

# Targeting Top Terrorists

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## How Leadership Decapitation Contributes to Counterterrorism

Late in the evening of May 1, 2011, President Barack Obama announced to the nation that Osama bin Laden was dead. Earlier that day, the president had ordered a team of elite military forces deep into Pakistan to kill the mastermind behind the September 11 terrorist attacks, which had shocked the country and the world nearly ten years before. During his speech, President Obama said that he had told his new director of central intelligence, Leon Panetta, that getting bin Laden was the number one priority in the United States' counterterrorism strategy against al-Qaida.<sup>1</sup> Upon hearing of bin Laden's death, Americans broke out in spontaneous celebration, and pundits immediately began speculating about its symbolic and operational importance. But what does bin Laden's death mean, if anything, for the future of al-Qaida? More broadly, what does it mean when terrorist groups experience leadership decapitation?

Decapitation tactics, which are designed to kill or capture the key leader or leaders of a terrorist group,<sup>2</sup> feature prominently in the counterterrorism strategies of many states, including Israel and the United States. Some scholars argue that targeting the group's leadership reduces its operational capability by eliminating its most highly skilled members and forcing the group to divert valuable time and limited resources to protect its leaders.<sup>3</sup> Decapitation tactics

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1. Barack Obama, "Remarks by the President on Osama bin Laden," May 1, 2011, <http://www.whitehouse.gov/the-press-office/2011/05/02/remarks-president-osama-bin-laden>.

2. For this study, I defined "terrorist groups" as organizations consisting of more than one person that engaged in violence with a political purpose aimed at evoking a psychological reaction in an audience that extended beyond the targeted victims. My definition does not include "lone wolf" terrorists (e.g., Ted Kaczynski and Timothy McVeigh) because my focus is on the organizational dynamics of terrorist groups.

3. Steven R. David, "Fatal Choices: Israel's Policy of Targeted Killings," *Mideast Security and Policy Studies*, No. 51 (September 2002), pp. 1–26; Steven R. David, "Israel's Policy of Targeted Killings," *Ethics and International Affairs*, Vol. 17, No. 1 (Spring 2003), p. 120; Mohammed M. Hafez and

are also intended to disrupt the terrorist group's organizational routine and deter others from assuming power.<sup>4</sup> Scholars have credited these tactics with creating intra-organizational turmoil and even organizational collapse, most notably, the demise of the Kurdistan People's Party and the Shining Path following the arrests of their leaders.<sup>5</sup> Despite questions about the legality and moral legitimacy of targeted assassinations,<sup>6</sup> the United States has expanded, rather than contracted, its targeted killing program since President Obama arrived in office.<sup>7</sup> In early 2010, the U.S. government even authorized the lethal targeting of Anwar al-Awlaki, a U.S. citizen living in Yemen. This unprecedented decision was fraught with constitutionality concerns about due process.<sup>8</sup> Yet, five months after the bin Laden operation and amid criticism about the disregard of the United States for international sovereignty, a U.S. drone fired a Hellfire missile at al-Awlaki in a remote region inside Yemen, killing him instantly.<sup>9</sup>

Domestic audiences find leadership decapitation an appealing counter-terrorism tactic for a variety of reasons,<sup>10</sup> but most scholars argue that it is ineffective at best and counterproductive at worst.<sup>11</sup> Whereas proponents of decapitation highlight cases in which the tactic has contributed to the organizational collapse of terrorist groups, critics counter with examples in which it has increased and intensified terrorist activity.<sup>12</sup> Critics argue that targeted killings are both morally and ethically wrong and warn of a backlash effect: rather than reducing the terrorist threat, leadership decapitation is likely to increase

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Joseph M. Hatfield, "Do Targeted Assassinations Work? A Multivariate Analysis of Israeli Counter-Terrorism Effectiveness during Al-Aqsa Uprising," *Studies in Conflict and Terrorism*, Vol. 29, No. 4 (June 2006), pp. 359–382; Boaz Ganor, *The Counter-Terrorism Puzzle: A Guide for Decision Makers* (New Brunswick, N.J.: Transaction, 2005), p. 128; and Daniel Byman, "Do Targeted Killings Work?" *Foreign Affairs*, Vol. 85, No. 2 (March/April 2006), pp. 102–104.

