiating a truce, LTTE violence increased rapidly and the Sri Lankan government resorted to a devastating military offensive against the organization in 2006. Investigations found credible allegations of widespread human rights abuses on the part of the government, including indiscriminate shelling of humanitarian aid staging areas and hospitals, causing extensive death and displacement of civilians; extrajudicial killings and disappearances; torture; and detention (Human Rights Watch, 2015; Miles, 2015; United Nations, 2011, 2014; US Department of State, 2015a). Likewise, the LTTE was found to have recruited children, targeted civilians, and used civilian populations as human shields in the late stages of the conflict (Hogg, 2006; United Nations, 2011, 2014; US Department of State, 2015a). In 2009, as a result of a decisive military victory by Sri Lankan forces, including the death of the LTTE's leader, the organization conceded defeat. Although no attacks have been attributed to the LTTE since 2010, the US Department of State (2015b) reports that its financial networks are still intact.

Despite the fact that the LTTE engaged in a prolonged period of extreme increases and decreases in activity over the course of several decades, following its final peak the Sri Lankan government defeated it fairly rapidly. For this reason, the pattern of activity estimated by Trajectory 5—a fairly steep decline from a high peak number of attacks, followed by a period of prolonged activity—is a somewhat poor fit for the LTTE's sharply and decisively declining post-peak terrorist violence. Two considerations remain, however. First, although the pre-2006 data for the LTTE were not included in the trajectory analysis, the group did nearly approach its peak number of attacks at least twice prior to actually peaking in 2006. This overall pattern of activity, a high peak number of attacks coupled with a persistent pattern of violence, makes it not altogether unreasonable to characterize the LTTE as a perpetrator organization that substantively aligns with Trajectory 5, albeit coincidentally. Second, although the defeat of the LTTE appears to be complete, the ethnic conflict that motivated the group's campaign has not been resolved. Therefore, it remains to be seen whether the use of violence by Tamil separatists will resume in the future as it did in the case of the PKK in Turkey.

Trajectory 6: High Peak and Very Slow Decline

Finally, Figure 5.18 represents the organizations best characterized by Trajectory 6. Based on the terrorist activity of only 10 perpetrator organizations (1.6%), Trajectory 6 shares many of the same types of imprecision as Trajectory 5. Also, like Trajectory 5, this occurs despite the fact that the organizations best represented by Trajectory 6 all have a posterior probability of 1.000; the model estimates indicate that none of the other five trajectories are a suitable alternative characterization. In general, the perpetrator

organizations represented by Trajectory 6 had the *highest peak* numbers of terrorist attacks (286 attacks on average), were active for long periods of time (22 years on average), and *declined very slowly* in that they carried out an average 71.83 terrorist attacks two years after they peaked and 74.8 attacks five years after they peaked. At least four of the 10 perpetrator organizations were still actively engaged in terrorist violence at that point; one other organization had declined rapidly to zero for the remaining 25 years of the data series. The remaining five perpetrator organizations had not yet reached their fifth year post-peak—note that perpetrator organizations represented by Trajectory 6 have the latest average peak year, 1999— but they were still carrying out dozens, if not hundreds of attacks during the last recorded observation in 2013.

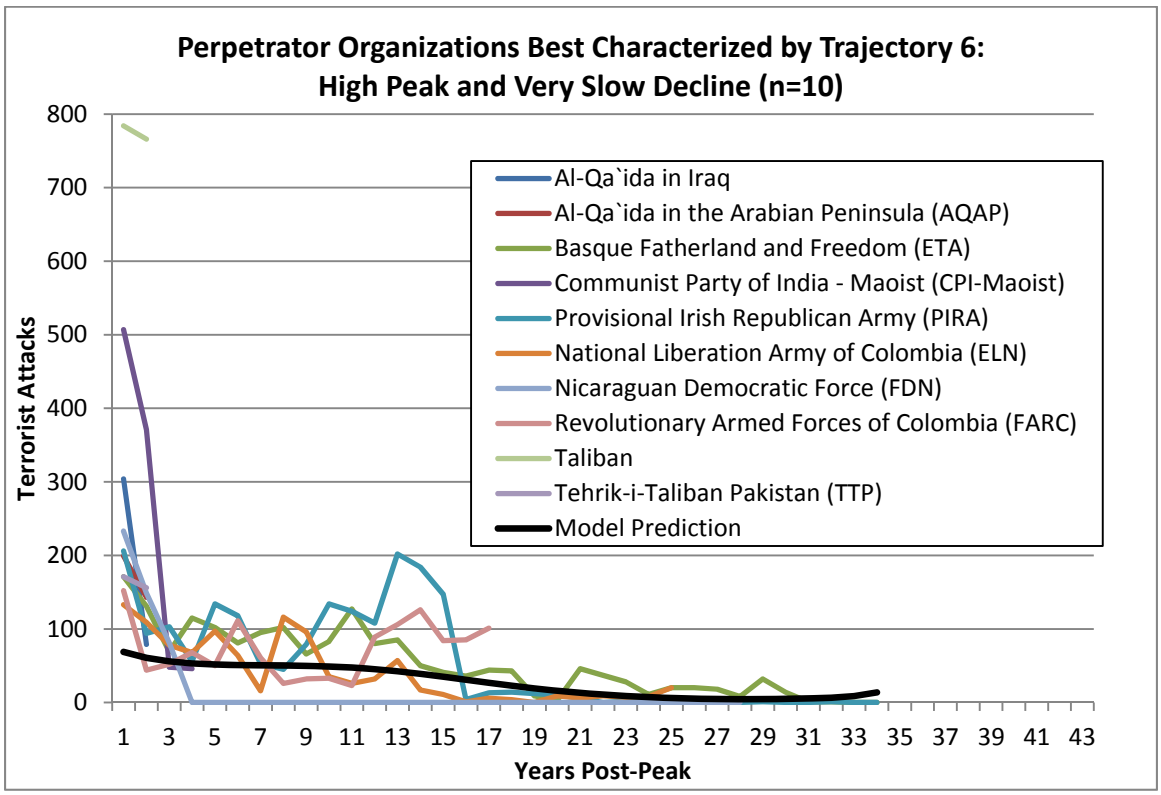


Figure 5.18 Perpetrator organizations best characterized by Trajectory 6

All but one of the perpetrator organizations characterized by the high peak and very slow decline of Trajectory 6, al Qa'ida in the Arabian Peninsula (AQAP), rank among the 20 perpetrator organizations in the GTD that carried out the most attacks between 1970 and 2013. Collectively, these 10 organizations were responsible for 15,929 terrorist attacks resulting in 39,030 deaths during this time period. More than one-quarter of the fatalities, however, were the result of attacks carried out by the Taliban in Afghanistan, which appears in Figure 5.18 as an extreme outlier with a peak of 784 attacks in 2012. Ostensibly, these terrorist organizations are those that have, at various points in recent history, posed the greatest threat to the regions in which they operated.

That said, like the perpetrator organizations represented by Trajectory 5, they do not share a singular pattern of post-peak activity aside from, for the most part, an absence of rapid and lasting desistance from terrorist violence. Many of these organizations continued to be highly active in perpetrating terrorist violence as of 2013, including al Qa'ida in the Arabian Peninsula (AQAP), the Communist Party of India-Maoist, the Revolutionary Armed Forces of Colombia (FARC), the Taliban in Afghanistan, and the Tehrik-i-Taliban Pakistan (TTP). Likewise, al Qa'ida in Iraq (AQI) not only remained active but substantially increased its engagement in terrorist violence, albeit under the name the Islamic State of Iraq and the Levant (ISIL). The National Liberation Army of Colombia (ELN) remained active, but carried out far fewer terrorist attacks in recent years compared to its peak in 1988. In contrast, Basque Fatherland and Freedom (ETA), the Provisional Irish Republican Army (PIRA), and the Nicaraguan Democratic Force (FDN) are essentially defunct organizations.

The two organizations I selected from the Trajectory 6 classification for further investigation are informative because they represent complementary examples of patterns of decline. The PIRA and ETA have many things in common, beyond their unusually lengthy trajectories of terrorism. They were both motivated by nationalist-separatist causes in Western Europe. They were both heavily active in the 1970s and 1980s. They both carried out an extraordinary number of attacks; however, the average lethality of their attacks (0.72 deaths per attack by the PIRA and 0.43 deaths per attack by ETA) was much lower than is typical of some other prolific perpetrator organizations, like the Islamic State network, Shining Path, or the Taliban, which averaged approximately 3 to 15 times as many deaths per attack. In fact, various sources report not only solidarity, but operational links between the PIRA and ETA as well, including that they shared resources and training (Horgan & Braddock, 2011; Maillot, 2005; S. Morris, 2001; The Economist, 1998). Despite these commonalities, and the fact that Trajectory 6 best represents both organizations, their patterns of decline are considerably different (Hogan, 2009). For the final two case studies I compare patterns of collective desistance from terrorism for the PIRA and ETA.

Trajectory 6 Case Study: Provisional Irish Republican Army (PIRA)

The PIRA is one of several groups whose names include the phrase "Irish Republican Army," however it is easily the oldest, most active and most familiar. Commonly referred to as the IRA or "the Provos," the PIRA emerged in December 1969 from the remnants of the Irish Republican Army that had fought British forces between 1916 and 1921 in a conflict that resulted in the establishment of an Irish Free State (English, 2005; Gregory,

2010). In addition to the PIRA, the Official Irish Republican Army (OIRA) split from the IRA at the same time, both with the same goal of Northern Irish independence from Great Britain. The OIRA, which was a Marxist group, only remained active for a few years before renouncing violence.

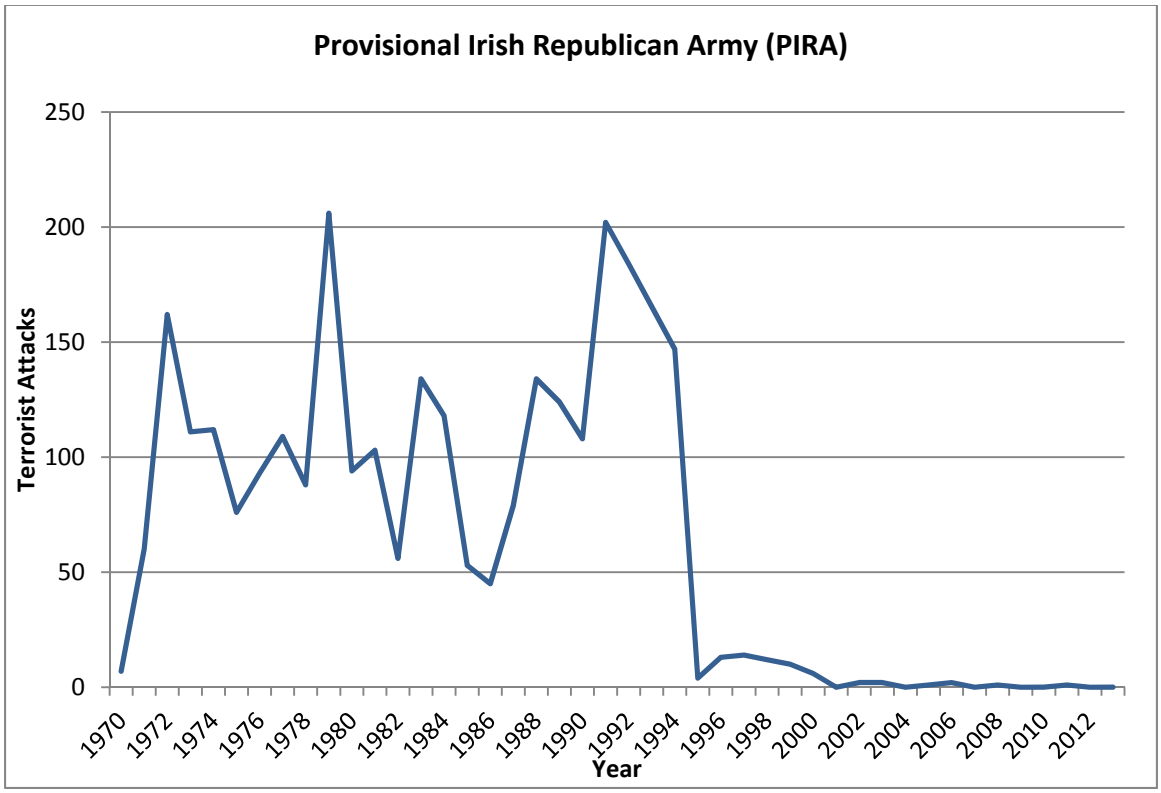


Figure 5.19 Provisional Irish Republican Army (PIRA)

As shown in Figure 5.19, the PIRA rapidly increased its use of violence in the early 1970s, carrying out more than 160 attacks in 1972. The group sustained a high level of violence for more than 30 years, peaking with more than 200 attacks in 1979, and again in 1991. This dual-peak distribution of attacks is certainly relevant to the trajectory analysis. Due to a slightly higher number of attacks in 1979, the PIRA's post-peak trajectory is 12 years longer than it would have been if the organization had peaked in

1991. The rapid decline from an extremely high local maximum in 1991 suggests that Trajectory 3, which is characterized by a high peak and rapid decline, is a plausible alternative trajectory. Given the 1979 peak, the PIRA is best represented by the high peak and prolonged period of decline of Trajectory 6.

The dramatic 97.28% decline between 1994 and 1995 was a result of a ceasefire that marked the beginning of the end of the PIRA (Kearney, 2014; Schmidt, 1994). Although not fail-proof, the 1994 ceasefire paved the way for multi-party peace talks that ultimately produced the Good Friday Agreement in 1998 (Agence France Presse, 1998a). Although the peace accord was met with a great deal of trepidation by those party to the decades-old conflict, by 2005 the IRA had completely disarmed and renounced violence (Agence France Presse, 1998c; Dodds, 2005; Lavery & Cowell, 2005).

Despite the rapid decline between 1994 and 1995, the number of attacks carried out by the PIRA did not quite reach zero until 2001, likely as a result of dissident members continuing to carry out low-intensity attacks in the name of the PIRA. From 2005 and 2013, between zero and two attacks were attributed to the PIRA each year. Republican organizations that were opposed to the peace process emerged, including the Continuity Irish Republican Army (CIRA), the Real Irish Republican Army (RIRA), Oglaigh na hEireann (ONH), and the New Irish Republican Army, however none of these organizations came close to reaching the level of violence perpetrated by the PIRA between 1972 and 1994.

Trajectory 6 Case Study: Basque Fatherland and Freedom (ETA)

Basque Fatherland and Freedom (Basque: Euskadi Ta Askatasuna (ETA)) was formed in 1959 with the goal of establishing an independent state in the Basque regions of northern Spain and southwestern France (US Department of State, 2015b). Although ETA unsuccessfully attempted to engage in terrorism as early as 1961, the group's first lethal attack took place in 1968 (BBC News, 2011; Clark, 1984; Muro, 2011). As Figure 5.20 illustrates, ETA carried out relatively few attacks in the early 1970s and then increased its use of violence very quickly, peaking with 171 attacks in 1979. Unlike the PIRA, ETA did not maintain this level of violence and, although the group carried out many terrorist attacks in the 1980s, 1990s, and 2000s, it never again returned to the frequency of terrorist activity seen in the late 1970s.

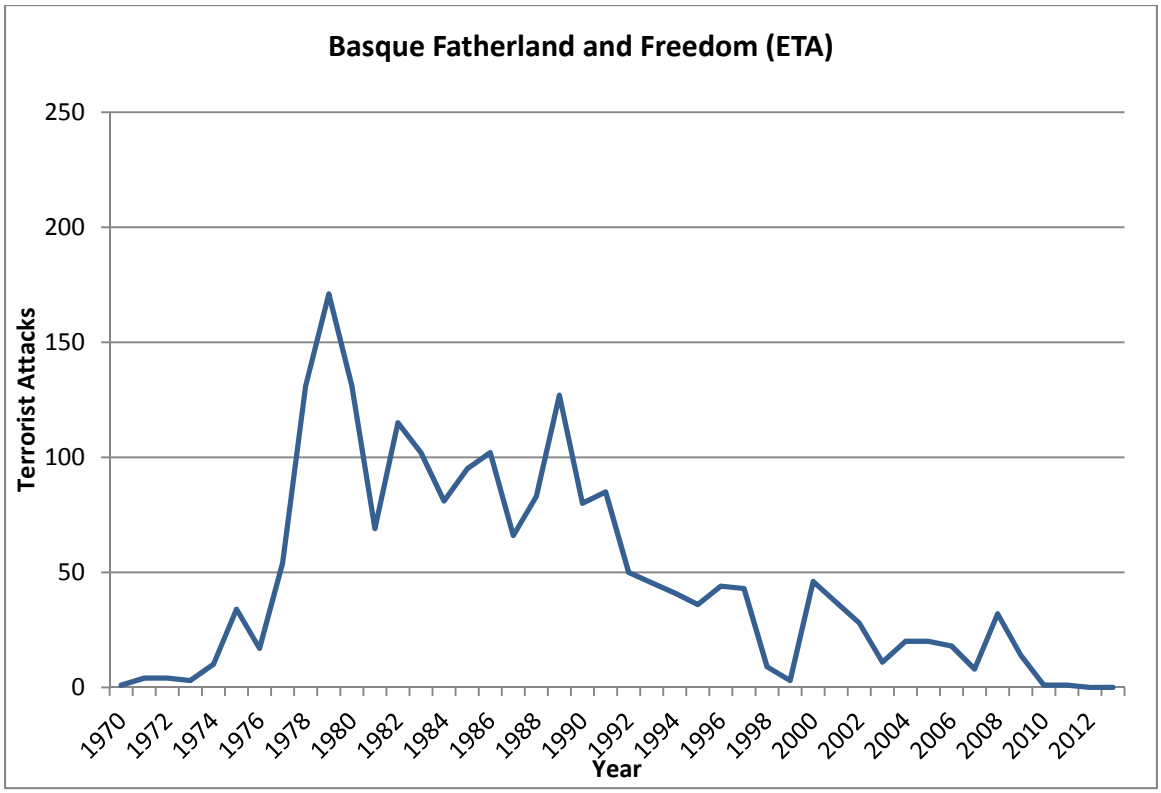


Figure 5.20 Basque Fatherland and Freedom (ETA)

Within days of the Good Friday Agreement in 1998, observers, including members of ETA, made comparisons between the peace process in Northern Ireland and the potential for peace in the Basque conflict (Agence France Presse, 1998b; The Irish Times, 1998). Until that point, ETA had observed brief periods of truce in 1988, 1989, 1992 (coinciding with the Olympic Summer Games in Barcelona), and 1996 (E. Miller & Smarick, 2011). Indeed, not six months after the Good Friday Agreement, in September 1998, ETA declared their own ceasefire (The Economist, 1998).

Despite the fact that the 1998 ceasefire lasted approximately 14 months, at the time their longest period of inactivity, ETA's declarations lacked credibility with Spanish authorities, who continued to devote extensive law enforcement resources to apprehending and prosecuting members of the group (US Department of State, 2015b). Against a backdrop of aggressive policing and prosecution of ETA operatives by a skeptical government with no interest in negotiating, the group declared additional ceasefires in 2006 and 2010, and reaffirmed its "permanent" and "verifiable" commitment to nonviolence in 2011 (E. Miller & Smarick, 2011, p. 3). Since then, ETA has not carried out any terrorist attacks, Spanish authorities continue to make arrests and convictions, and in February 2014 the organization reportedly began to hand over its weapons (Caron, 2015; The Economist, 2014; Tremlett, 2014). Given ETA's pattern of activity, the pattern of activity estimated for Trajectory 6 appears to be a reasonable approximation of its engagement in terrorist violence—a high peak number of attacks followed by a prolonged period of decline.