4. Byman, "Do Targeted Killings Work?" pp. 103–104.

5. Jenna Jordan, "When Heads Roll: Assessing the Effectiveness of Leadership Decapitation," *Security Studies*, Vol. 18, No. 4 (October–December 2009), p. 721; and Robert A. Pape, "The Strategic Logic of Suicide Terrorism," *American Political Science Review*, Vol. 97, No. 3 (August 2003), p. 14.

6. David, "Fatal Choices"; and Byman, "Do Targeted Killings Work?" p. 101.

7. Greg Miller, "Under Obama, an Emerging Global Apparatus for Drone Killing," *Washington Post*, December 27, 2011.

8. Scott Shane, "U.S. Approves Targeted Killing of American Cleric," *New York Times*, April 6, 2010.

9. Mark Mazzetti, Eric Schmitt, and Robert F. Worth, "Two-Year Manhunt Led to Killing of Awlaki in Yemen," *New York Times*, September 30, 2011.

10. Byman, "Do Targeted Killings Work?" pp. 102–103.

11. Jordan, "When Heads Roll," p. 723; David, "Fatal Choices"; and Robert A. Pape, "The Strategic Logic of Suicide Terrorism," pp. 1–19.

12. Edward H. Kaplan, Alex Mintz, Shaul Mishal, and Claudio Samban, "What Happened to Suicide Bombings in Israel? Insights from a Terror Stock Model," *Studies in Conflict and Terrorism*, Vol. 28, No. 3 (August 2005), pp. 225–235; and Ganor, *The Counter-Terrorism Puzzle*, pp. 129–130.

the number of willing recruits for terrorist groups to exploit, allowing these groups to grow in size and popularity.<sup>13</sup> Decapitation tactics may be prominent in Israel and the United States, detractors say, but that does not mean they are necessarily effective. Israel arguably has the most liberal and robust targeted killing policy of any state, yet one scholar concludes that “no compelling evidence exists that targeted killings have reduced the terrorist threat against Israel.”<sup>14</sup>

I argue that leadership decapitation significantly increases the mortality rate of terrorist groups, even after controlling for other factors. Using an original database—the largest and most comprehensive of its kind—I analyzed the effects of leadership decapitation on the mortality rate of 207 terrorist groups from 1970 to 2008. The analysis differs from previous quantitative studies because it evaluates the effects of decapitation on the duration of terrorist groups as opposed to the number, frequency, or lethality of attacks after a group experiences leadership decapitation.<sup>15</sup> In doing so, it challenges the conventional wisdom regarding terrorist group duration and addresses some of the most pressing questions about the effectiveness of decapitation. For example, does it matter whether a terrorist group leader is killed versus captured? Does the size, ideology, or age of the group increase its susceptibility to organizational death? In addition to answering these questions, this study illustrates the importance of evaluating the long-term effects of counterterrorism policies in conjunction with the short-term metrics more commonly used today.

The article is structured as follows. First, I survey the literature on leadership decapitation and show why new metrics are needed to accurately evaluate its effectiveness. I then use concepts from leadership studies, organizational ecology, and terrorism to provide a theoretical explanation for why terrorist groups are particularly susceptible to decapitation tactics. I argue that terrorist groups have unique organizational characteristics that amplify the importance of their top leaders and make leadership succession more difficult. After discussing the data limitations inherent in terrorism research, I identify the covariates most likely to influence terrorist group duration and

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13. Kaplan et al., “What Happened to Suicide Bombings in Israel?” p. 230; and Audrey Kurth Cronin, “How al-Qaida Ends: The Decline and Demise of Terrorist Groups,” *International Security*, Vol. 31, No. 1 (Summer 2006), p. 22.

14. David, “Fatal Choices,” p. 8.

15. Lisa Langdon, Alexander J. Sarapu, and Matthew Wells, “Targeting the Leadership of Terrorist and Insurgent Movements: Historical Lessons for Contemporary Policy Makers,” *Journal of Public and International Affairs*, Vol. 15 (Spring 2004), pp. 59–78; and Aaron Mannes, “Testing the Snake Head Strategy: Does Killing or Capturing Its Leaders Reduce a Terrorist Group’s Activity?” *Journal of International Policy Solutions*, Vol. 9 (Spring 2008), pp. 40–49.

then explain how I estimated them. Following a review of the main findings, I conclude with some thoughts on the possible implications of bin Laden's death for al-Qaida and recommendations for policymakers.