Having observed the different trajectories of the PIRA and ETA, several scholars investigate the differences between the organizations that might explain the divergence despite the superficial similarities between them (Alonso, 2004; Hogan, 2009). In particular, Hogan (2009) points out six important distinctions that might have contributed to ETA's somewhat painstaking process of desistance. First, while the PIRA sought to regain independence, ETA sought to establish independence. Second, the IRA had greater popular support than ETA. Third, ETA generated revenue to support itself (illegally), while the PIRA relied on external support. Fourth, the PIRA was governed by a democratically elected council, while ETA was led by a single person. Fifth, the PIRA's political wing, Sinn Fein, was much more closely involved in PIRA decision-making than ETA's political wing. Finally, the British counterterrorism response much more indiscriminately impacted the Irish people, while Spanish authorities targeted ETA members specifically. Although it is not clear which, if any, of these distinctions impacted the trajectories of PIRA and ETA, the case studies illustrate the variation among the perpetrator organizations best characterized by Trajectory 6.

Conclusions

The results of the trajectory analysis provide additional insight for two of my research questions. First, as initially indicated by the descriptive analyses in Chapter 4, there exist various patterns of desistance from terrorist violence among perpetrator organizations, even those with similar time spans of activity. This conclusion is supported not merely by the fact that I extracted six trajectories of post-peak terrorist violence from the dataset—

that is a model specification that I assume *a priori*. Instead, I base this conclusion on the fact that the substantive analysis of the trajectories revealed patterns of activity among the individual perpetrator groups that, in general, fit the model exceptionally well and with a great deal of conceptual clarity. The case study analysis further illustrates that while perpetrator organizations vary greatly with respect to their peak number of terrorist attacks; overall, they may decline rapidly or very slowly. While the majority of the perpetrator organizations analyzed appear to decline rapidly from a relatively modest peak number of attacks, there are also many organizations that follow a much more prolonged pattern of declining terrorist violence.

The trajectory analysis provides a useful framework with which to investigate these patterns of activity over time among a relatively large number of perpetrator organizations. Isolating the post-peak terrorist violence from the overall trajectory is particularly useful for focusing on patterns of decline, however the descriptive statistics and the case studies presented in this chapter are also critically important for understanding the implications of measurement and analytical strategy for the study of collective desistance from terrorism. In particular, these analyses illustrate how problematic it is to simply accept the data on perpetrator organizations' terrorist violence over time at face value, assuming that they systematically and comprehensively represent the behavior of stereotypical terrorist organizations that exist in a vacuum. We observe that, in reality, the contexts in which these organizations operate are extremely complex. For example, not every perpetrator organization is, first and foremost, a terrorist organization. The activity of an organization that typically does not engage in terrorism

provides a poor representation of patterns of desistance among those that exclusively adopt this tactic.

Additionally, structured data on perpetrator organizations that are derived from event-level databases are extremely powerful, but can also be misleading. They fail to effectively capture the evolution of groups over time, including mergers, divisions, and name changes that create potentially artificial distinctions in the data. In some cases, they fail to capture the totality of the perpetrator organizations' life course due to arbitrary restrictions in the scope of the data collection period. This analysis reinforces the idea that it is valuable to leverage various types of large-N quantitative analysis with in-depth case studies and qualitative analyses in an effort to more fully understand collective desistance from terrorism.

The goal of this chapter was to establish a baseline model of discrete trajectories of decline among terrorist perpetrator organizations, in order to illustrate the diversity of their patterns of desistance. However, the results of the analysis prompt further investigation to better understand the various dimensions of the problem. The next chapter presents several complementary analyses—variations on the base model—which provide a more comprehensive conceptualization of collective desistance from terrorism.

CHAPTER SIX: Variations on the Model

The trajectory analysis presented in Chapter 5 introduces the various ways in which perpetrator organizations desist from terrorism after reaching a peak number of attacks; however, it raises several additional questions, which I investigate next. First, the results of the baseline analysis suggest that perpetrator groups vary with respect to the magnitude of their peak number of attacks in ways that heavily influence the results of the trajectory model. While modeling the *absolute* frequency of post-peak terrorist violence captures important dynamics of threat beyond simply whether or not the perpetrator organization was engaged in terrorism at a given time, it may obscure the dynamics of the *relative* frequency of post-peak violent activity—the shape of the trajectory rather than the magnitude. To address this possibility, I estimate a variation of the model based on the perpetrator organizations' frequency of attacks relative to their peak number of attacks.

Second, the analysis in Chapter 5 and the theoretical literature discussed in Chapter 2 indicate that patterns of collective desistance from terrorism may vary with respect to qualities or characteristics of the organizations and their terrorist behavior. Although the goal of this research is not to test the theoretical paradigms or constructs discussed in Chapter 2, I do aim to inductively build a comprehensive understanding of the collective ways in which organizations desist from terrorism. In the latter part of this chapter I focus specifically on my second research question: How do salient attributes of perpetrator organizations' terrorist activity relate to their patterns of desistance from terrorist

violence? In particular I analyze the ways in which patterns of onset and other attributes of terrorist violence correlate with particular patterns of desistance.

Isolating the Shape: Desisters vs. Persisters

The baseline trajectories articulated in Chapter 5 are clearly influenced by the perpetrator groups' overall magnitude of activity. Organizations cluster together on the basis of their peak frequency of attacks. This is not unreasonable, because frequency of terrorist attacks is a useful dimension of likeness among perpetrator groups, as well as an important consideration for understanding the process of declining engagement in terrorist violence. However, in doing so the model is limited in its capacity to isolate the shape of the groups' post-peak terrorist activity, and explicitly differentiate those perpetrator groups whose terrorist violence declines rapidly from those whose terrorist violence declines gradually, or hardly at all.

For example, several of the perpetrator organizations estimated to most closely follow the patterns of Trajectory 5 (high peak; slow decline) and Trajectory 6 (high peak; very slow decline) appear to be classified as such primarily because their unusually high levels of terrorist violence mean that no other trajectory is a close approximation of their activity. By removing the absolute number of attacks from the equation, I am able to isolate the shape of post-peak terrorist activity and gain additional insight into how these patterns vary. To do so, I use the data on the number of terrorist attacks carried out by each perpetrator organization each year to calculate the ratio of each organization's attacks in a given year to the number of attacks it carried out during it's peak year of terrorist

violence. Thus, an organization that carried out 10 attacks during its peak year and five attacks the following year, and an organization that carried out 100 attacks during its peak year and 50 attacks the following year will appear identical in the data, with 1.0 as their first data point and 0.5 as their second data point.

Based on the analysis presented in Chapter 5, it appears that there are likely as few as two meaningful shapes of post-peak terrorist violence: one that involves rapid desistance and one that represents a more persistent pattern of activity. Because of this, I began the iterative process of modeling the ratio data with two trajectory groups based on a quadratic polynomial, and progressively increased the complexity of the model. Based on the Bayesian Information Criterion (BIC) values, the posterior probabilities of group membership, and the conceptual clarity of the resulting trajectories, I determined that adding a third trajectory group does not improve the model fit. Figure 6.1 shows that the BIC does not improve markedly as the model complexity increases. Although the Odds of Correct Classification (OCC) for the second trajectory (3.2) were slightly lower than the threshold of 5 established by Nagin (2005), all things considered the most defensible result is a model that includes two trajectory groups based on a cubic polynomial.

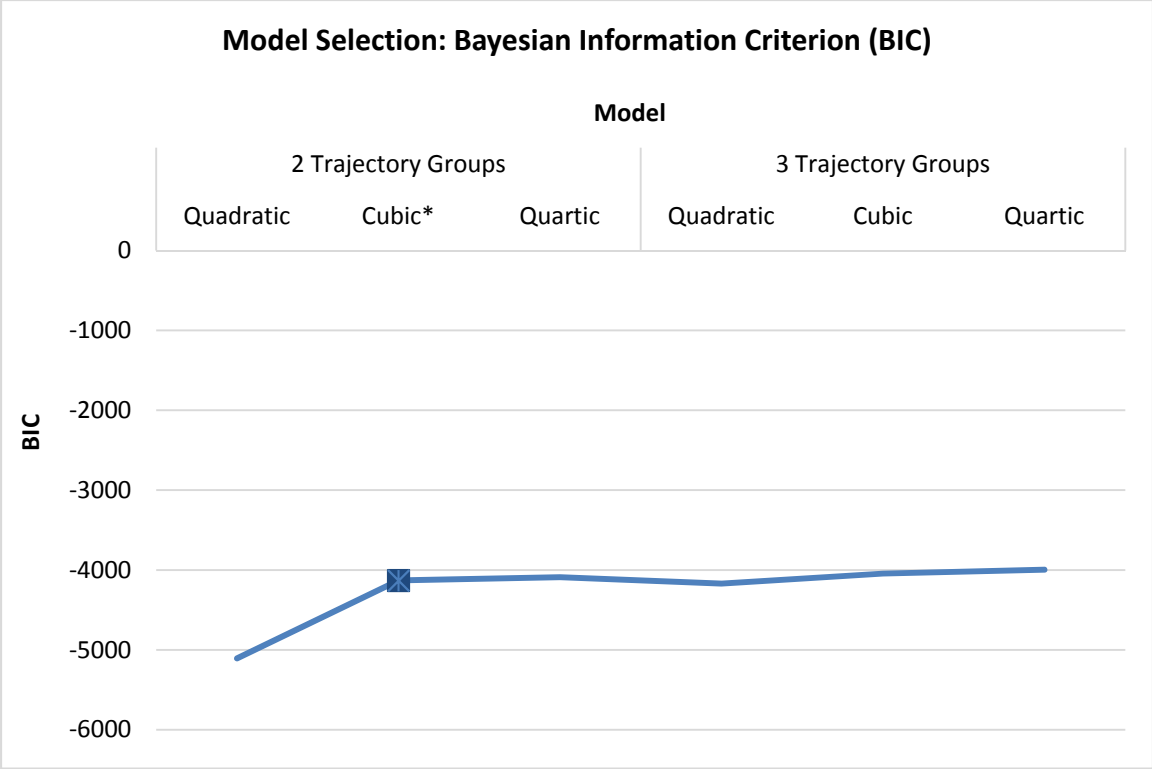


Figure 6.1 Model selection: Bayesian Information Criterion (BIC)

As indicated by the analysis of the baseline model presented in Chapter 5, the two trajectories that comprise the ratio model do represent rapidly declining and gradually declining post-peak patterns of terrorist violence (Figure 6.2). Trajectory 1, which is characterized by a rapid rate of decline, estimates that perpetrator groups will decline to less than 10 percent of their peak number of attacks within four years, and less than 5 percent of their peak number of attacks within five years. This pattern is the best fit for 511 of the 632 (80.9%) perpetrator organizations analyzed. In contrast, Trajectory 2, which is characterized by a relatively gradual rate of decline, estimates that perpetrator groups will not drop below 10 percent of their peak number of attacks until 12 years following their peak, and they do not reach 5 percent until 20 years after they peak. Trajectory 2 is the best fit for 121 perpetrator organizations (19.1%). Both trajectories

have very high average predicted probabilities of group membership—0.97 and 0.93, respectively. This suggests that they represent distinct patterns, and that perpetrator groups are likely to clearly align with one or the other.

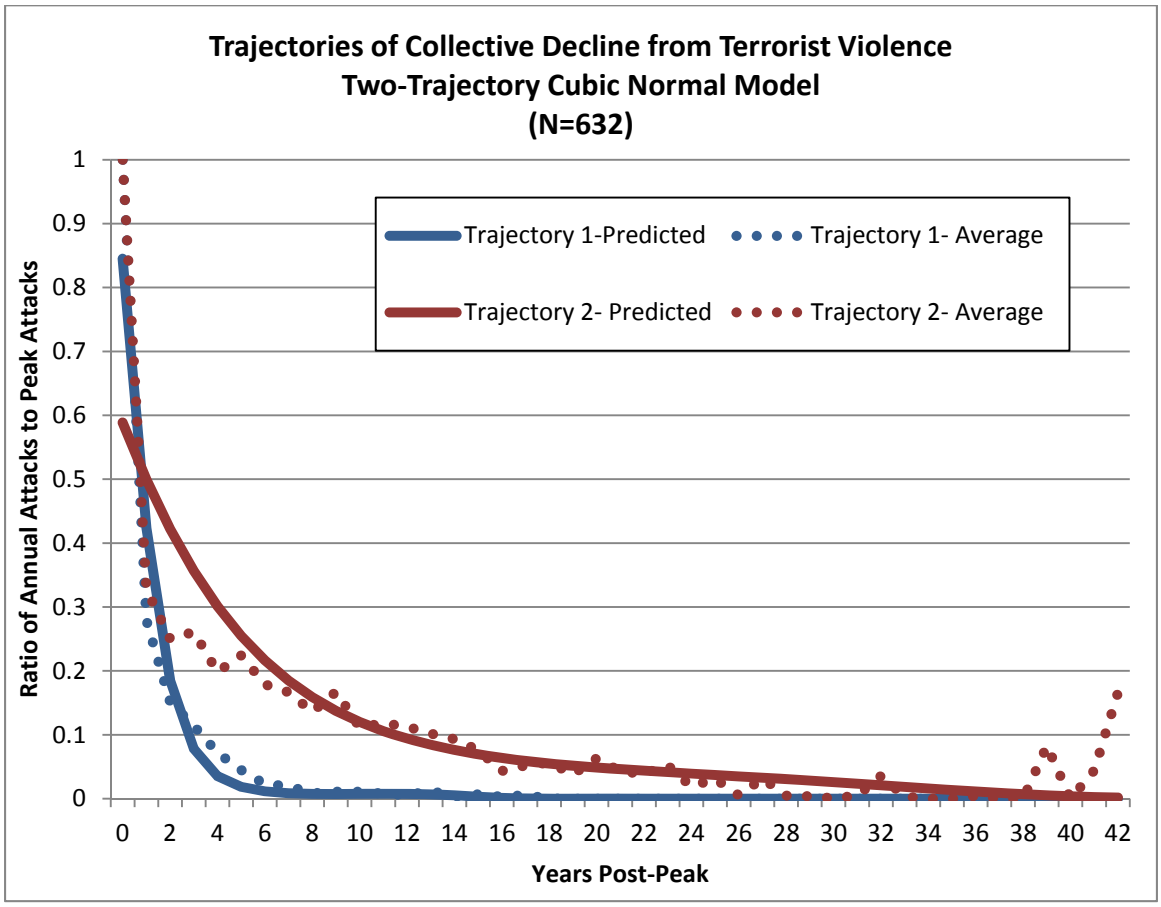


Figure 6.2 Trajectories of collective decline, ratio model

Table 6.1 compares information about the perpetrator groups best represented by each trajectory, revealing interesting similarities and differences in their activity. The perpetrator groups best characterized by the rapid decline of Trajectory 1 engaged in terrorist attacks for an average of six years, while those organizations best characterized by the more gradual decline of Trajectory 2 carried out terrorist attacks for a total of 20 years, on average. However, these averages coincide with a wide range in the number of

years the groups were active. Fifty-seven of the perpetrator organizations represented by Trajectory 1 were active for only a year, while five were active for more than 30 years. All five of these organizations peaked after more than 30 years of engaging in terrorist violence and then declined rapidly from a peak of as many as 160 to as few as seven attacks. In contrast, 17 of the gradually declining perpetrator organizations engaged in terrorist violence for more than 30 years, while 19 actively carried out attacks for fewer than 10 years. Of these 19 organizations, 11 were still active within three years of the end of the data series.

Table 6.1 Attributes of Trajectory Groups	**Trajectory 1**	**Trajectory 2**
Description	Rapid Decline	Gradual Decline
Number of Perpetrator Organizations (%)	511 (80.9)	121 (19.1)
Average Posterior Probability of Group Membership	0.970	0.930
Minimum Posterior Probability of Group Membership	0.530	0.510
Maximum Posterior Probability of Group Membership	1.000	1.000
Average Total Span of Terrorist Violence (Years)	6	20
Minimum Total Span of Terrorist Violence (Years)	1	4
Maximum Total Span of Terrorist Violence (Years)	42	43
Average Pre-Peak Span of Terrorist Violence (Years)	4	7
Minimum Pre-Peak Span of Terrorist Violence (Years)	1	1
Maximum Pre-Peak Span of Terrorist Violence (Years)	38	22
Average Year of Onset of Terrorist Violence	1988	1986
Average Peak Year of Terrorist Violence	1991	1991
Total Number of Terrorist Attacks	24331	24151
Total Number of Fatalities from Terrorist Attacks	77740	52446
Average Number of Terrorist Attacks at Peak (Uncensored)	15.93	31.50
Minimum Number of Terrorist Attacks at Peak (Uncensored)	1	1
Maximum Number of Terrorist Attacks at Peak (Uncensored)	784	509

Despite the fact that they experienced longer periods of declining terrorist violence, and therefore a compressed window of opportunity with respect to available data on pre-peak activity, the perpetrator organizations aligned with Trajectory 2 also had longer spans of

pre-peak violence on average. This is consistent with their longer period of engaging in terrorist violence overall.

The 121 perpetrator organizations characterized as gradually declining were collectively responsible for 24,151 terrorist attacks resulting in 52,446 fatalities. Although there are more than four times as many perpetrator organizations characterized as rapidly declining, they were responsible for approximately the same number of total attacks—22,331—and only 48% more deaths, at 77,740. While this is a fairly large disparity in terms of total harm caused, the two sets of perpetrator organizations are fairly similar in terms of deaths per perpetrator group per year active (23 for Trajectory 1 organizations versus 22 for Trajectory 2 organizations).

The graphs of individual perpetrator group patterns of activity reveal that, with only two trajectory classes, there is a great deal of variation visible around the predicted trajectories. Figure 6.3 shows the individual patterns of post-peak terrorist violence among perpetrator organizations best characterized by Trajectory 1 in the ratio model, and Figure 6.4 shows the individual patterns of post-peak terrorist violence among perpetrator organizations best characterized by Trajectory 2 in the ratio model. The post-peak trajectories of perpetrator groups classified as rapidly declining are heavily clustered near the Y-axis, however there are a number of organizations whose activity spans a longer time period, but with sporadic, isolated attacks. In fact, 47 of the 511 organizations aligned with Trajectory 1 do have attacks recorded ten years or more after their peak level of activity. Some of these even approach their peak number of attacks; however, 35

of the 47 perpetrator organizations (74%) peaked with fewer than eight attacks. Two of the rapidly declining organizations that were active more than 10 years beyond their peak—Movement of April 19 (M-19) in Colombia, and Sandinista National Liberation Front (FSLN) in Nicaragua—carried out more than 100 attacks at their peak.

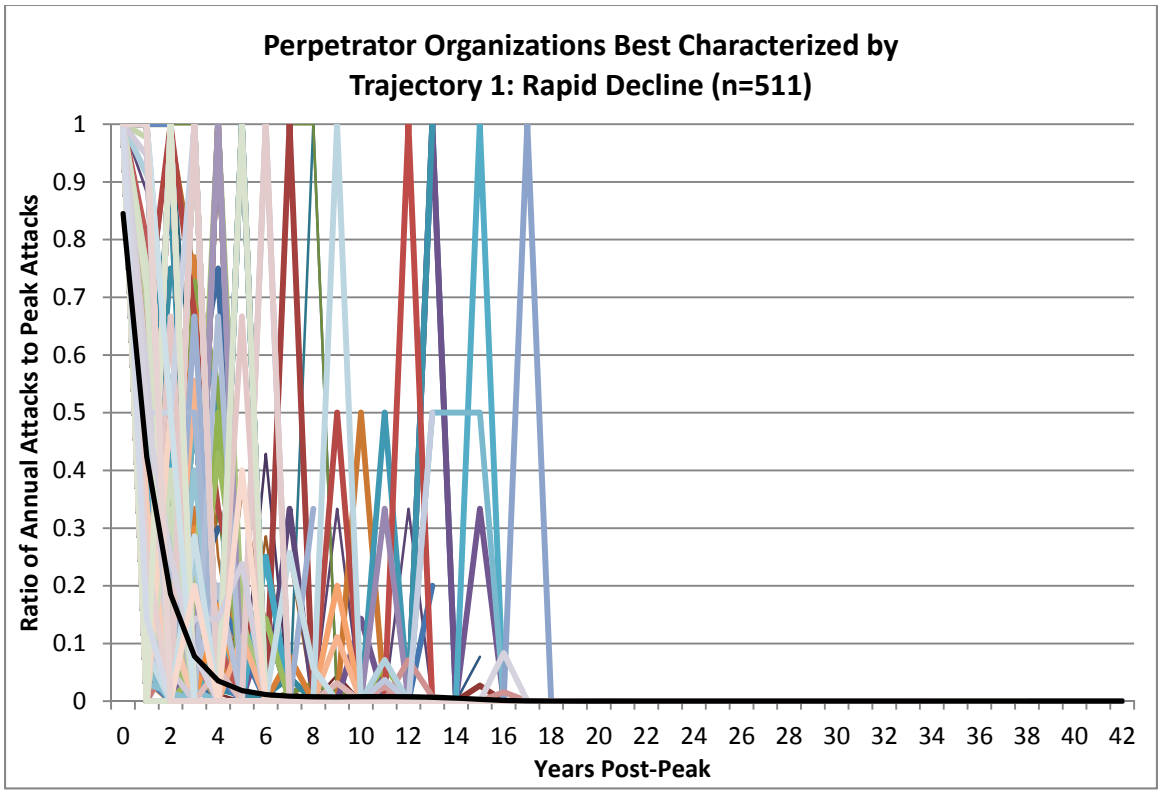


Figure 6.3 Perpetrator organizations best characterized by Trajectory 1 (ratio)

M-19's use of terrorist violence peaked in 1985, followed by a fairly rapid decline to inactivity over the course of four years during which it renounced the use of violence and began to engage in electoral politics. With the exception of two years when M-19 was attributed responsibility for a small number of attacks (two in 1992 and four in 1994), M-19 has not engaged in terrorist violence since. Likewise, the FSLN's terrorist activity dropped to zero attacks one year after it peaked in 1979 in the context of the Nicaraguan

Revolution. At that time the organization, then a ruling political party, continued to be inactive with respect to terrorist violence for a decade before briefly resuming low-level terrorist violence in 1991 following a loss of political power in 1990.

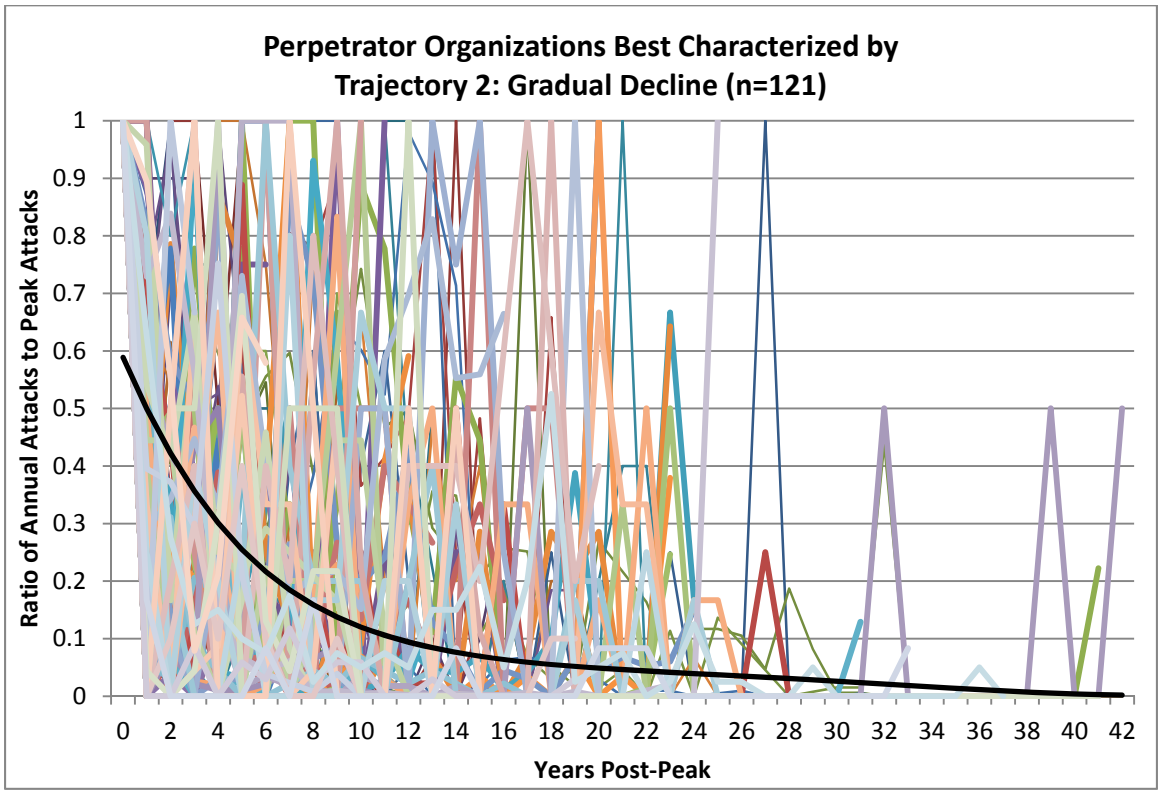


Figure 6.4 Perpetrator organizations best characterized by Trajectory 2 (ratio)

The individual trajectories of post-peak terrorist violence for perpetrator organizations best characterized by the gradual decline of Trajectory 2 further illustrate the overall similarity among the rapidly declining perpetrator organizations in Figure 6.3 (above). In contrast, Figure 6.4 shows extremely varied individual patterns of post-peak terrorist violence that share in common the fact that they persist well beyond 10 years post-peak and in many cases even more than 20 years post-peak. Specifically, at least 81 of the 121 organizations classified as gradually declining continued to carry out terrorist attacks ten

or more years after their peak year of terrorist violence. At least 34 perpetrator organizations were responsible for attacks 20 or more years after they peaked.

The ratio model neutralizes certain attributes of terrorist activity that distinguish the six trajectory groups presented in Chapter 5, but we can examine how membership to the original trajectories relates to membership to the two ratio trajectories (Figure 6.5). Recall that the first three trajectories presented in Chapter 5 represented patterns of rapid decline from varying peak numbers of terrorist attacks—low, medium, and high, respectively. As such, it comes as no surprise that the rapidly declining shape of Trajectory 1 in the ratio model best represents the vast majority of perpetrator organizations best characterized by these three original trajectories.

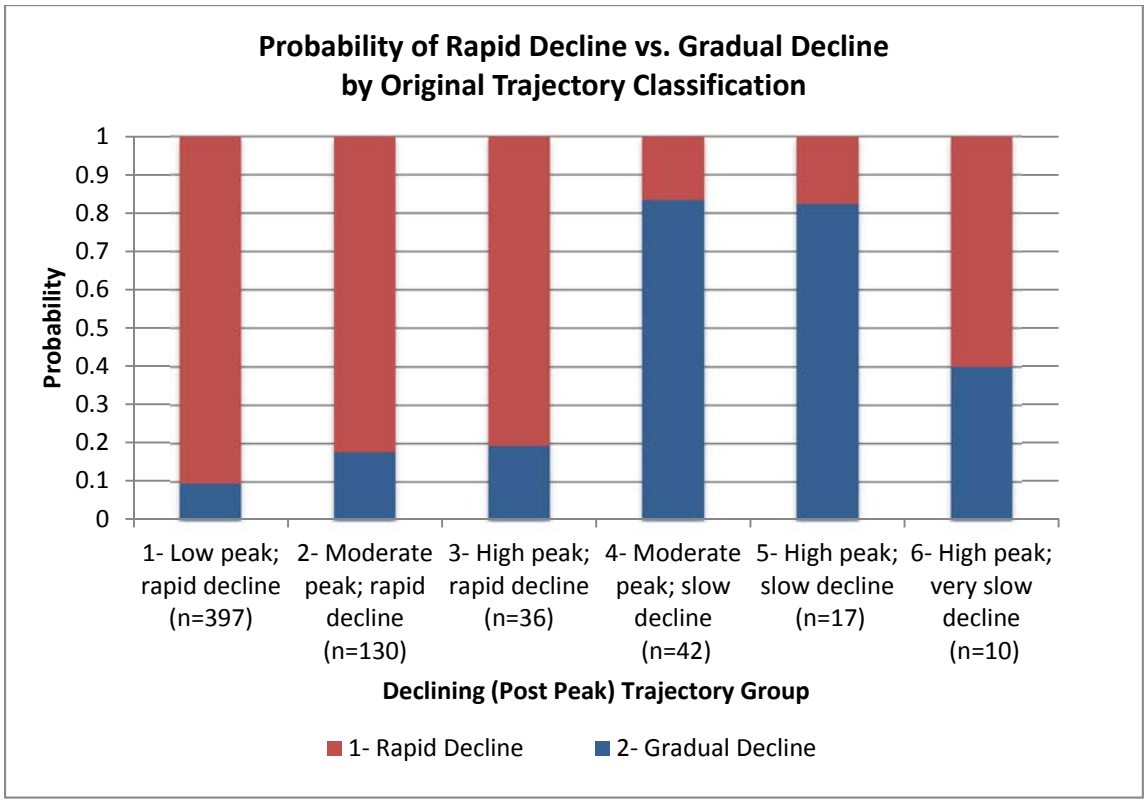


Figure 6.5 Probability of rapid vs. gradual decline given original classification

Likewise, Trajectory 4 in the original model had a distinctly persistent post-peak shape, while Trajectory 5 and Trajectory 6 predicted persistent patterns of post-peak activity but their constituent perpetrator groups were characterized by much more diverse observed patterns of violence. Thus, it makes sense that most of the perpetrator organizations represented by Trajectories 4 and 5 in the original model are classified as gradually declining in the ratio model. The perpetrator organizations represented by Trajectory 6 in the original model were actually slightly more likely to be classified as rapidly declining than gradually declining, confirming the observation made in Chapter 5 that some of them were likely clustered together based entirely on the high levels of terrorist violence they had in common. These results suggest that the original model and the ratio model offer complementary perspectives for investigating patterns of collective desistance from terrorism.

Characteristics of Terrorist Activity and Patterns of Collective Desistance

Having established a robust framework for understanding the ways in which perpetrator organizations desist from terrorist violence, I now expand the analysis to consider the ways in which other aspects of an organization's terrorist violence relate to patterns of decline. Specifically, I investigate patterns of onset, lethality, use of suicide attacks, and execution of logistically international attacks. Each of these represents an aspect of the perpetrator groups' capacity for violence and chosen tactics, which, based on the theoretical paradigms described in Chapter 2, could bear relevance to their patterns of desistance.

Onset Trajectories

To evaluate how patterns of onset relate to patterns of decline, I first estimate a trajectory model based on the 632 perpetrator groups' violent terrorist activity over the period of time from their first recorded attack to the year their terrorist violence peaked. Like the model for patterns of post-peak terrorist violence, which isolated patterns of decline, by focusing the analysis on pre-peak activity I isolate patterns of onset. The trajectory of an organization's initial engagement in terrorist violence is illustrative of its overall strength, the threat it poses (and thus the extent to which it provokes a response from the state), and capacity to rapidly amass resources. However, like trajectories of decline, the onset trajectories might also be indicative of structural or measurement artifacts of organizational evolution. I will discuss these possibilities below, in the context of the model results.

As with the previous trajectory models, my presumption is that there are meaningfully distinct patterns of onset that can be used as a data summary framework to approximate the observed patterns of onset. I estimated eight separate models and compared them on the basis of the Bayesian Information Criterion (BIC), average posterior probabilities of trajectory group membership, Odds of Correct Classification (OCC), and conceptual clarity. Despite the fact that the BIC value (Figure 6.6) continues to improve between the models that estimate three trajectories and the models that estimate four trajectories, the posterior probabilities and conceptual clarity deteriorate rapidly at this point in the model selection process. In particular, the four trajectory group models include two trajectories with very similar shapes, and several of the means for predicted probability of group

membership drop to 0.8 or below. While these values are still higher than the threshold of 0.7 recommended by Nagin (2005), I determined that without the benefit of additionally meaningful trajectories this is an unnecessary sacrifice and concluded the model selection process with the three-trajectory zero-inflated Poisson (ZIP) model based on a quartic polynomial.

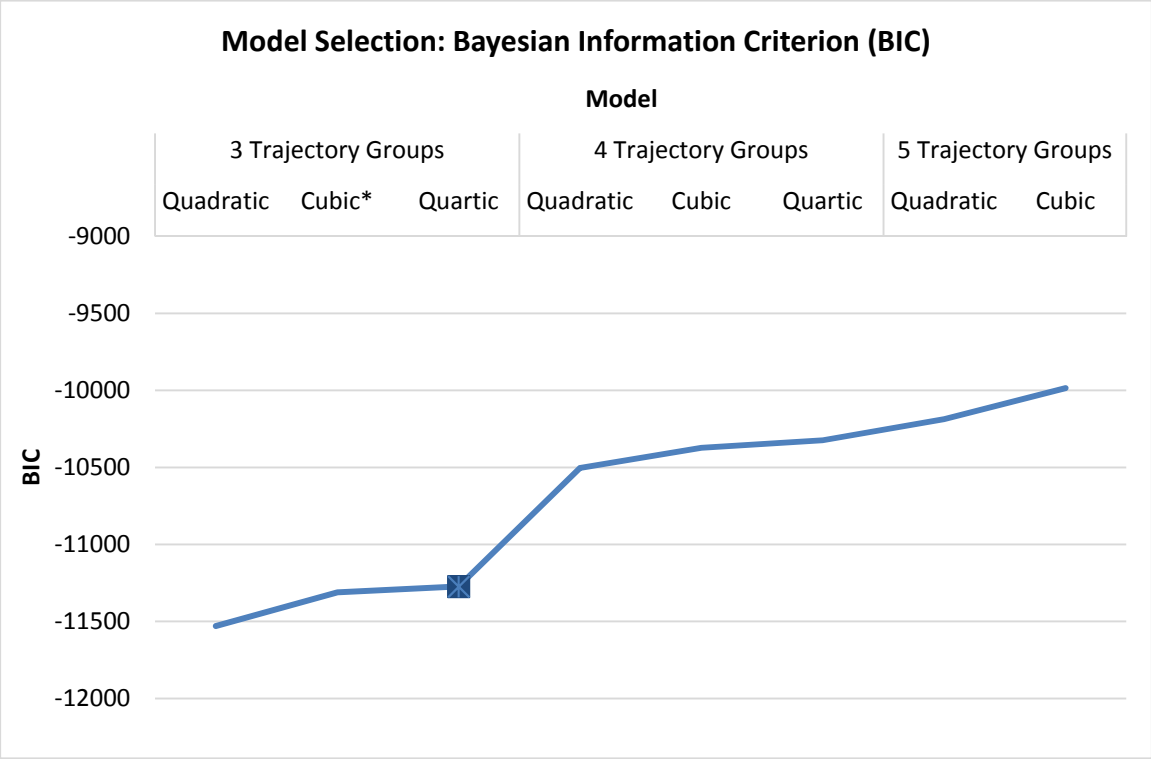


Figure 6.6 Model selection: Bayesian Information Criterion (BIC)

The selected trajectory model for patterns of onset is shown in Figure 6.7, below. The three trajectories estimated represent rapidly increasing, moderately increasing, and slowly increasing numbers of terrorist attacks leading up to the peak year of activity. The pattern of onset represented by Trajectory 1 involves a very low number of terrorist attacks leading up to a low peak level of violence. This is estimated to represent approximately three-quarters of the perpetrator groups analyzed (75.0%). Trajectory 2 is

characterized by a somewhat more rapid increase in violence and a moderate peak number of attacks. This is the best approximation for one-fifth (19.9%) of the perpetrator groups analyzed. As was the case with the model for declining terrorist violence, the data on the onset of terrorist violence are censored at 100 attacks per year, which is most evident in the shape of Trajectory 3 because it is characterized by exceptionally high numbers of attacks and a rapid increase following the first attack. Trajectory 3 is the best approximation of the pattern of onset for only 5.1 percent of the perpetrator groups analyzed.

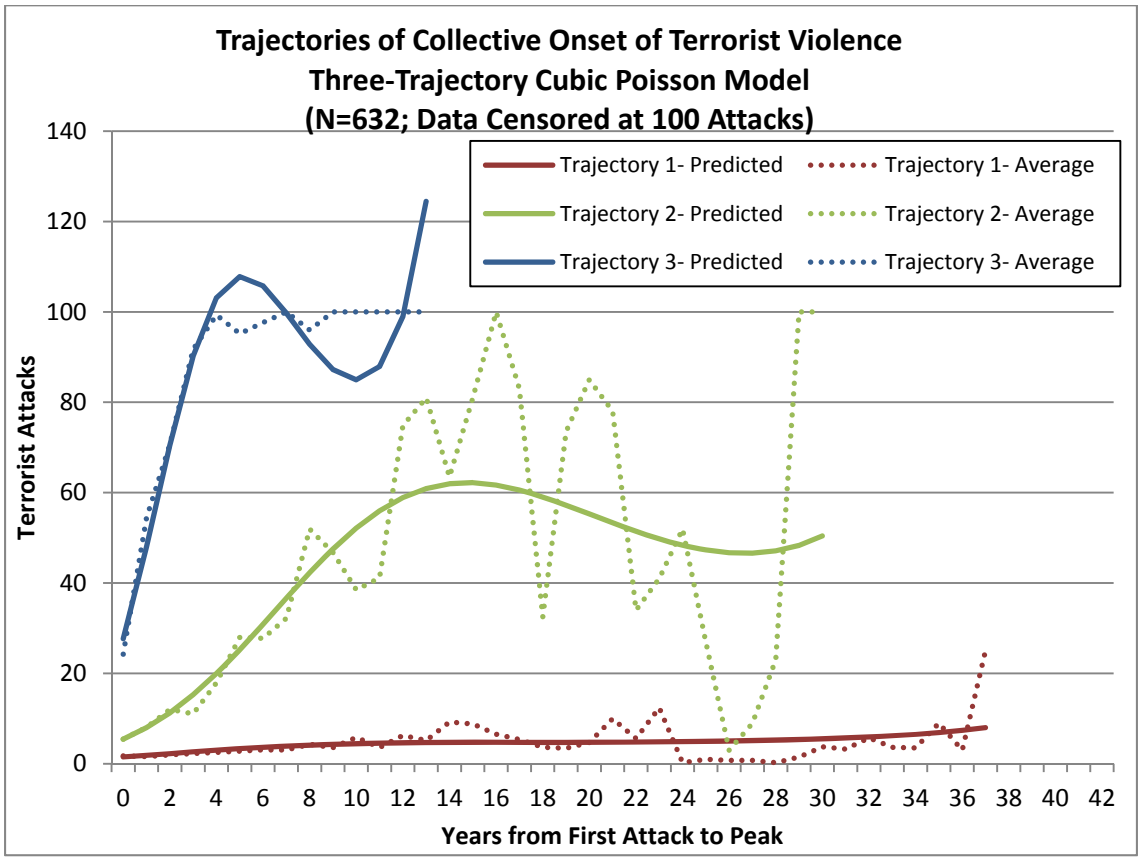


Figure 6.7 Trajectories of collective onset

The low-frequency pattern identified by Trajectory 1 represents a wide variety of observed activity. Although the predicted pattern of onset is lengthy, it is important to note that this does not mean the onset of all perpetrator groups assigned to this trajectory experienced lengthy patterns of pre-peak terrorist violence. Indeed, many are quite short, or even peak during their first year of engagement in terrorist violence, but Trajectory 1 is estimated as the best approximation due to the low peak number of attacks they share in common. On average, the peak number of attacks for perpetrator groups best represented by Trajectory 1 is 6.0. The span of time for which these organizations carry out terrorist attacks prior to their peak year ranges from zero to 37 years.