### *Previous Work on Leadership Decapitation*

According to Audrey Kurth Cronin, the field's most noted scholar on how terrorist groups end, work on the effectiveness of leadership decapitation remains in its infancy. She writes, "Past experience with the decapitation of terrorist groups . . . is just beginning to be studied in a systematic way and . . . the relationship between decapitation and a group's demise is not straightforward."<sup>16</sup> Although several scholars have evaluated the effectiveness of decapitation tactics, few have done so systematically. The vast majority of analyses rely on case studies to support a specific conclusion.<sup>17</sup> Others examine the effectiveness of decapitation tactics within a particular country, of which Israel seems to be the most popular.<sup>18</sup> Although these country- and region-specific case studies help policymakers and scholars understand more about this controversial tactic, the findings from these studies cannot be generalized across all terrorist groups.

Three primary works, however, have tried to systematically test decapitation's effectiveness across multiple groups and over longer periods of time, but all focus solely on the relatively short-term effects of this tactic or feature small-*n* datasets. Lisa Langdon and her colleagues examined nineteen guerrilla, terrorist, religious, and revolutionary groups from 1750 to 2004 that each boasted more than 100 members.<sup>19</sup> They concluded that "the leadership of a group can generally change or be seriously challenged without threatening the group's survival."<sup>20</sup> Langdon and her team, however, based their findings on an extremely small sample that was ill-suited to deriving statistically significant results. Moreover, their study attempted to explain variation

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16. Audrey Kurth Cronin, *Ending Terrorism: Lessons for Defeating al-Qaeda* (London: Routledge, 2008), p. 27.

17. Cronin, "How al-Qaida Ends"; Cronin, *Ending Terrorism*; and Graham H. Turbiville Jr., *Hunting Leadership Targets in Counterinsurgency and Counterterrorist Operations: Selected Perspectives and Experience*, Joint Special Operations University Report, No. 07-6 (Hurlburt Field, Fla.: Joint Special Operations University, June 2007).

18. Dipak Gupta and Kusum Mundra, "Suicide Bombing as a Strategic Weapon: An Empirical Investigation of Hamas and Islamic Jihad," *Terrorism and Political Violence*, Vol. 17, No. 4 (December 2005), pp. 573–598; Kaplan et al., "What Happened to Suicide Bombings in Israel?"; Byman, "Do Targeted Killings Work?"; and Hafez and Hatfield, "Do Targeted Assassinations Work?"

19. Langdon, Sarapu, and Wells, "Targeting the Leadership of Terrorist and Insurgent Movements."

20. *Ibid.*, p. 75.

in the effectiveness of decapitation across several types of organizations with little in common over a period of more than 250 years.<sup>21</sup>

Aaron Mannes found mixed results in his study. In analyzing the change in the frequency of attacks before and after a terrorist leader was killed or captured, Mannes also relied on a small sample. The study, which examined terrorist groups with more than 100 members, contained only seventy-one groups and sixty decapitation strikes.<sup>22</sup> Additionally, most of Mannes's results were not statistically significant.

Jenna Jordan has made by far the most comprehensive attempt to test the effectiveness of leadership decapitation.<sup>23</sup> Jordan concluded that decapitation strategies not only are ineffective but may be counterproductive. She found that instead of causing organizational collapse, leadership decapitation often extends the survival of groups that would have otherwise dissolved.<sup>24</sup> Jordan's dependent variable was whether or not the group survived more than two years after experiencing decapitation. Although I agree that organizational survival is a better metric than the number, frequency, or lethality of attacks, Jordan set the standard for evaluating counterterrorism policies too high. A time horizon of two years is a reasonable period to evaluate public policy, but imposing arbitrary time horizons when trying to accurately evaluate leadership decapitation and its effects on terrorist groups may not be useful, especially if the effects persist beyond two years.<sup>25</sup> In addition, given the near unanimous agreement in the field that no "silver bullet" solutions exist in counterterrorism, I argue that scholars should not rely on "silver bullet" metrics—for example, whether a group experiences organizational collapse within two years after leadership decapitation—to evaluate counterterrorism policies. Examining the short-term effects of these policies is important, but policymakers should consider their long-term effects as well. Imagine if doctors and patients disregarded chemotherapy and radiation treatments, two of the most popular and successful regimens for treating many types of cancer, because of their painfully debilitating side effects in the short term. This article is an attempt to fill the void by providing a long-range analysis for poli-