The perpetrator groups whose terrorist activity is best represented by this pattern of onset include established terrorist organizations like the Abu Nidal Organization (ANO), the Lord's Resistance Army (LRA), the Popular Front for the Liberation of Palestine (PFLP), and the Red Army Faction (RAF). However, they also include numerous political parties, such as the Communist Party of India- Marxist, the Likud Party, and the Pakistani People's Party (PPP); criminal organizations, such as the Cali and Medellin drug cartels; and named groups that are decidedly lesser known, like Guerrillas of Christ the King, which carried out two attacks over two years in Spain.

In comparison, the perpetrator groups best characterized by the more rapidly increasing pattern of Trajectory 2 include many well-known terrorist organizations: al Qa'ida in the Arabian Peninsula (AQAP), Basque Fatherland and Freedom (ETA), the Corsican National Liberation Front (FLNC), Hizballah, Lashkar-e-Taiba (LeT), the Red Brigades,

the Revolutionary Armed Forces of Colombia (FARC), and numerous others. On average, these organizations peaked with 41.2 terrorist attacks, however this ranged from five attacks to 784 carried out by the Taliban.

The 32 perpetrator organizations best represented by Trajectory 3 are collectively characterized by a rapid increase in terrorist violence and an extremely high peak number of attacks—122.3 on average. However, these organizations have other interesting attributes and contexts that set them apart. Nearly three-fifths (59.4%) of the perpetrator groups best characterized by a rapidly increasing onset trajectory peaked within a year of their first attack. The organization that took the longest to reach its peak, the Farabundo Marti National Liberation Front (FMLN), reached its maximum number of attacks in 13 years, however it increased from one attack to 159 attacks in the course of two years.

That said, at least 10 of the 32 rapidly increasing organizations, including the FMLN as well as the Islamic State of Iraq, the Nicaraguan Resistance, and al Qa'ida in the Lands of the Islamic Maghreb (AQLIM), evolved from existing organizations as alliances, splinter organizations, or, they were simply re-branded. Furthermore, four of the 32 rapidly increasing perpetrator organizations—the Black Panthers, the Provisional Irish Republican Army (PIRA), the Tupamaros, and the Weather Underground—were active in 1970, suggesting that the beginning of the GTD time series does not adequately capture the onset of their terrorist violence. However, this is no more common for Trajectory 3 than for the other trajectories, which indicates that it is not the sole reason for their classification.

Because perpetrator organizations exist in heterogeneous contexts, classifying them according to the trajectories that best represent their patterns of onset provides a somewhat mixed set of circumstances within each trajectory. With this in mind, I examine the relationship between membership to an onset trajectory and membership to a declining trajectory. Figure 6.8 shows the probability of membership to each of the six post-peak trajectory categories, given membership to each of the three pre-peak trajectory categories.

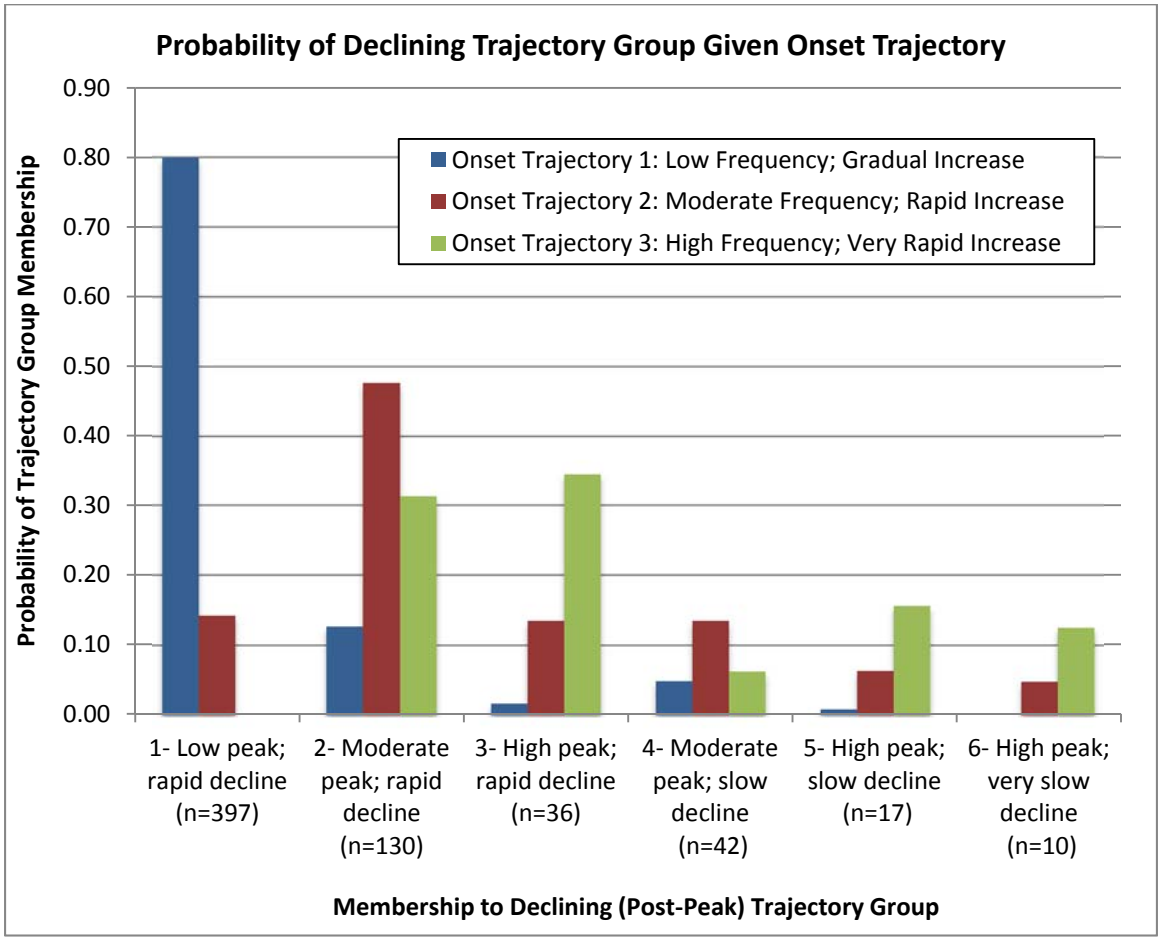


Figure 6.8 Probability of declining trajectory given onset trajectory

The results indicate that the overall frequency of attacks that was very influential in the initial estimation of the trajectories continues to be influential in how they relate to each other. The vast majority (80%) of perpetrator organizations characterized by a low frequency of terrorist attacks and gradual or very little increase were best represented by the low peak/rapid decline post-peak trajectory, while none of these perpetrator organizations were classified as high peak/very slow decline groups. Likewise, none of the perpetrator groups that were assigned to the high frequency/very rapid increase onset trajectory were grouped with perpetrator organizations characterized by a low peak and rapid decline.

These findings at the extremes are, of course, to be expected in light of the fact that both models are based on the peak number of terrorist attacks as a starting or ending point. There are, however, other results that are somewhat less obvious. For example, the perpetrator organizations with rapid onset trajectories (Onset Trajectory 2 and 3) are disproportionately likely to be best characterized by the post-peak trajectories that involve rapid desistance (Decline Trajectories 2 and 3). This suggests the possibility of overall volatility in the attack patterns of these perpetrator organizations in that many of the groups that increase rapidly also decline rapidly.

A related possibility is that perpetrator organizations that demonstrate a rapid increase to extremely high levels of violence represent a particular security threat that the state is extraordinarily motivated to resolve quickly, either though conciliatory or repressive means. Yet a third speculation is that this relationship represents a lack of stability among

these perpetrator organizations that is an artifact of organizational evolution. Perhaps the organizations and the threats they pose do not necessarily come and go as the data suggest, but instead these perpetrator groups are exceptionally likely to form alliances, break apart, or, like the Islamic State, change names more than once.

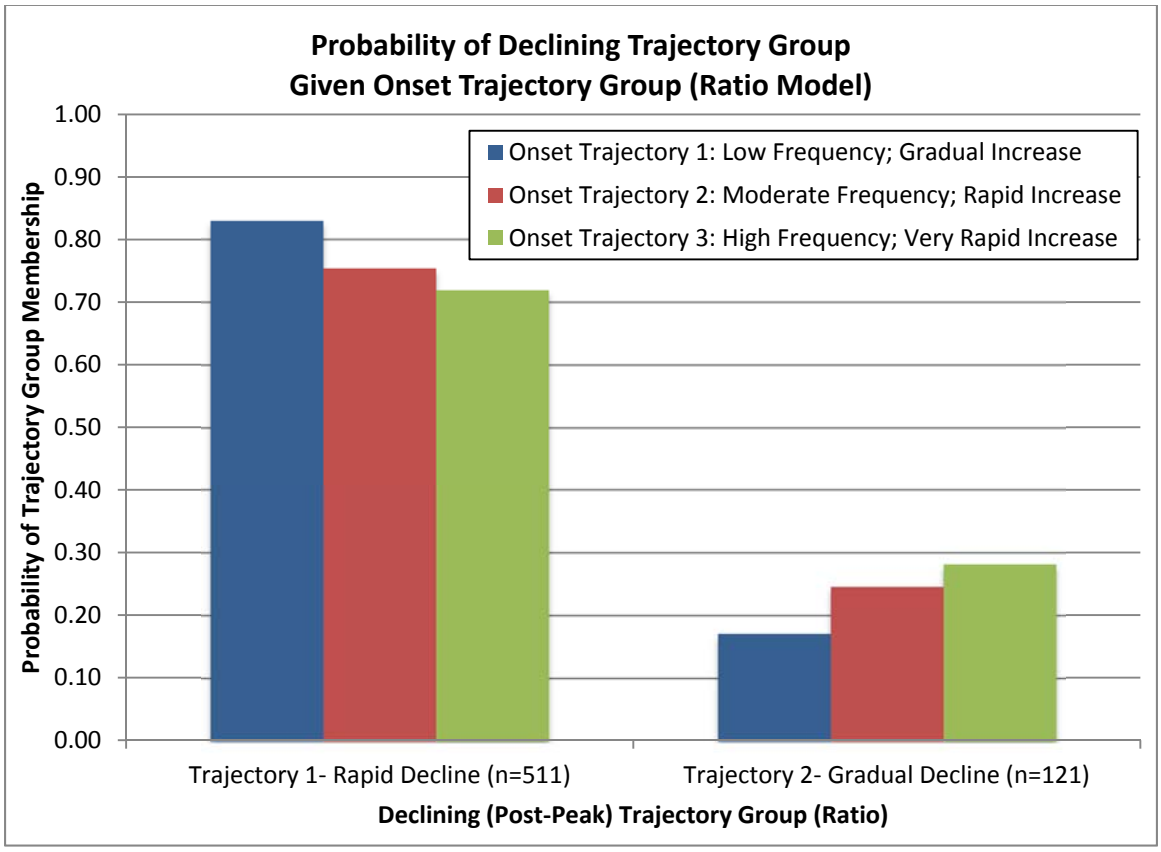


Figure 6.9 Probability of declining trajectory given onset trajectory (ratio)

In order to show the relationship between patterns of onset and patterns of decline in a way that is not as heavily influenced by the overall frequency of attacks, Figure 6.9 presents the probability of membership each of the two post-peak trajectory groups from the simplified ratio model. Figure 6.9 shows that the perpetrator organizations best represented by a rapidly increasing onset trajectory are disproportionately more likely

than gradually increasing organizations to be best represented by the gradually declining Trajectory 2 from the ratio model. This is somewhat in contrast to Figure 6.8 (above), which takes into account the overall frequency of attacks and presents more varied results.

Finally, to better understand the significance a group's activity prior to its peak, I use an ordinal measure of pre-peak span of terrorist activity (in years) to examine the relationship between the length of time a group is active before peaking and the rate of decline once it peaks. This measure of pre-peak span disregards the frequency of the groups' terrorist violence prior to the peak, such that an organization that engaged in terrorism for more than 10 years before peaking might have carried out two attacks or 200 attacks during that time period.

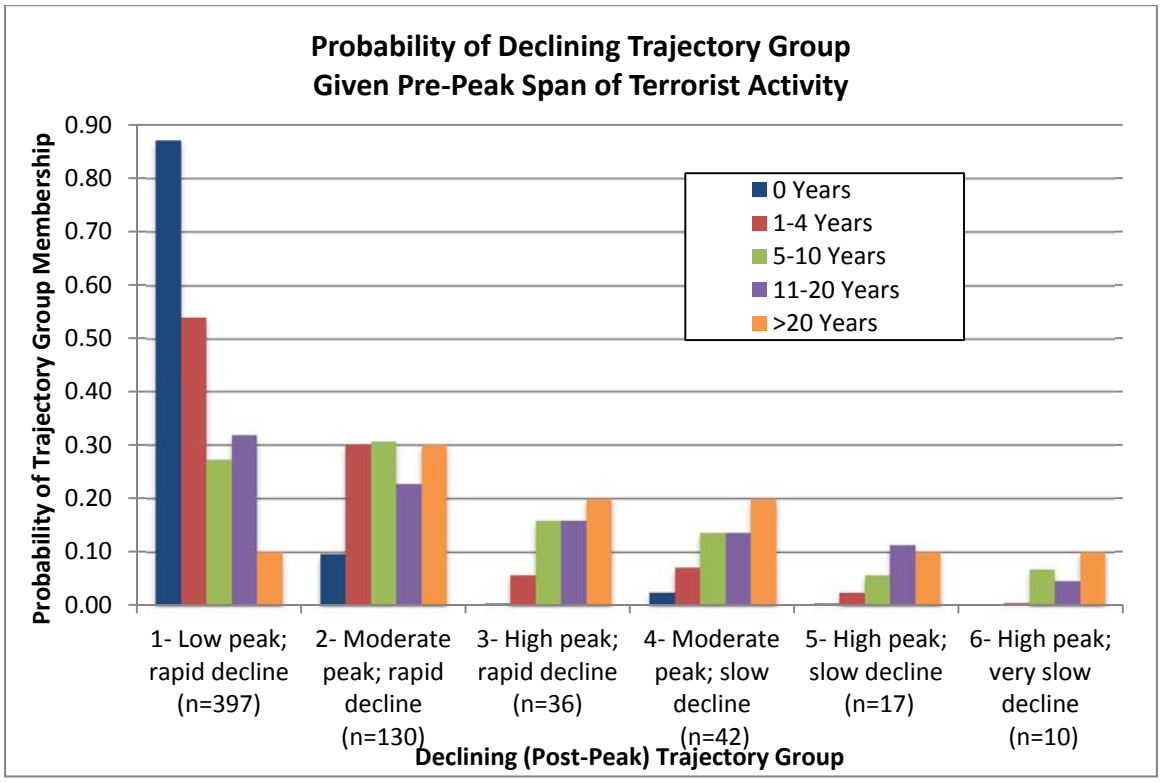


Figure 6.10 Probability of declining trajectory given pre-peak span of activity

Among all 632 perpetrator organizations, the minimum pre-peak span of activity is zero years (44.5% of the sample), meaning that the first year of activity was the peak year of activity. Ten groups were active for more than 20 years before peaking. As Figure 6.10 shows, the perpetrator organizations most likely to be classified as having a low peak and rapidly declining trajectory are those that peaked during their first year of activity and those that were active for less than five years before peaking. Likewise, the perpetrator organizations that were active for a year or more before peaking were more likely to carry out a moderate or high number of terrorist attacks at their peak. In particular, the organizations with the longest pre-peak spans of activity were the most likely to either carry out the highest number of attacks and their peak and/or decline more slowly.

In order to isolate the relationship between pre-peak span of terrorist activity and rate of decline, independent of peak number of attacks, I analyzed the same ordinal variable representing the groups' pre-peak span of activity against the ratio model of decline. The results, shown in Figure 6.11, indicate a fairly clear distinction whereby perpetrator organizations that were active for five or more years prior to peaking are approximately twice as likely to be classified as persisting organizations (Trajectory 2) compared to those that were active for less than five years before peaking. That said, there is little additional variation in that longer pre-peak spans of terrorist violence do not further increase the likelihood that the group will persist rather than desist. In fact, the probability of rapid decline increases slightly for the perpetrator organizations with especially long pre-peak periods of terrorist violence.

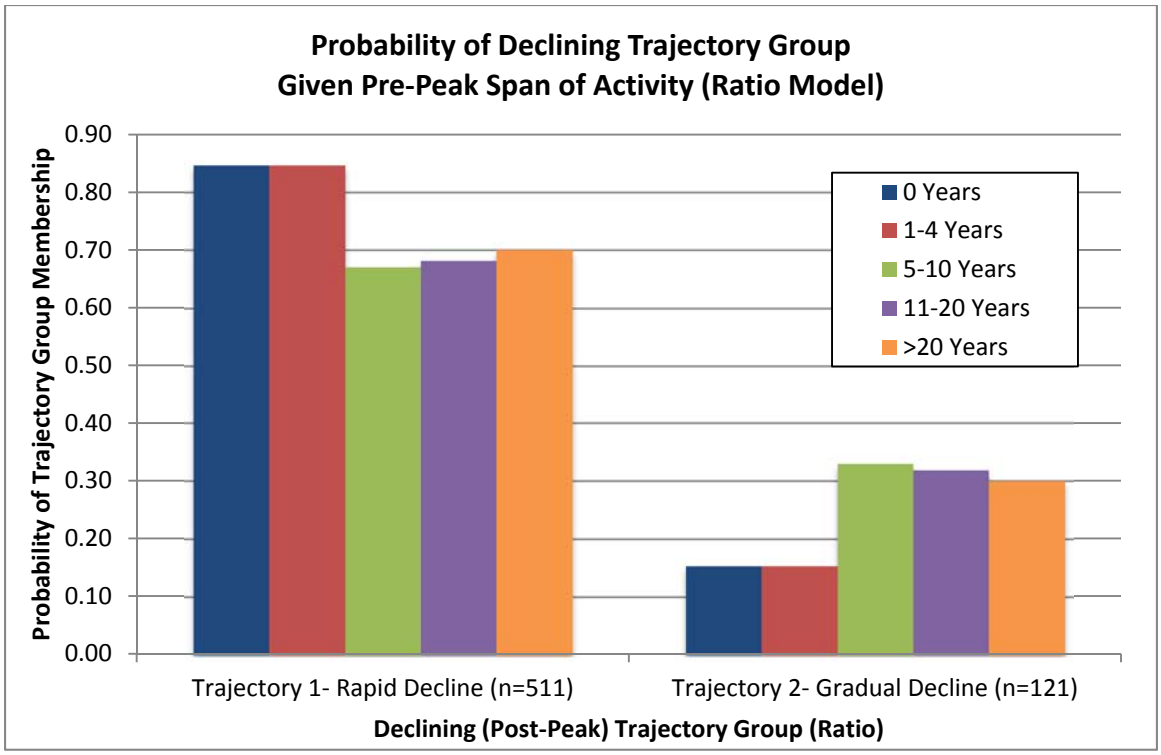


Figure 6.11 Probability of declining trajectory given pre-peak span of activity (ratio)

The estimation of the onset trajectories and analysis of how the pre-peak span of activity relates to patterns of collective desistance further illustrates the complexity of the contexts in which the perpetrator organizations operate. While rapid patterns of onset are correlated with gradual patterns of decline, so too are longer periods of pre-peak terrorist violence. This also demonstrates how this analytical strategy can contribute a useful framework for hypothesis generation that accommodates diverse patterns of terrorist activity among the organizations. In the next section, I investigate the ways in which the post-peak trajectories of terrorist violence vary with respect to lethality of attacks.