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21. For example, two of the groups in their sample are the Shining Path, one of the most dangerous and violent terrorist groups in South America, and the Mormon Church in the United States, a religious organization founded in the 1830s with virtually no history of violence.

22. Mannes, "Testing the Snake Head Strategy."

23. Jordan, "When Heads Roll."

24. Ami Pedahzur arrives at a similar conclusion. See Pedahzur, *Suicide Terrorism* (Cambridge: Polity, 2005).

25. In his discussion of Israel's policy of targeted killings, Boaz Ganor states that decapitation can have "ongoing consequences, rather than merely short-term effects." See Ganor, *The Counter-Terrorism Puzzle*, p. 128.

cymakers to consider when making decisions concerning counterterrorism policy.

### *Organizational Characteristics of Terrorist Groups*

For leadership decapitation to be an effective counterterrorism policy, two conditions must be met. First, terrorist group leaders need to be important to the overall success of the organization. If they are not, there is no reason to expect that organizational performance will suffer in their absence. Second, leadership succession must be difficult. If leaders are easy to replace, the benefits of targeting high-ranking leaders may not be worth the costs.

Several scholars have concluded that targeted assassinations are ineffective for ending insurgencies,<sup>26</sup> disbanding drug cartels,<sup>27</sup> and changing state behavior.<sup>28</sup> The conclusions from these analyses cast doubt on the likelihood that leadership decapitation can work against terrorist groups. I argue, however, that terrorist groups are different: they have unique organizational characteristics that increase the influence of their leaders and exacerbate the difficulties associated with leadership succession.

The conventional wisdom suggests that leaders significantly affect organizational performance, but finding quantifiable proof of this causal relationship is surprisingly difficult. When evidence of a causal link exists, it is often weaker than expected.<sup>29</sup> Scholars have based their explanations for this finding largely on how leadership is evaluated in economic firms, the most popular units of analysis in this literature. First, economic firms display a self-selection bias that makes it difficult to differentiate a leader's effects on organizational performance.<sup>30</sup> Second, the firm's structure and prevalent social norms limit the

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26. Paul Staniland, "Defeating Transnational Insurgencies: The Best Offense Is a Good Fence," *Washington Quarterly*, Vol. 29, No. 1 (Winter 2005/06), pp. 21–40. For an opposing view, see Patrick B. Johnston, "Does Decapitation Work? Assessing the Effectiveness of Leadership Targeting in Counterinsurgency Campaigns," *International Security*, Vol. 36, No. 4 (Spring 2012), pp. 47–79.

27. Michael Kenney, *From Pablo to Osama: Trafficking and Terrorist Networks, Government Bureaucracies, and Competitive Adaptation* (University Park: Pennsylvania State University Press, 2007); and Victor D. Hyder, *Decapitation Operations: Criteria for Targeting Enemy Leadership* (Fort Leavenworth, Kans.: School of Advanced Military Studies, 2004).

28. Stephen T. Hosmer, *Operations against Enemy Leaders* (Santa Monica, Calif.: RAND, 2001); and Robert A. Pape, *Bombing to Win: Air Power and Coercion in War* (Ithaca, N.Y.: Cornell University Press, 1996). For an opposing view, see Benjamin F. Jones and Benjamin A. Olken, "Hit or Miss? The Effect of Assassinations on Institutions and War," *American Economic Journal: Macroeconomics*, Vol. 1, No. 2 (July 2009), pp. 55–87.

29. Jeffrey Pfeffer, "The Ambiguities of Leadership," *Academy of Management Review*, Vol. 12, No. 1 (January 1977), pp. 104–112; Richard H. Hall, *Organizations: Structure and Process* (Englewood Cliffs, N.J.: Prentice Hall, 1972); and Stanley Lieberman and James F. O'Connor, "Leadership and Organizational Performance: A Study of Large Corporations," *American Sociological Review*, Vol. 37, No. 2 (April 1972), pp. 117–130.

30. Pfeffer, "The Ambiguities of Leadership."



range of behaviors and options available to the leader.<sup>31</sup> Third, leaders of economic firms have only so much control and discretion over organizational decisions, especially in large organizations. External factors, such as government regulations and market machinations, can often constrain a leader's influence.<sup>32</sup>

The above explanations may apply to leadership influence in economic firms, but they do not apply to terrorist group leaders. There are reasons why it is possible to observe a terrorist leader's organizational influence. First, although some leaders are selected from within terrorist groups based on their talents and skills, just as they are in many economic firms, the founding leaders of terrorist groups (unlike CEOs) cannot be categorized into generalized types. There is no single "type" of terrorist leader. In the past forty years, terrorist group leaders have included twelve-year-old boys and octogenarians, psychopaths and recipients of the Nobel Peace Prize, high school dropouts and college professors. Some of these individuals assumed leadership based on their military experience or organizational skills; others claimed to possess mystical powers or were chosen to lead by a religious deity.<sup>33</sup> Thus, the selection bias that makes evaluating leadership influence in economic firms difficult is not a factor in analyzing terrorist group leaders.

Second, the institutional constraints that limit the influence of leaders in economic firms and legitimate political organizations do not affect terrorist leaders. In clandestine terrorist groups, leaders are insulated from most of the

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31. The emphasis on institutional constraints versus a leader's personal attributes and personality is also found in the political science literature and is featured prominently in Terry Moe's work on U.S. presidential behavior. Instead of using Richard Neustadt's "power to persuade" or Alexander and Juliette George's personality attributes, Moe argues that presidential outcomes are better explained by the institutional incentives and constraints associated with the office. See Moe, "The Politicized Presidency," in J.E. Chubb and P.E. Peterson, eds., *The New Direction in American Politics* (Washington, D.C.: Brookings Institution, 1985), pp. 235–272; Richard Neustadt, *Presidential Power and the Modern Presidents: The Politics of Leadership* (New York: Free Press, 1991); and George and George, *Presidential Personality and Performance* (Boulder, Colo.: Westview, 1988).

32. Pfeffer, "The Ambiguities of Leadership," pp. 206–208.

33. God's Army, a terrorist group that operated in Myanmar from 1997 to 2001, serves as an extreme example of this unique type of leadership. Legend has it that two twelve-year-old twins formed the group in 1997. Followers believed that the twins' black tongues and animist powers made them impervious to bullets and land mines. See Robert Ehrlich, "Burma's 'God's Army' No More," *Asian Pacific Post*, July 28, 2006; and Terrorist Organization Profiles (TOPS), [http://www.start.umd.edu/start/data\\_collections/tops](http://www.start.umd.edu/start/data_collections/tops). The TOPS database provides background information on more than 850 organizations known to have engaged in terrorist activity around the world during the last four decades. Included for each organization is information on bases of operations, organizational strength, ideology, and goals. These data were collected for the Terrorism Knowledge Base and managed by the Memorial Institute for the Prevention of Terrorism until March 2008. The database is currently available from the National Consortium for the Study of Terrorism and Responses to Terrorism (START), which is housed at the University of Maryland. START presents this information as a service to the homeland security community, but it has neither reviewed nor verified these data. For more information, see [http://www.start.umd.edu/start/data\\_collections](http://www.start.umd.edu/start/data_collections).

external pressures that constrain these other leaders. Unless the group is state sponsored, terrorist leaders do not answer to a superior or a board of directors. They are not as worried about perceptions of legitimacy or morality from those other than the populations from which they recruit or are trying to influence. Thus, institutional isomorphism does not seem to be a powerful force in making all terrorist groups look and act like one another.<sup>34</sup>

Third, scholars argue that leaders of economic firms can typically affect only a few of the variables that determine organizational performance.<sup>35</sup> Terrorist leaders, however, can wield enormous power and influence over all aspects of their organizations, from their structure and identity to the pace and scale of group activities. Because terrorist groups, by definition, kill innocent civilians in the name of a political cause, they are not constrained by legal restrictions or government regulations, nor are they (normally) chained to decades of tradition.<sup>36</sup> Thus, they are under less pressure to adhere to social and moral sanctioning.<sup>37</sup> These differences suggest that terrorist leaders have more influence on organizational performance than leaders in other types of organizations.