Lethality of Terrorist Attacks

In Chapter 5 and earlier in this chapter I referenced the lethality of the perpetrator groups in terms of the total number of deaths caused across all of their terrorist attacks. While

this measurement of group lethality gives a sense of the overall impact of the perpetrator organizations, particularly with reference to their representation in the trajectory categories, there are a number of other salient aspects of lethality that I investigate here in greater detail. Specifically, in contrast to the overall lethality of the perpetrator group, the lethality of the group's *attacks* could potentially influence its longevity or rate of decline. While the lethality of the perpetrator group is largely a function of the length of time during which they actively engage in violence, measures of attack lethality such as average number of deaths per attack, or the execution of mass casualty attacks, capture more information about the capacity of the organization, its brutality, and its ability to rapidly garner attention, both from potential recruits and the state.

The average attack lethality for the 632 perpetrator organizations is 3.0 deaths per attack. It ranges from zero for 127 organizations that caused no fatalities, to 61.3 for the Special Purpose Islamic Regiment (SPIR), a Chechen rebel group responsible for a mass hostage-barricade attack at a Moscow theater in 2002 that resulted in 170 deaths, including perpetrator deaths. Figure 6.12 shows the average lethality of terrorist attacks for each post-peak trajectory group.

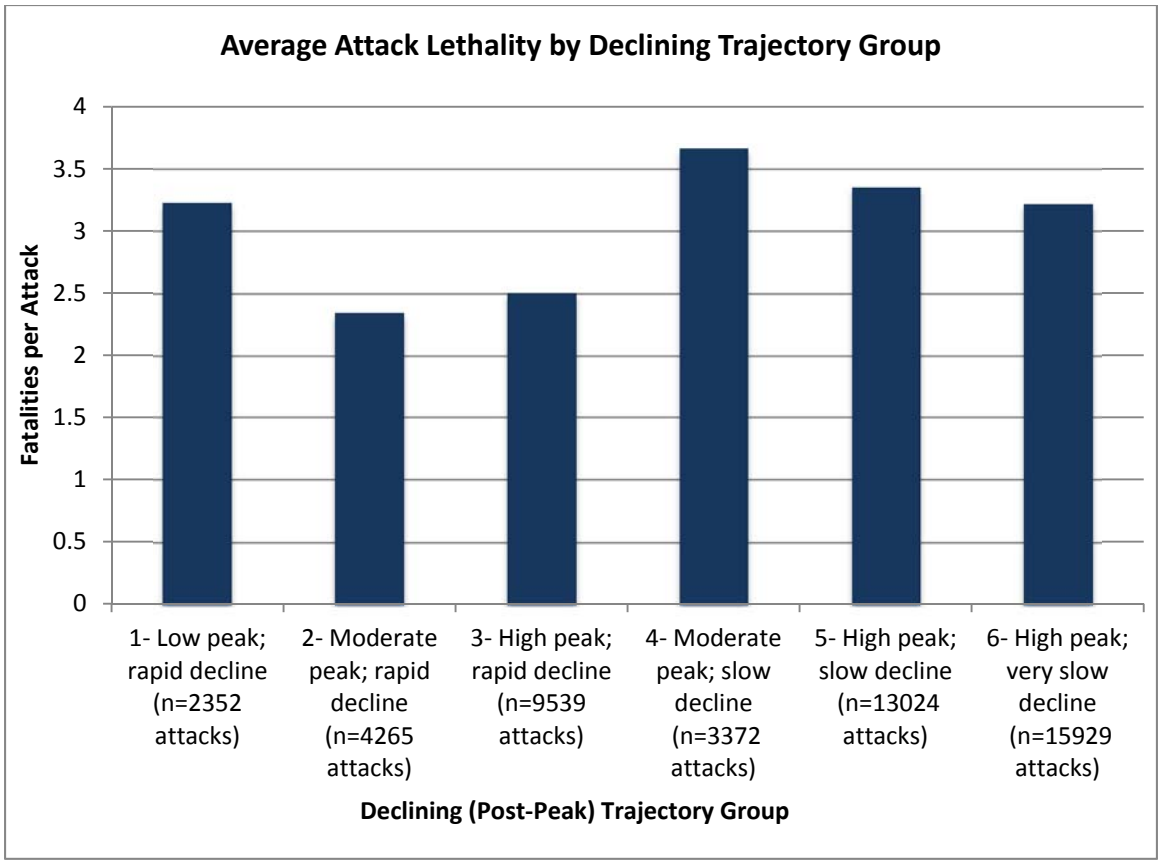


Figure 6.12 Average attack lethality by declining trajectory group

The average attack lethality for each declining trajectory group ranges from 2.3 fatalities per attack for Trajectory 2, which is characterized by a moderate peak number of attacks and a rapid decline post-peak, to 3.7 fatalities per attack for Trajectory 4, which is characterized by a moderate peak number of attacks and a slow rate of decline post-peak. In general, the trajectories that best represent perpetrator groups characterized by gradual patterns of post-peak decline have higher measures of average attack lethality than those characterized by rapid decline.

This suggests that greater average attack lethality does not necessarily prompt a decisive response by counter-terrorism policymakers that inevitably leads to rapid decline. One

exception is the higher than average lethality of attacks carried out by perpetrator groups best characterized by Trajectory 1. Like SPIR, or the Riyadus-Salikhin Reconnaissance and Sabotage Battalion of Chechen Martyrs—another Chechen rebel group responsible for several especially deadly hostage-barricade events—these organizations sometimes carry out very few attacks that are highly lethal. Thus, their patterns of activity in terms of frequency of terrorist attacks appear relatively innocuous because they carry out a small number of attacks for only a short period of time. However, the actual impact of these groups with respect to lethality and psychosocial consequences of terrorism is much greater than that of organizations that carried out a larger number of attacks.

Another consideration regarding the lethality of attacks involves the perpetrator groups' engagement in mass-casualty terrorist attacks, which I define here as terrorist attacks that result in more than 25 deaths (LaFree et al., 2015). Of the 632 perpetrator organizations analyzed, 126 carried out at least one mass casualty terrorist attack and 17 perpetrator organizations carried out more than 10 mass casualty terrorist attacks. The organization responsible for the highest number of mass casualty attacks is the Liberation Tigers of Tamil Eelam (LTTE) in Sri Lanka, which carried out 92 mass casualty terrorist attacks during its 35 years of activity. Figure 6.13 shows the distribution of perpetrator organizations that have carried out mass casualty terrorist attacks across the six declining trajectory groups.

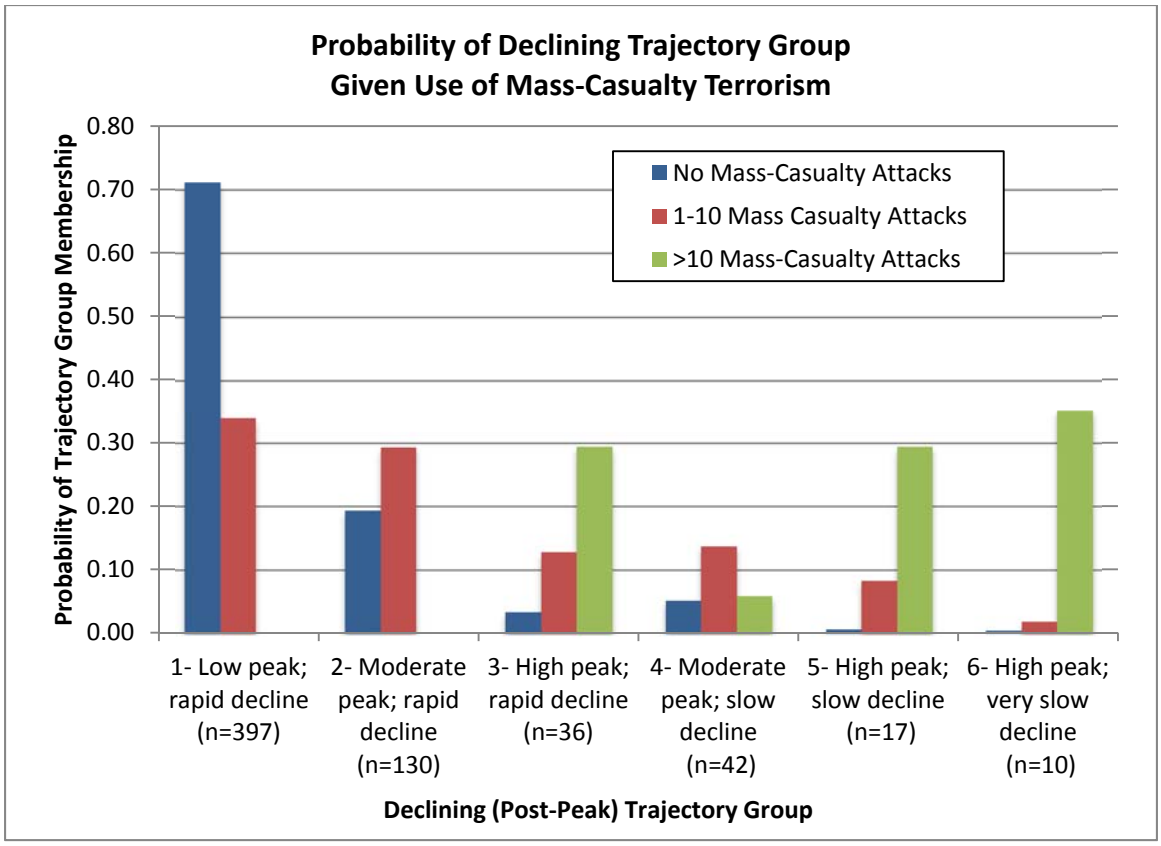


Figure 6.13 Probability of declining trajectory given use of mass-casualty attacks

Despite the experiences of SPIR and the Riyadus-Salikhin Reconnaissance and Sabotage Battalion of Chechen Martyrs, the perpetrators organizations with the greatest likelihood of being characterized by a low peak number of attacks and a rapidly declining post-peak pattern of terrorist violence are those that do not engage in mass-casualty terrorism. Likewise, the perpetrator organizations that do engage in mass casualty terrorism are most likely to be best represented by post-peak trajectories characterized by moderate or high peak numbers of terrorist attacks, regardless of rate of decline. Those organizations that were responsible for more than 10 mass-casualty attacks were especially likely to carry out a high number of attacks at their peak.

This stark relationship appears to suggest that there is a strong positive correlation between peak number of terrorist attacks and use of mass casualty terrorism, but offers little conclusive insight regarding the relationship between use of mass casualty terrorism and the shape of the perpetrator groups post-peak trajectory. This may mean that in some circumstances mass-casualty attacks lead to rapid desistance, but in other circumstances mass-casualty attacks are an indication of group strength and capacity to persevere. Figure 6.14 presents the same dimensions of terrorist activity—use of mass casualty terrorism and declining trajectory membership—but the latter is based on the ratio trajectory model discussed earlier in this chapter.

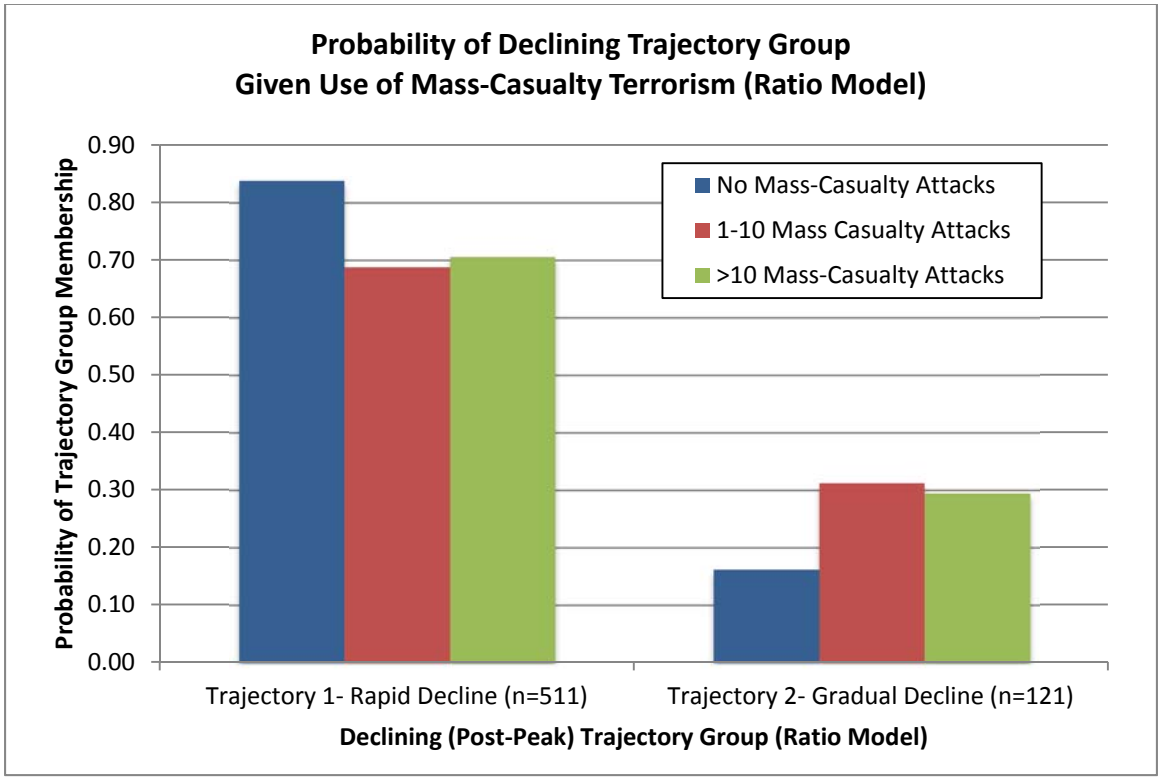


Figure 6.14 Probability of declining trajectory given use of mass-casualty attacks (ratio)

By removing the influence of the peak number of terrorist attacks from the model and isolating the shape of the post-peak trajectory, the analysis indicates that the perpetrator groups that do not engage in mass-casualty terrorism are somewhat more likely to be best characterized by a rapidly declining pattern of terrorist violence. Specifically, Figure 6.14 shows that 83.8 percent of organizations that did not carry out mass-casualty attacks were classified as rapidly declining, compared to 68.8 percent of perpetrators that were responsible for 1 to 10 mass-casualty terrorist attacks, and 70.6 percent of perpetrator organizations that were responsible for more than 10 mass-casualty attacks. Likewise, the organizations that did engage in mass casualty terrorist attacks were almost twice as likely to be classified as gradually declining, regardless of their peak number of attacks. The number of mass-casualty attacks perpetrated (1-10 versus more than 10) does not correspond to different post-peak outcomes.

Suicide Tactics

The use of suicide attacks, in which the perpetrator does not intend to survive, has both symbolic and strategic distinctions from non-suicide attacks (Bloom, 2007). Because the perpetrator may be able to more precisely target the attack, strategic advantages of suicide attacks include the possibility of higher casualties or improved likelihood of killing the intended victims. Symbolically, the use of suicide attacks communicates an extreme commitment to a cause for which the perpetrators are willing to die. Either of these might influence patterns of collective desistance from terrorism, through mechanisms related to recruitment and group solidarity or counter-terrorism.

Of the 632 organizations analyzed, 64 carried out at least one suicide attack, and 16 carried out more than 10 suicide attacks. The perpetrator organization responsible for the most suicide attacks was the Taliban, with 347. This is nearly three times as many suicide attacks as the perpetrator organization with the next highest number of suicide attacks, al Qa'ida in Iraq (AQI) with 126. However, between 2002 and 2013 AQI underwent several name changes, across which it carried out a total of 236 suicide attacks. Figure 6.15 shows the probability of membership in each post-peak trajectory group, given the use of suicide tactics.

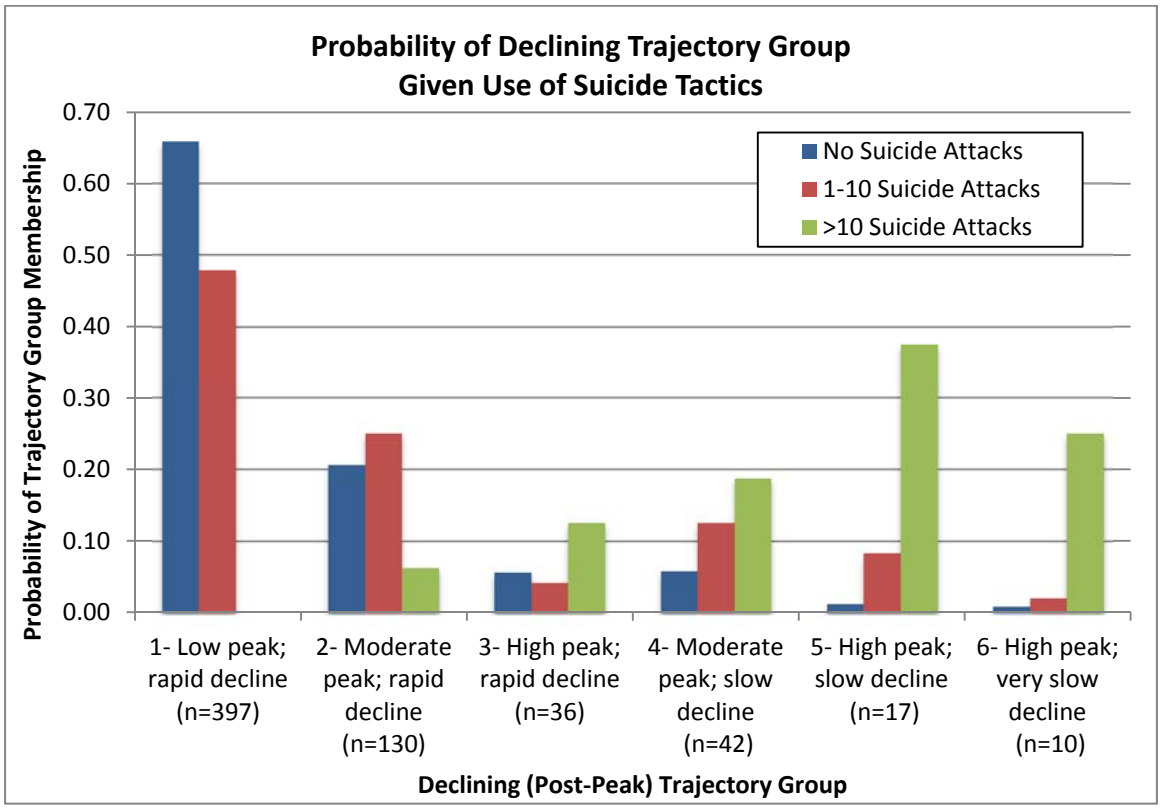


Figure 6.15 Probability of declining trajectory given use of suicide tactics

Much like the results for frequent use of mass casualty attacks, the relationship between frequent use of suicide attacks appears to be largely a function of overall frequency of terrorist attacks. Perpetrator organizations that have carried out more than 10 suicide

attacks are exceptionally likely to be best characterized by the trajectories with high peak numbers of attacks, especially Trajectories 3, 5, and 6. They are also disproportionately likely to be characterized by a moderate peak number of attacks, but a gradually declining post-peak pattern of activity, best represented by Trajectory 4.