Replacing terrorist group leaders is more difficult than replacing leaders in other organizations. Leadership succession is important in all organizations, and scholars have studied its effects on sports teams,<sup>38</sup> economic firms,<sup>39</sup> and political organizations.<sup>40</sup> Scholarly consensus on the effects of leadership succession, however, is nonexistent. Succession can improve or damage organizational performance, or it may have no discernable impact.<sup>41</sup> Glenn Carroll attributes this lack of consensus to the “untenable implicit assumption of

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34. Paul J. DiMaggio and Walter W. Powell, “The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields,” *American Sociological Review*, Vol. 48, No. 2 (April 1983), pp. 147–160.

35. Pfeffer, “The Ambiguities of Leadership,” pp. 207–208.

36. Long-lasting groups such as the Irish Republican Army and Fatah are likely to have internal traditions and norms that follow-on leaders continue.

37. Martha Crenshaw, “Why Violence Is Rejected or Renounced: A Case Study of Oppositional Terrorism,” in Thomas Gregor, ed., *A Natural History of Peace* (Nashville: Vanderbilt University Press, 1996), pp. 249–272; and J.K. Zawodny, “Infrastructures of Terrorist Organizations,” *Conflict Quarterly*, Vol. 1, No. 4 (Spring 1981), pp. 24–31.

38. Oscar Grusky, “Administrative Succession in Formal Organizations,” *Social Forces*, Vol. 39, No. 2 (December 1960), pp. 105–115; and Oscar Grusky, “Managerial Succession and Organizational Effectiveness,” *American Journal of Sociology*, Vol. 69, No. 1 (July 1963), pp. 21–31.

39. Alvin W. Gouldner, *Patterns of Industrial Bureaucracy* (Glencoe, Ill.: Free Press, 1954); Glenn Carroll, “Dynamics of Publisher Succession in Newspaper Organizations,” *Administrative Sciences Quarterly*, Vol. 29, No. 1 (March 1984), pp. 93–113; and Lieberman and O’Connor, “Leadership and Organizational Performance.”

40. Mayer N. Zald, “Who Shall Rule? A Political Analysis of Succession in a Large Welfare Organization,” *Pacific Sociological Review*, Vol. 8, No. 1 (Spring 1965), pp. 52–60.

41. For an excellent review of the literature on this subject, see Carroll, “Dynamics of Publisher Succession in Newspaper Organizations.”



homology,"<sup>42</sup> the idea that one can treat all kinds of leadership succession the same, regardless of differences in organizational type. In other words, scholars who liken managing a baseball team to leading a manufacturing firm fail to consider organizational aspects such as structure, control and coordination mechanisms, and the external environment.<sup>43</sup> Similar problems exist in the study of leadership succession in terrorist groups,<sup>44</sup> despite their unique organizational features. I argue that leadership succession is especially difficult for terrorist groups because they are violent, clandestine, and values-based organizations.

#### LEADERSHIP AND LEADERSHIP SUCCESSION IN VIOLENT ORGANIZATIONS

Violent organizations are more cohesive than their nonviolent counterparts and are often led by charismatic leaders, two features that make their leaders more consequential and leadership succession more difficult. Like military units, police departments, and gangs, terrorist groups not only commit violence but risk being victims themselves. This vulnerability makes them naturally more cohesive.<sup>45</sup> Extremely cohesive organizations are more likely to experience instability during a change in leadership.<sup>46</sup>

In addition, leaders in nonviolent organizations can readily depend on conventional forms of authority to ensure compliance from their subordinates,<sup>47</sup> but these forms of authority often prove inadequate for leaders in violent organizations. Instead, leaders in these organizations use charisma to motivate subordinates into committing violent acts in the face of danger. As John Bahnsen argues, "[C]harisma is the warrior's basis of authority."<sup>48</sup> Moreover, because they head organizations with no legal standing and therefore have no basis for legal authority, terrorist leaders depend more on charisma to attract, control, and keep followers than do other leaders,<sup>49</sup> which can sig-

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42. *Ibid.*, p. 96.