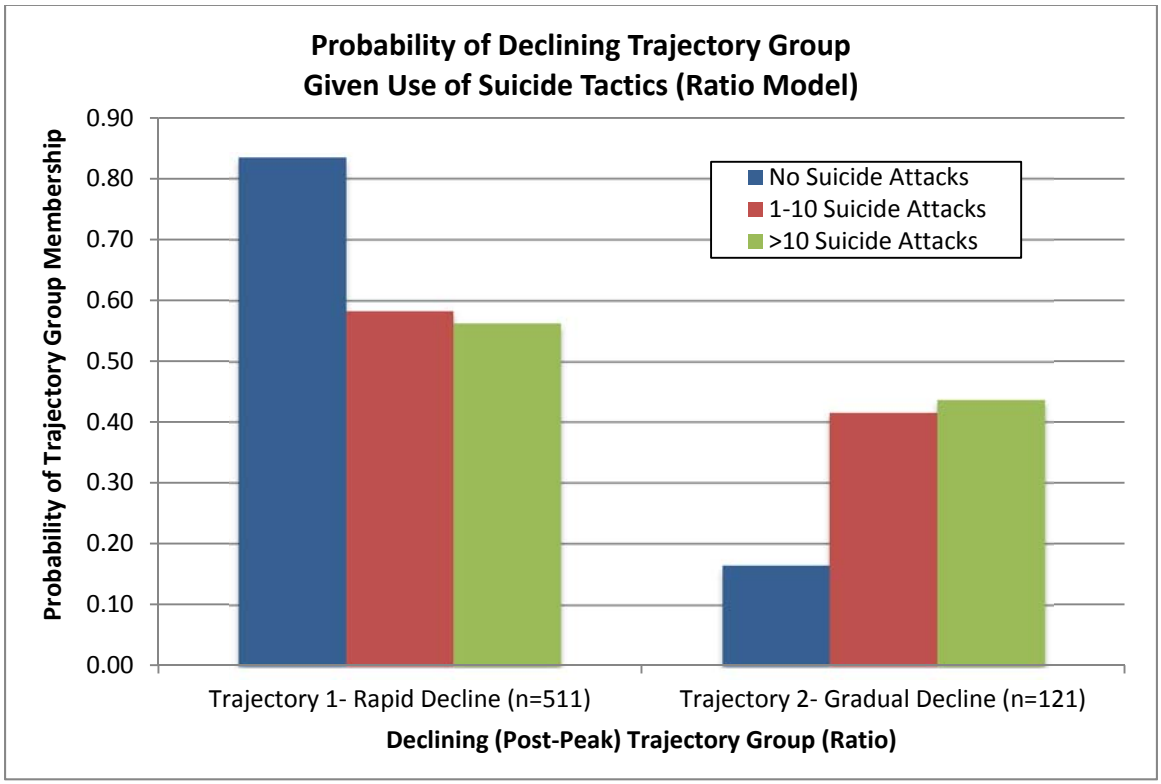


Figure 6.16 Probability of declining trajectory given use of suicide tactics (ratio)

To isolate the relationship between the use of suicide tactics and the shape of the post-peak trajectory independent of overall frequency of terrorist violence, Figure 6.16 shows the probabilities of assignment to the two declining trajectories based on the ratio model given the use of suicide tactics. The results are somewhat more straightforward in that perpetrator organizations that have carried out suicide attacks are nearly three times as likely to be best represented by the gradually declining Trajectory 2, compared to

perpetrator groups that have not carried out suicide attacks. Likewise, those organizations that have carried out suicide attacks are approximately two-thirds as likely to be best represented by the rapidly declining Trajectory 1. The distinction between perpetrator groups that have carried out 1-10 suicide attacks and those that have carried out more than 10 suicide attacks appears to be largely immaterial.

Logistically International Attacks

Logistically international terrorist attacks are those in which the perpetrators cross a border—typically a secured border—to carry out the attack (LaFree et al., 2015 Chapter 8). These attacks may be motivated by an international ideology, as is the case when al Qa'ida carries out attacks in the United States, or a domestic ideology, such as when the Provisional Irish Republican Army (PIRA) travels from Northern Ireland to Great Britain to carry out an attack in pursuit of its nationalist/separatist goals. Regardless, the task of leaving a country of origin to execute a terrorist attack in another country is a demonstration of resource capacity, and logistical ability. Of the 632 perpetrator organizations analyzed, 227 carried out logistically international attacks at some point between 1970 and 2013, and 41 of these carried out more than 10 logistically international attacks.

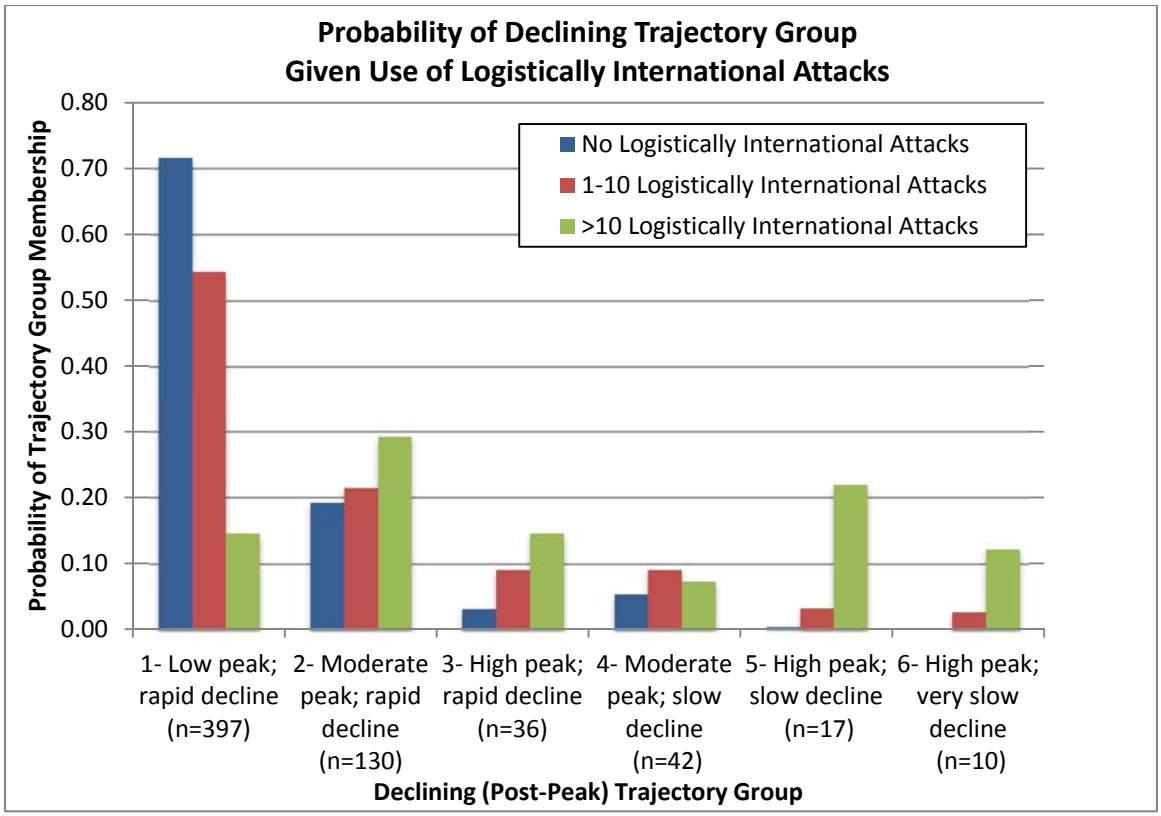


Figure 6.17 Probability of declining trajectory given use of international attacks

Figure 6.17 shows the probability of the perpetrator organizations' membership in each of the declining trajectory groups, given the use of logistically international attacks. The results indicate that, compared to perpetrator organizations that have not carried out logistically international attacks, those that do carry out logistically international attacks are most likely to be best represented by all five trajectories *other than* the low peak and rapid decline of Trajectory 1. Organizations that carried out more than 10 logistically international attacks are exceptionally likely to be best characterized by the high peak and slow decline of Trajectories 5 and 6. Like the results for mass casualty attacks and suicide attacks, this is in part a result of the explicit requirement that a group has carried out at least 11 terrorist attacks in order to have carried out more than 10 logistically international attacks. Recall that the average peak number of attacks for Trajectory 1 is

2.87. Because of this restriction, organizations that have carried out more than 10 logistically international attacks are essentially disqualified from assignment to the trajectory characterized by a low peak number of attacks.

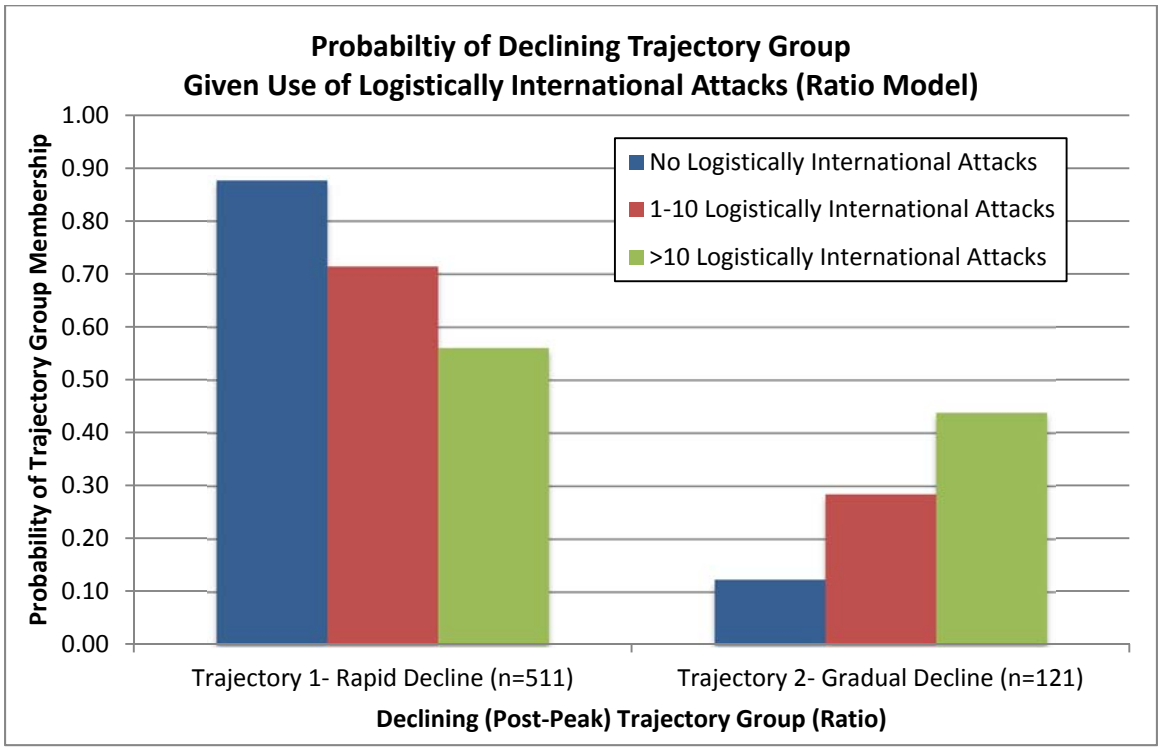


Figure 6.18 Probability of declining trajectory given use of international attacks (ratio)

To illustrate how the use of logistically international attacks relates to patterns of post-peak terrorist violence regardless of the peak number of attacks, Figure 6.18 shows the probability of classification to the rapidly declining Trajectory 1 or the gradually declining Trajectory 2 estimated in the ratio model. Once again, it appears that the perpetrator groups that carry out more logistically skilled and resource-intensive attacks are best characterized by a gradual decline in activity after they peak. One key distinction between the results for logistically international terrorist attacks and the results for mass

casualty attacks or suicide attacks is that the number of logistically international attacks appears to be relevant. While organizations that carried out 1-10 logistically international attacks are more than twice as likely as those that have carried out none to be best characterized by the gradually declining trajectory, organizations that were responsible for more than 10 logistically international attacks are nearly four times as likely as those responsible for none to be best represented by the gradually declining trajectory.

Conclusions

The literature I discussed in Chapter 2 suggests that myriad influences, both internal and external to perpetrator groups, impact their patterns of terrorist activity, including processes of collective desistance. The analyses in Chapter 5 and in this chapter illustrate that, while trajectory classifications are a useful tool for summarizing data on the terrorist activity of perpetrator groups, they nevertheless represent heterogeneous patterns and contexts. That is, perpetrator organizations that are best characterized by the same trajectory might represent vastly different experiences. Therefore, none of these analyses in isolation are suited to identify the specific mechanisms that influence patterns of collective desistance from terrorism. More sophisticated multivariate analysis of patterns of onset, attack lethality, suicide tactics, and logistically international attacks as they, along with a host of other relevant variables, relate to patterns of collective desistance is needed to fully disentangle the various effects and the degree and direction of causality.

Instead, the analyses in this chapter contribute to an understanding of the ways in which perpetrator organizations desist from terrorism and how we can generate hypotheses

regarding salient aspects of the organizations' strategy and tactics. For example, it appears that there may be an association between patterns of onset at the beginning of the perpetrator groups use of terrorism and the ways in which they desist from terrorism—how might organizational dynamics and the evolution of group structure over time influence this relationship? Also, the commission of mass-casualty terrorist attacks, suicide attacks, and logistically international attacks—each a different indication of an organization's capacity to carry out more impactful or sophisticated attacks—consistently corresponds to an increased likelihood of membership to the gradually declining ratio trajectory rather than the rapidly declining ratio trajectory. Are these types of attacks actually indicative of more robust and capable organizations, or are organizations that continue to carry out terrorist attacks long after they peak more inclined to carry out these types of attacks due to a natural escalation of violence over time? Is it the case that mass-casualty terrorist attacks or suicide attacks are not actually more likely to command decisive and effective counterterrorism efforts targeting the organizations responsible? Are organizations that carry out attacks across borders more challenging to counter because of the difficulty of international security and law enforcement? Conducting these analyses within the framework established by the trajectory models promotes consideration of the various dimensions of collective desistance from terrorism, beyond the comparatively blunt measures of total time span of terrorist activity or dichotomous assessments of active versus inactive organizations.

CHAPTER SEVEN: Conclusion

With the research presented here, I expand on a growing literature that addresses the question of collective desistance from terrorism. My aim is to empirically establish a foundational understanding of the ways in which perpetrator organizations disengage from terrorist violence. To do so, I applied both quantitative and qualitative research methods and closely examine the underlying contexts and patterns of group activity in order to avoid relying on unfounded assumptions about the homogeneity of the perpetrator organizations. In conclusion, I summarize and discuss the results of the analyses, identify key limitations and opportunities for further investigation, and identify important implications of the research for theory and policymaking.

Discussion

Summarizing the results of this research, I return to the research questions I established in Chapter 1:

1. What are the ways in which organizations that engage in terrorist violence desist from engaging in terrorist violence? What patterns or trajectories of declining violence do we observe among organizations that engage in terrorism?

To address Question 1 the analyses presented here, including the initial descriptive analysis, the group-based trajectory analysis, and the qualitative case studies, illustrate the many different ways in which perpetrator organizations' use of terrorist violence increases and decreases over time. Organizations that have engaged in terrorist violence

for the exact same length of time follow any number of unique trajectories from start to finish. While the offending patterns of individuals can also be diverse, actors are constrained by physiological limitations such as birth, death, and aging; social processes including marriage, employment, and child-rearing; and institutional restrictions like incarceration (cf., Laub & Sampson, 2003). These factors do not have the same restrictive impact on the violent activity of organizations. As a result, most trajectories identified in applied criminology research on life course trajectories are what Erosheva, Matsueda, and Telesca (2014, p. 315) refer to as "weakly unimodal."

With respect to collective desistance in particular, in Chapter 5 I identified six distinct patterns of post-peak terrorist violence among the perpetrator organizations identified in the GTD as having carried out terrorist attacks for at least one year. These six trajectories of decline primarily differ based on two dimensions of the perpetrator organizations' activity: the total frequency of attacks during the peak year of violence, and the shape or rate of decline in the number of terrorist attacks carried out. Three of the trajectories represent rapidly declining patterns of post-peak terrorist violence, from low, moderate, or high peak numbers of attacks. The observed activity of perpetrator organizations best characterized by these trajectories adheres closely to the pattern of activity predicted by the model. The other three trajectories represent more gradually declining patterns of post-peak terrorist violence. The much more open-ended potential for variation among perpetrator groups best characterized by these trajectories means that the model prediction is a somewhat looser approximation of reality.

The fact that the six trajectories vary dramatically in terms of overall frequency of terrorist attacks is interesting in and of itself, but makes it somewhat difficult to isolate the general shape of decline, which could be useful for understanding how perpetrator organizations that rapidly desist from terrorism differ from those that do not. The ratio model presented in Chapter 6 is based on the relative frequency of each perpetrator organization's attacks, and addresses this limitation of the original model by identifying a rapidly desisting trajectory of post-peak violence and a gradually desisting trajectory of post-peak violence. Approximately 81 percent of the perpetrator organizations analyzed were best represented by the rapidly desisting trajectory, and 19 percent were characterized by the more gradually declining trajectory. Regardless of the overall frequency of violent attacks the perpetrator groups carry out, we can observe meaningfully distinct shapes of collective desistance.

2. How do salient attributes of perpetrator organizations' terrorist activity relate to their patterns of desistance from terrorist violence? For example, are particular tactics or patterns of onset correlated to particular patterns of desistance?

In Chapter 6 I examined several attributes of terrorist activity, including patterns of onset, lethality and the use of mass casualty terrorism, suicide tactics, and logistically international attacks. These features are indicative of organizational qualities that are potentially relevant to processes of collective desistance through a wide variety of mechanisms, some of which would anticipate an increase in the likelihood of rapid decline, and some would anticipate a decrease in the likelihood of rapid decline. The

results of the analysis suggest that perpetrator organizations that began engaging in terrorist violence on a rapidly increasing trajectory, as well as those that have carried out mass-casualty attacks, suicide attacks, or logistically international attacks are disproportionately less likely to be characterized by a rapidly declining trajectory of post-peak activity, compared to those groups whose terrorist activity does not have each of these attributes.

Note that this result is based on the ratio model of post-peak activity, which does not take into account the absolute frequency of attacks. The results based on the baseline frequency trajectory model were somewhat more mixed in that perpetrator groups that carried out these specialized types of attacks were disproportionately more likely to be characterized by any of the six post-peak trajectories *except* that which was represented by a low peak number of attacks and rapid decline. The probabilities are likely influenced by the inherent commonality of the overall frequency of terrorist violence, making it difficult to discern a clear relationship between use of these types of attacks and rate of decline independent of attack frequency.

3. What are the key implications of measurement and analytical strategy for the study of collective desistance from terrorism? How do these issues impact our understanding of the longevity and patterns of decline of terrorist organizations?

One of the most important motivators of this research is my observation that the vast majority of empirical research on collective desistance from terrorism involves

qualitative research methods that, while extremely informative, concentrate on a small number of terrorist organizations that are unlikely to be representative of the full population of interest (Crenshaw, 1991; S. G. Jones & Libicki, 2008; Ross & Gurr, 1989; United States Institute of Peace, 1999). In contrast, the few studies that have included qualitative analysis of relatively large-N data generally overlook the complex dynamics of perpetrator organizations and the contexts in which they operate (Blomberg et al., 2010, 2011; Dugan et al., 2012; Gaibulloev & Sandler, 2013; Phillips, 2014a, 2015; Young & Dugan, 2014). As a result, the development and testing of theories to explain collective desistance has been limited (Schmid & Jongman, 2005).

The results of the analyses conducted to address the first two research questions have several implications for the third research question. First, event databases of terrorist attacks are extremely useful 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 they study are a relatively homogenous set of 'terrorist groups' when in fact, as the analyses here illustrate, 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 expect.

Second, and relatedly, 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. The start date of the Global Terrorism Database in 1970, while roughly coinciding with the use of portable cameras and satellite technology, and thus the onset of modern terrorism (LaFree et al., 2015, p. 15), excludes terrorist attacks by perpetrator organizations who began engaging in terrorism prior to 1970. Moreover, some perpetrator organizations are active in locations where political organization is discouraged or banned, making it less likely that violent groups develop a coherent, named identity. Also, 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. 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, consistent with much of the qualitative literature discussed in Chapter 2, the analyses here suggest that desistance is a process, rather than a state. The various trajectories estimated using group-based trajectory

analysis illustrate different patterns of decline that a perpetrator group's terrorist activity might follow; however, even those that involve rapid decline often take place over the course of several years. A perpetrator organization's rate of decline can also vary based on its frequency of attacks, and 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 behavior over time. In particular, this research illustrates the utility of examining the question of collective desistance from terrorism from as many perspectives as possible and actively seeking to disaggregate the data. 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. This too, however, can be misleading in the absence of qualitative contextual information about the organizations' evolution.

Finally, a key contribution of this study is that it presents a systematic, multi-method analysis of a relatively large sample of perpetrators of terrorism in a way that identifies key analytical challenges that are likely relevant to research on collective offending more broadly. Just as the criminology literature finds evidence of diversity of offending (Mazerolle, Brame, Paternoster, Piquero, & Dean, 2000; McGloin et al., 2008; Simon, 1997) and intermittency or 'drift' among individuals (Glaser, 1964; Laub & Sampson, 2001; Maruna, 2001; Matza, 1964), these appear to also be true of organizations that engage in terrorism. Due in part to the challenges of data collection, no systematic

analyses of criminal gangs or other types of collective offenders, such as corporate offenders or organized criminals, are as broad in scope as the current study. However, it is certainly plausible that the variation in trajectories and patterns of collective desistance observed here for terrorist perpetrator organizations is similarly present in other contexts.

Implications for Theory Development

In addition to the methodological implications discussed above, the results provide some substantive insight for theory development as well. Before discussing the implications for theoretical explanations of collective desistance in particular, I note that the analysis provides important insight regarding the challenge of theorizing about what a group or organization even is. Issues related to the psychological concept of entitativity I referenced in Chapter 3 appear throughout the analysis.

Recall that entitativity is an assessment of the extent to which group 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. The prevalence of generic perpetrator attributions, and non-generic perpetrator groups that engaged in terrorism for less than one year, or even only a day, makes it clear that many of the groups that engage in terrorism are not terrorist organizations in the conventional sense. In addition, the prevalence of perpetrator organizations that carry out very few attacks and decline rapidly indicates that even organizations with an established record of engagement in terrorist violence are not all equally committed to the use of violence to achieve political goals. 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.

With respect to the grievance or strain theories outlined in Chapter 2, we do see evidence that perpetrator groups may desist from violence when transitioning to electoral politics, as was the case for the PIRA in the United Kingdom, and the FMLN in El Salvador, for example. This suggests that making certain concessions that afford aggrieved groups an opportunity for political power can facilitate peace. However, it is important to note that these transitions did not occur in isolation, but instead in the context of a military stalemate and a general climate of fatigue over prolonged periods of violence. In addition, there is also evidence that political concessions or efforts to ameliorate grievances are not necessary conditions for desistance, as was the case for ETA in Spain, which was dismantled gradually by law enforcement, and the LTTE in Sri Lanka, which was dismantled rapidly through costly military efforts following a prolonged conflict.

Although the analyses do not provide a test of the organizational theories described in Chapter 2, there are several ways in which they are consistent with this theoretical framework. This is not particularly surprising, because in their most simple form these theories suggest that organizations that have the capacity to persevere will persevere, and those that lack resources, cohesion, common goals will fail to mobilize be more likely to desist. In addition to the salience of cohesion and entitativity discussed above, the analysis of patterns of onset, the use of mass casualty attacks, suicide attacks, and

logistically international attacks are generally consistent with this expectation. Each of these variables provides an operationalization of the constructs that organizational theorists concentrate on. A rapid pattern of onset suggests a reliable pool of resources. The ability to carry out mass casualty attacks or logistically international attacks demonstrates capacity to plan and execute more complex attacks than a conventional shooting or firebombing. And the use of suicide tactics illustrates an elevated level of commitment to a common cause. The fact that each of these characteristics corresponds to an elevated probability of organizational persistence rather than rapid desistance indicates support for a theoretical framework that accounts for the robustness and capability of the perpetrator organization.

Limitations and Future Research

Though the work presented here aims to help bridge the gap between quantitative and qualitative analyses of collective desistance from terrorism, it is in many ways a starting point that illustrates how collective desistance from terrorism occurs, but not why collective desistance from terrorism occurs. There are several key limitations and many opportunities for future investigation that can improve upon and extend the current research.

First, while trajectory analysis is a useful framework for summarizing large amounts of temporal data it has certain limitations. In particular, the trajectories estimated in the model are not perfect representations of the perpetrator organizations' actual trajectories. In a sense, this is no more or less problematic than the fact that an arithmetic mean is not

a perfect representation of the individual values it summarizes. In some ways, the fact that the predicted trajectories are not rigid representations of observed trajectories is actually extremely useful. For example, I noted in Chapter 5 that some of the perpetrator groups classified as having low peak levels of violence and rapid desistance actually carried out few attacks over long periods of time with extensive intermittency. Because of this, a trajectory likely captures the essence of the group's activity more faithfully than a survival analysis or life span calculation would. However, trajectory analysis does benefit from critical assessment of the estimated trajectories and the observed trajectories in order to be constructive (Erosheva et al., 2014). I have attempted to address this limitation by essentially deconstructing many of the trajectory models presented here, investigating the contexts of organizational desistance for specific organizations, and carefully considering the extent to which the observed data are well-represented by the discrete categories estimated by the model.

A second limitation of trajectory analysis is that it does not allow the analyst to test the impact of key events that occur over the course of an organization's engagement in terrorism. Other statistical methodologies, such as interrupted time series analysis, or series hazard modeling (Dugan, 2011), are better suited for this type of inquiry and may prove useful in future analysis. For the purpose of this research, however, my primary goal was to illustrate the various ways in which perpetrator organizations desist from terrorism in order to contribute to a strong foundation for additional inferential analyses.

This leads to a third key opportunity for improvement and expansion upon the current research—the investigation of numerous independent variables that may be influential in determining a perpetrator organization's pattern of collective desistance. The theoretical literature identifies many potentially relevant characteristics and events, both internal and external to an organization, that are likely to influence its desistance from terrorism. These are discussed at length in Chapter 2, and include, for example, internal organizational dynamics, ideology, opportunities for alternative resolution of grievances, competition among organizations, and state response, including counterterrorism strategies. What variable or combination of variables might predict a greater or lesser likelihood of organizational desistance from terrorism? It is my intention that future research can leverage the findings of this study to evaluate a more fully specified model that seeks to explain collective desistance from terrorism.

Fourth, this research is limited in its capacity to provide insight into the patterns of activity among perpetrator organizations that were active for less than one year. Although one possibility for future research involves estimating similar models using a monthly unit of analysis, this strategy does not address the fact that the names of perpetrator groups that have been active for less than one year represent a host of potential scenarios, which I discussed in Chapter 4. As a consequence of leveraging event-level data on terrorist attacks in order to conduct this analysis, I have very little systematic information about the background of the organizations, much of which is difficult to come by for clandestine groups. Future research might focus particularly on this set of organizations to determine what processes generate their exceptionally short periods of engagement in

terrorist violence. This line of inquiry is also likely to contribute to an understanding of varied patterns of offending among criminal gangs or criminal organizations as well.

Finally, one of the key challenges to studying collective desistance from terrorism that this research identifies is the complexity of evaluating desistance given the complex and fluid evolution of perpetrator organizations. For many of the perpetrator organizations named in the GTD, the date of their first attack and date of their last attack do not represent the true beginning and end of the organization's engagement in terrorist violence. Because the aggregation of event-level data is based on the group's name, naming conventions or distinctions can produce artificial cut-offs that falsely imply organizational desistance.

This is a limitation of structured event data itself, not the analytical method I use here. Preliminary analysis 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 (E. Miller, 2012b, 2014). For example, while the distribution of active time spans among perpetrator organization is heavily skewed to the right (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 is—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, is the broader salient movement essentially all of Salafi jihadism? Regardless, this research makes 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.

Policy Implications

Due to the fact that this analysis raises numerous unanswered questions, the direct policy implications of the present study are somewhat modest compared to the policy implications of the broader research agenda this study supports. First, insofar as the trajectories reveal diverse patterns of desistance, and the case studies indicate wide substantive variation among organizations classified as having similar trajectories, this analysis is consistent with Crenshaw's (1991) observation that the effectiveness of counterterrorism operations is likely to differ depending on context. These results illustrate how diverse the context can be, suggesting that it is important for policymakers to consider the historical patterns of activity not only among perpetrator organizations that are loosely organized versus hierarchical, but also differ with respect to degree of intermittency and specialization in offending.

Second, because there is a great deal of complexity in the scenarios represented by the perpetrator groups under investigation here, the results suggest that policymakers would be well-served to carefully consider the organizational nature of the threat. To what

extent is a perpetrator group exclusively engaged in terrorist violence rather than other types of activity; and, can groups that do engage in other types of activity be prompted to devote more of their energies to pro-social efforts to effect change, rather than violence? To what extent is a group likely to evolve rather than dissolve?

Third, and relatedly, the results illustrate that rapid desistance from extremely high levels of violence does not always indicate a favorable outcome and often comes at a high cost. This pattern could occur as a result of groups being violently suppressed by the military, causing tens of thousands of casualties in the context of asymmetric warfare, as was the case with the LTTE in Sri Lanka, the PKK in Turkey, and the FMLN in El Salvador. Or, it could represent a scenario where organizations are actually expanding or merging together in ways that are more problematic.

Fourth, tactics such as mass casualty attacks, suicide attacks, and logistically international attacks appear to be indicative that a group has a greater capacity to prolong the use of terrorist violence. These might be usefully considered as indicators of an increased risk of organizational persistence, above and beyond the immediate impact of these potentially devastating attacks.

Finally, to the extent that future research is able to better identify, across diverse contexts, 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 and

preventing 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.

Conclusion

In order to support a better foundational understanding of patterns of collective desistance from terrorism, I adopt an inductive analytical strategy intended to avoid assumptions about the substantive contexts and circumstances that generate the data. While comprehensive data on terrorism can be extremely useful, the field of terrorism studies is relatively young, and in particular the use of systematic quantitative techniques has increased dramatically in recent years (LaFree et al., 2015; Lum et al., 2006). Combining quantitative and qualitative approaches, the results of this study challenge many of the premises and conclusions of one-dimensional analyses in ways that may also be fruitful for understanding collective desistance from other types of offending.

With this research, I did not set out to answer a discrete question with "yes or no," "greater than or less than" or "reject or fail to reject the null hypothesis." Instead, I based this study on the principle that the function of research is not always to simplify complex phenomena, but sometimes it is 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, and establish a robust research agenda for future inquiry.

APPENDIX I: Perpetrator Group Names by Trajectory Group

Trajectory 1

1st of May Group
2nd of June Movement
Abu Hafs al-Masri Brigades
1 May
Abu Nidal Organization (ANO)
Adan Abyan Islamic Army (AAIA)
Achik National Volunteer Council (ANVC)
Adivasi National Liberation Army (ANLA)
Afar Revolutionary Democratic Unity Front
Afrikaner Resistance Movement (AWB)
Ahlu-sunah Wal-jamea (Somalia)
Ahrar Al-Jalil (Free People of the Galilee)
Akali Dal Party
Akhil Terai Mukti Morcha (ATMM)
Al Jehad
Al Jihad
Al Nasirin (India)
Al Zulfikar
Al-Adl Wal Ihsane
Al-Arifeen
Al-Badr
al-Da'wah Party
Al-Ittihaad al-Islami (AIAI)
Al-Khobar
Al-Madina
Al-Mansoorian
Al-Nasireen Group
Al-Qa'ida in Saudi Arabia
Al-Qa'ida in Yemen
Al-Qassam Brigades
Al-Sa'iqa
Al-Shabaab al-Mu'minin
Al-Umar Mujahideen
Albanian National Army (ANA)
Alejo Calatayu
Alex Boncayao Brigade (ABB)
All Burma Students' Democratic Front (ABSDF)
All India Anna Dravida Munetra Kazgan Party
All India Sikh Students Federation (AISSF)
All Nepal National Free Student Union-Revolutionary
All Tripura Tiger Force (ATTF)
Allah's Tigers
America Battalion
American Indian Movement
Amr Bil Maroof Wa Nahi Anil Munkir
Ananda Marga
Andres Castro United Front
Animal Rights Militia
Anti-Castro Command
Anti-Imperialist International Brigades
Anti-Imperialist Territorial Nuclei (NTA)
Anti-terrorism ETA (ATE)
Argentine Anticommunist Alliance (AAA)
Argentine Liberation Front (FAL)
Argentine National Organization Movement (MANO)
Armata di Liberazione Naziunale (ALN)
Armed Communist Formations
Armed Communist Struggle
Armed Forces for Liberation of East Timor (FALINTIL)
Armed Forces of Popular Resistance (FARP)
Armed Forces of the Chechen Republic of Ichkeria
Armed Nucleus for Popular Autonomy
Armed Proletarian Groups for Communism
Armed Proletarian Power
Armed Proletarian Squads
Armed Revolutionary Action (ENEDRA)
Armed Squads for Communism
Army of Islam
Arya
Aryan Nation
Asa'ib Ahl al-Haqq
Asbat al-Ansar
Aum Shinrikyo
Autonomen
Autonomous Anti-Capitalist Commandos (CAA)
Autonomous Resistance
Avengers of the Infants
Azania People's Organization (AZAPO)
Babbar Khalsa International (BKI)
Bangladesh Sarbahara Party
Beja Congress
Belarusian Liberation Army
Bharatiya Janata Party
Bhinderanwale Tiger Force of Khalistan (BTHK)
Black Cells
Black Flag (Bandera Negra)
Black Hand (Colombia)
Black Order
Black Panther Group (Palestinian)
Black September II
Black War
Black Widows
Bodo Liberation Tigers (BLT)
Bolivian Socialist Falange
Cali Narcotics Cartel
Catholic Reaction Force
Charles Martel Group
Che Guevara Brigade
Children of November

Chilean Anti-Communist Alliance (ACHA)
Coalition to Save the Preserves (CSP)
Colonel Karuna Faction
Combat 18
Comite d'Action Viticole
Committee for the Safeguard of the Islamic Revolution
Communist Fighting Unit
Communist Party of India- Marxist
Communist Party of India- Marxist-Leninist
Communist Party of Nepal- Unified Marxist-Leninist (CPN-UML)
Communist Party of Thailand
Condor
Croatian Freedom Fighters
Dagestani Shari'ah Jamaat
Death to Bazuqueros
Democratic Front for Renewal (FDR)
Democratic Revolutionary Front (FDR)
Democratic Revolutionary Party
Dev Yol
Dima Halao Daoga (DHD)
Dominican Popular Movement (MPD)
Eagles of the Palestinian Revolution
Earth First!
East Asia Anti Japanese Armed Front
Eastern Turkistan Islamic Movement (ETIM)
Eelam People's Revolutionary Liberation Front (EPRLF)
Egypt's Revolution
Egyptian Tawhid and Jihad
Ejercito de Liberacion Nacional (Bolivia)
Ethiopian People's Revolutionary Party
Evan Mecham Eco-Terrorist International Conspiracy (EMETIC)
Farmer's Movement of the Philippines (KMP)
Fatah Hawks
Fatah Uprising
Fedayeen Khalq (People's Commandos)
Federation of Students and Scholars of Cote d'Ivoire (FESCI)
Fighting Guerrilla Formation
Forces for the Defense of Democracy (FDD)
Forest Brothers
Forum for the Restoration of Democracy-Kenya
Francisco Villa People's Front
Free Fatherland
Free Papua Movement (OPM-Organisasi Papua Merdeka)
Freedom Party
Front for the Liberation of Lebanon from Foreigners
Front For the Liberation of the Azores
Front for the Liberation of the Enclave of Cabinda (FLEC)
Fuerza Nueva
Fuerzas Armadas Revolucionarias del Pueblo (FARP)
GAC
Global Intifada
Gracchus Babeuf
Greek National Socialist Organization
Grey Wolves
Grupo de Combatientes Populares
Grupo Estrella
Guadeloupe Liberation Army
Guardsmen of Islam
Guatemalan Communist Party
Guerrillas of Christ the King
Harakat ul-Mujahidin (HuM)
Harkat ul Ansar
Hizb al-Tahrir al-Islami (HT)
Hizballah Palestine
Holy Spirit Movement
Hynniewtrep National Liberation Council (HNLC)
Iberian Liberation Movement (MIL)
Independent Nasserite Movement
International Revolutionary Solidarity
Iraqi Islamic Vanguards for National Salvation (IIVNS)
Iraqi Mujahideen
Islam Liberation Front
Islamic Army in Iraq (al-Jaish al-Islami fi al-Iraq)
Islamic Defenders' Front (FPI)
Islamic Front
Islamic Jihad (Ideological Grouping)
Islamic Jihad Group (IJG)
Islamic Jihad Organization (Yemen)
Islamic Movement of Uzbekistan (IMU)
Islamic Movement Organization
Ittehad-i-Islami
Jaime Bateman Cayon Group (JBC)
Jaish al-Ta'ifa al-Mansura
Jamaat-al-Fuqra
Jamaat-E-Islami (India/Pakistan)
Jamaica Labor Party
Jamiat-e Islami-yi Afghanistan
Jammu and Kashmir Islamic Front
January 22
Japanese Red Army (JRA)
Jarrai
Jaysh al-Muslimin (Army of the Muslims)
Jharkhand Liberation Tigers (JLT)
Jordanian Islamic Resistance
Jorge Eliecer Gaitan Nationalist Movement
Jund al-Sham for Tawhid and Jihad
Kach
Kahane Chai
Kanak Socialist National Liberation Front
Kanglei Yawol Kanna Lup (KYKL)
Karbi Longri North Cachar Liberation Front (KLNLF)

Karenni National Progressive Party
Kashmiri Hizballah
Kata'ib al-Khoul
Kenya African National Union (KANU)
Khasi Students Union
Khristos Kasimis
Kirat Janabadi Workers Party
Ku Klux Klan
Kuki Liberation Army (KLA)
Kuki National Army (KNA)
Kuki Revolutionary Army (KRA)
Kurdish Democratic Party-Iraq (KDP)
Kurdistan Free Life Party
Kurdistan Freedom Hawks (TAK)
Landless Peasants' Movement (MST)
Latin America Anti-Communist Army (LAACA)
Lebanese Armed Revolutionary Faction (LARF)
Lebanese Liberation Front
Lesotho Liberation Army (LLA)
Liberation Army for Presevo, Medvedja and Bujanovac (UCPMB)
Liberians United for Reconciliation and Democracy (LURD)
Likud Political Party
Madhesi Mukti Tigers (MMT)
Madhesi People's Rights Forum (MPRF)
Malaysian Communist Party
Mano Blanca
Martyr Abu Ja'far Group
Marxist-Leninist Armed Propaganda Unit
Maximiliano Hernandez Martinez Brigade
May 15 Organization for the Liberation of Palestine
Medellin Drug Cartel
Miskito Indian Organization
Mohajir National Movement
Mong Thai Army (MTA)
Montoneros Patria Libre
Morazanist Front for the Liberation of Honduras (FMLH)
Movement for Democracy and Justice in Chad (MDJT)
Movement for Democratic Change (MDC)
Movement for the Actualization of the Sovereign State of Biafra (MASSOB)
Movement of Niger People for Justice (MNJ)
Movement of the Revolutionary Left (MIR) (Venezuela)
Mozambique Liberation Front (FRELIMO)
Mujahedeen Corps in Iraq
Mujahedeen Shura Council
Mujahideen Islam Pattani
National Anti Communist Commando
National Army for the Liberation of Uganda (NALU)
National Committee Against Independence (CNCI)
National Integration Front (FIN)
National League for Democracy
National Liberation Army (Ecuador)
National Liberation Army (Peru)
National Organization of Cypriot Fighters (EOKA)
National Resistance Movement (NRM)
Nepal Defense Army
New Armenian Resistance
New Order
New Order- France
New Patriotic Party (NPP)
Niger Delta People's Volunteer Force (NDPVF)
Niger Delta Vigilante (NDV)
Nihilists Faction
Odua Peoples' Congress (OPC)
Ogaden National Liberation Front (ONLF)
Omar Torrijos Commando for Latin American Dignity
Orange Volunteers (OV)
Organization of the Sons of Occupied Territories
Organization of Volunteers for the Puerto Rican Revolution
Organized Comrades for Feminist Counter-Power
Organized Proletarian Communists
Orly Organization
Oromo Liberation Front
Otpor
Pakistani People's Party (PPP)
Palestine Liberation Front (PLF)
Pan Africanist Congress (PAC)
Patriotic Union of Kurdistan (PUK)
Pedro Albizu Campos Revolutionary Forces
Pedro Leon Arboleda (PLA)
People Against Gangsterism and Drugs (PAGAD)
People's Alliance
People's Democratic Party (PDP)
People's Liberation Organization of Tamil Eelam
People's Revolutionary Army (ERP)
People's Revolutionary Command (CRP)
People's Revolutionary Organization- Colombia (ORP)
People's United Liberation Front (PULF)
Peronist Armed Forces (FAP)
Phalange
Poor People's Party
Popular Front for the Liberation of Palestine, Gen Cmd (PFLP-GC)
Popular Movement for the Liberation of Angola
Popular Revolutionary Vanguard (VPR)
Popular Will (Greece)
Proletarian Action Group
Proletarian Nuclei for Communism
Proletarian Patrols
Rahanwein Resistance Army (RRA)
Ranbir Sena
Rashtriya Swayamsevak Sangh
Red Brigades Fighting Communist Party (BR-PCC)

Red Brigades Fighting Communist Union (BR-UCC)
Red Cell
Red Flying Squad
Red Guerrilla
Red Hand Commandos
Red Sea Afar Democratic Organization (RSADO)
Reform of the Armed Forces Movement
Republican Action Force
Revolutionary Anti-Racist Action
Revolutionary Armed Forces (FAR)
Revolutionary Armed Forces of Nicaragua (FARN)
Revolutionary Armed Forces- Argentina (FAR-A)
Revolutionary Bolivariano Movement 200
Revolutionary Cells-Animal Liberation Brigade
Revolutionary Commandos of the People (CRP)
Revolutionary Communist League (LCR) (Spain)
Revolutionary Eelam Organization (EROS)
Revolutionary Front for an Independent East Timor (FRETILIN)
Revolutionary Nuclei
Revolutionary Organization of Socialist Moslems
Revolutionary Perspective
Revolutionary Popular Left
Revolutionary Solidarity
Revolutionary Worker Clandestine Union of the People Party (PROCUP)
Revolutionary Workers Party
Revolutionary Workers Party of Bolivia (PRTB)
Riyadus-Salikhin Reconnaissance and Sabotage Battalion of Chechen Martyrs
Rodrigo Franco Command
Rohingya Solidarity Organization
Rote Zora
Rwanda Patriotic Front (RPF)
Salafi Abu-Bakr al-Siddiq Army
Samyukta Janatantrik Terai Mukti Morcha (SJTMM)
Sandinist People's Army (EPS)
Sanidila Secessionist Movement
Saor Eire (Irish Republican Group)
Save Kashmir Movement
Scottish National Liberation Army
Secret Cuban Government
Secret Organization Zero
Seikijuku
Sekihotai
Senki ("Battle Flag")
September 11 Commandos
Shan State Army
Social Resistance
Socialist Patients' Collective (SPK)
Soldiers of Truth
Somali National Alliance
Somali National Movement
Southern Sierra Peasant Organization
Spanish Basque Battalion (BBE) (rightist)
Special Purpose Islamic Regiment (SPIR)
Students Islamic Movement of India (SIMI)
Sudan Alliance Forces
Sudan Liberation Movement
Sudanese People's Liberation Forces
Supreme Council for Islamic Revolution in Iraq (SCIRI)
Symbionese Liberation Army (SLA)
Syrian Mujahideen
Syrian Social Nationalist Party
Tamil Eelam Liberation Organization (TELO)
Tamil Makkal Viduthalai Pulikal (TMVP)
Tanzim
Tehreek-e-Nafaz-e-Shariat-e-Mohammadi (TNSM)
Tehrik al-Mojahedin
Terai Army
The Front for the Liberation of the Cabinda Enclave – Renewed (FLEC)
The Joint Revolutionary Council
Tigray Peoples Liberation Front (TPLF)
Tribal Battlefront
Tupamaro Revolutionary Movement
Turkish Communist Workers Party
Turkish Hizballah
Union Guerrera Blanca (UGB)
Union of Congolese Patriots (UPC)
Union of Forces for Democracy and Development (UFDD)
United Bengali Liberation Front (UBLF)
United Democratic Front (UDF)
United Kuki Liberation Front (UKLF) - India
United Liberation Movement for Democracy in Liberia (ULIMO)
United National Party
United People's Democratic Solidarity (UPDS)
United Popular Action Front (FAPU)
United Somali Congress
Up the IRS, Inc
Vietnamese Organization to Exterminate Communists and Restore the Nation
Vigorous Burmese Student Warriors
White Wolves
Workers' Organization for Communism
Workers' Self-Defense Movement (MAO)
Young Communist League
Youth Action Group
Zarate Willka Armed Forces of Liberation
Zimbabwe Patriotic Front
Zimbabwe People's Army (ZIPA)

Trajectory 2

20 December Movement (M-20)
23rd of September Communist League
31 January People's Front (FP-31)
9 February
Action Directe
al-Fatah
Alfaro Vive
Amal
Ansar al-Islam
Ansar al-Sunna
Anti-terrorist Liberation Group (GAL)
Armed Commandos of Liberation
Armed Forces of National Resistance (FARN)
Armed Proletarian Nuclei (NAP)
Armed Revolutionary Independence Movement (MIRA)
Armed Revolutionary Nuclei (NAR)
Army of God
Aryan Republican Army
Awami League
Baader-Meinhof Group
Black Liberation Army
Black Panthers
Black September
Bougainville Revolutionary Army (BRA)
Brunswijk Jungle Commando
Canary Islands Independence Movement
Caribbean Revolutionary Alliance (ARC)
Catalan Liberation Front (FAC)
Chicano Liberation Front
Chukakuha (Middle Core Faction)
Cinchoneros Popular Liberation Movement
Communist Combattant Cells (CCC) (Belgium)
Communist Party of Nepal- Maoist (CPN-M)
Conspiracy of Cells of Fire
Continuity Irish Republican Army (CIRA)
Coordination of the United Revolutionary Organization (CORU)
Cuban Action
Death to Kidnappers (MAS)
Democratic Front for the Liberation of Palestine (DFLP)
Democratic Karen Buddhist Army (DKBA)
Ejercito Revolucionaria del Pueblo (ERP) (Argentina)
Eritrean Liberation Front
Force 17
Forqan Group
Free Galician People's Guerrilla Army
George Jackson Brigade
Guatemalan Labor Party (PGT)
Gurkha National Liberation Front (GNLF)
Haqqani Network
Harkatul Jihad-e-Islami
Informal Anarchist Federation
Inkatha Freedom Party (IFP)
International Revolutionary Action Group (GARI)
Iparretarrak (IK)
Irish People's Liberation Organization (IPLO)
Islamic Courts Union (ICU)
Italian Social Movement (MSI)
Jaish-e-Mohammad (JeM)
Jama'atul Mujahideen Bangladesh (JMB)
Jamiat ul-Mujahedin (JuM)
Jammu and Kashmir Liberation Front
Janatantrik Terai Mukti Morcha- Goit (JTMM-G)
Janatantrik Terai Mukti Morcha- Rajan Mukti (JTMM-R)
Jewish Armed Resistance
Justice and Equality Movement (JEM)
Justice Commandos for the Armenian Genocide
Kachin Independence Army (KIA)
Kangleipak Communist Party (KCP)
Khalistan Commando Force
Khalistan Liberation Force
Kosovo Liberation Army (KLA)
Lebanese National Resistance Front
Lorenzo Zelaya Revolutionary Front (LZRF)
Loyalist Volunteer Forces (LVF)
Macheteros
Mahdi Army
Maoist Communist Center (MCC)
May 19 Communist Order
Meibion Glyndwr
Misurasata Indian Organization
Mizo National Front
Movement of the Revolutionary Left (MIR) (Peru)
Mujahideen Youth Movement (MYM)
Muslim Brotherhood
National Council for Defense of Democracy (NCDD)
National Front for the Liberation of Cuba (FLNC)
National Liberation Front (FNL) (Burundi)
National Patriotic Front of Liberia (NPFL)
National Socialist Council of Nagaland
National Socialist Council of Nagaland-Khaplang (NSCN-K)
Official Irish Republican Army (OIRA)
Omega-7
Party for the Liberation of the Hutu People (PALIPEHUTU)
Patriotic Morazanista Front (FPM)
Peasant Self-Defense Group (ACCU)
People's Liberation Front of India
People's Revolutionary Organization
People's War Group (PWG)

Polisario Front
Popular Forces of April 25
Popular Front for the Liberation of Palestine (PFLP)
Popular Revolutionary Army (Mexico)
Popular Revolutionary Bloc (BPR)
Prima Linea
Quintin Lame
Rebel Armed Forces of Guatemala (FAR)
Red Army Faction (RAF)
Red Flag (Venezuela)
Red Hand Defenders (RHD)
Revolutionary People's Struggle (ELA)
Revolutionary Struggle
Revolutionary United Front (RUF)
Secret Anti-Communist Army (ESA)
Sipah-e-Sahaba/Pakistan (SSP)
Taliban (Pakistan)
Terra Lliure
The Justice Department
Tripura National Volunteers (TNV)
Tupac Katari Guerrilla Army (EGTK)
Tupamaros (Uruguay)
Turkish Communist Party/Marxist (TKP-ML)
Turkish People's Liberation Front (TPLF)(THKP-C)
Uganda Freedom Movement (UFM)
Uganda People's Army
United Freedom Front (UFF)
United National Liberation Front (UNLF)
Weather Underground, Weathermen
Zapatista National Liberation Army
Zimbabwe African Nationalist Union (ZANU)
Zimbabwe African People's Union

Trajectory 3

African National Congress (South Africa)
Armenian Secret Army for the Liberation of Armenia
Corsican National Liberation Front- Historic Channel
Democratic Revolutionary Alliance (ARDE)
Dev Sol
Farabundo Marti National Liberation Front (FMLN)
Free Aceh Movement (GAM)
Fuerzas Armadas de Liberacion Nacional (FALN)
Guatemalan National Revolutionary Unity (URNG)
Guerrilla Army of the Poor (EGP)
Islamic Salvation Front (FIS)
Islamic State of Iraq (ISI)
Janatantrik Terai Mukti Morcha- Jwala Singh (JTMM-J)
Khmer Rouge
Lord's Resistance Army (LRA)
Montoneros (Argentina)
Movement of the Revolutionary Left (MIR) (Chile)
Muttahida Qami Movement (MQM)
New World Liberation Front (NWLF)
Nicaraguan Resistance
Palestine Liberation Organization (PLO)
People's Liberation Forces (FPL)
People's Liberation Front (JVP)
People's Revolutionary Army (ERP) (El Salvador)
Popular Liberation Army (EPL)
Red Brigades
Resistenza
Revolutionary Patriotic Anti-Fascist Front (FRAP)
Ricardo Franco Front (Dissident FARC)
Salafist Group for Preaching and Fighting (GSPC)
Sandinista National Liberation Front (FSLN)
Simon Bolivar Guerrilla Coordinating Board (CGSB)
Tawhid and Jihad
The Extraditables
Ulster Freedom Fighters (UFF)
United Popular Action Movement

Trajectory 4

Allied Democratic Forces (ADF)
Al-Qa`ida
Animal Liberation Front (ALF)
Breton Liberation Front (FLB)
Caucasus Emirate
Democratic Front for the Liberation of Rwanda (FDLR)
Earth Liberation Front (ELF)
First of October Antifascist Resistance Group (GRAPO)
Great Eastern Islamic Raiders Front (IBDA-C)
Hizb-I-Islami
Hizbul al Islam (Somalia)
Irish National Liberation Army (INLA)
Janatantrik Terai Mukti Morcha (JTMM)
Jemaah Islamiya (JI)
Jewish Defense League (JDL)
Karen National Union
Lashkar-e-Jhangvi
Lashkar-e-Taiba (LeT)
Moro National Liberation Front (MNLF)

Movement for the Emancipation of the Niger Delta (MEND)
Movement of Democratic Forces of Casamance
Mujahedin-e Khalq (MEK)
National Liberation Front of Tripura (NLFT)
National Socialist Council of Nagaland-Isak-Muivah (NSCN-IM)
November 17 Revolutionary Organization (N17RO)
Palestinian Islamic Jihad (PIJ)
Pattani United Liberation Organization (PULO)
People's Liberation Army (India)
People's Revolutionary Party of Kangleipak (PREPAK)
Popular Resistance Committees
Purbo Banglar Communist Party
Real Irish Republican Army (RIRA)
Revolutionary Cells
Revolutionary Organization of People in Arms (ORPA)
Revolutionary Workers' Council (Kakurokyo)
Runda Kumpulan Kecil (RKK)
Shanti Bahini - Peace Force
South-West Africa People's Organization (SWAPO)
Sudan People's Liberation Army (SPLA)
Turkish People's Liberation Army
Ulster Volunteer Force (UVF)
United Self Defense Units of Colombia (AUC)

Trajectory 5

Al-Aqsa Martyrs Brigade
al-Gama'at al-Islamiyya (IG)
Al-Qa`ida in the Lands of the Islamic Maghreb (AQLIM)
Armed Islamic Group (GIA)
Corsican National Liberation Front (FLNC)
Hamas (Islamic Resistance Movement)
Hizballah
Kurdistan Workers' Party (PKK)
Liberation Tigers of Tamil Eelam (LTTE)
M-19 (Movement of April 19)
Manuel Rodriguez Patriotic Front (FPMR)
Moro Islamic Liberation Front (MILF)
Mozambique National Resistance Movement (MNR)
National Union for the Total Independence of Angola (UNITA)
Shining Path (SL)
Tupac Amaru Revolutionary Movement (MRTA)
United Liberation Front of Assam (ULFA)

Trajectory 6

Al-Qa`ida in Iraq
Al-Qa`ida in the Arabian Peninsula (AQAP)
Basque Fatherland and Freedom (ETA)
Communist Party of India - Maoist (CPI-Maoist)
National Liberation Army of Colombia (ELN)
Nicaraguan Democratic Force (FDN)
Provisional Irish Republican Army (PIRA)
Revolutionary Armed Forces of Colombia (FARC)
Taliban
Tehrik-i-Taliban Pakistan (TTP)

APPENDIX II: Supplemental Figure

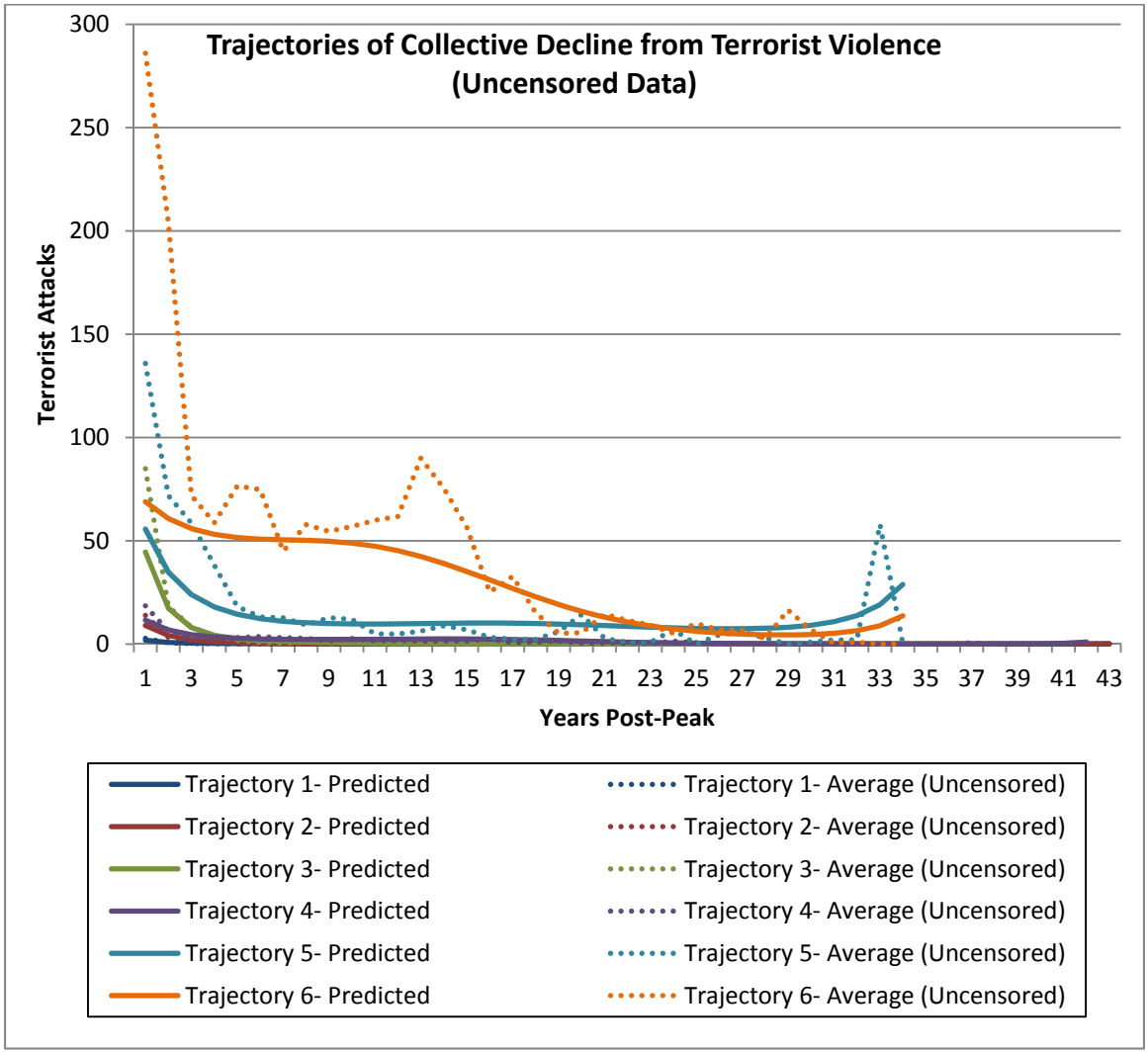


Figure 5.1d Trajectories of collective decline from terrorist violence (uncensored data)

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