43. One notable exception is *ibid.*

44. Lisa Langdon, Alexander Serapu, and Matthew Wells, for example, lump terrorist groups, religious organizations, and guerrilla revolutionary movements into the same study. Langdon, Serapu, and Wells, "Targeting the Leadership of Terrorist and Insurgent Movements."

45. Ami Pedahzur discusses how violent organizations such as terrorist groups and militaries share this unique cohesion built around dangerous missions. Pedahzur, *Suicide Terrorism*, pp. 41–42.

46. Grusky, "Administrative Succession in Formal Organizations," pp. 105–115.

47. Max Weber referred to these conventional forms of authority as the rational (legal or formal) and traditional forms. See Weber, *The Theory of Social and Economic Organizations* (New York: Free Press, 1947).

48. John C. "Doc" Bahnsen, "Charisma," in Christopher Kolenda, ed., *Leadership: The Warrior's Art* (Carlisle, Pa.: Army War College Foundational Press, 2001), p. 274.

49. Richard J. Chasdi, *Serenade of Suffering: A Portrait of Middle East Terrorism, 1968–1993* (Lanham, Md.: Lexington, 1999).

nificantly affect organizational survival; it can also make them more difficult to replace.

#### LEADERSHIP AND LEADERSHIP SUCCESSION IN CLANDESTINE ORGANIZATIONS

The clandestine nature of terrorist groups also increases their dependency on leaders; complicates leadership succession; and negatively affects organizational learning, performance, culture, and decisionmaking.<sup>50</sup> To maintain operational security and avoid detection from outsiders, leaders of terrorist organizations have a disincentive to institutionalize their operations, making leadership succession difficult. There are two distinct logics behind this disinclination. First, leaders in terrorist organizations do not want to codify how they operate, because doing so makes them more susceptible to state infiltration. Bureaucratization may enhance organizational learning, performance, and efficiency, but it may also provide the state with the knowledge necessary to destroy the organization.<sup>51</sup> Some terrorist groups do have formal hierarchies, but not all members are likely to understand them.<sup>52</sup> Individual cells often maintain independence from one another so that captured individuals or even cells cannot compromise the entire group. This lack of formalization and institutionalization increases the level of uncertainty, which in turn complicates leadership succession and produces organizational instability. This characteristic holds true for all organizations, including legitimate organizations such as state governments following the assassination of the head of state,<sup>53</sup> but its consequences are more significant for terrorist groups.

The second reason terrorist leaders are disinclined to institutionalize their organizations may be more selfish and more personal. Not only do terrorist leaders fear being captured or killed by the state or rival groups, but they also worry about being removed from power by their own group. Similar to leadership succession in other illicit, violent, and clandestine organizations, replacing terrorist group leaders often relies on Hobbesian principles rather than on

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50. Gordon H. McCormack, "Terrorist Decision Making," *Annual Review of Political Science*, Vol. 6 (June 2003), pp. 473–507; and Mette Eilstrup-Sangiovanni and Calvert Jones, "Assessing the Dangers of Illicit Networks: Why al-Qaida May Be Less Threatening Than Many Think," *International Security*, Vol. 33, No. 2 (Fall 2008), pp. 7–44.

51. For an example, consider the Sinjar records about al-Qaida that were found in Iraq in 2007. See Ed Blanche, "An Al Qaeda Rolodex," *Middle East*, March 2008; and the Harmony Program at the Combating Terrorism Center at West Point, <http://www.ctc.usma.edu/programs-resources/harmony-program>.

52. As one former Navy intelligence analyst noted, "Terrorist organizations do not have organizational charts. They have relationships, and if you can understand those relationships you have gained valuable intelligence." See Bryan Bender, "Antiterrorism Agency Taps Boston-Area Brains," *Boston Globe*, March 28, 2007.

53. Zaryab Iqbal and Christopher Zorn, "The Political Consequences of Assassination," *Journal of Conflict Resolution*, Vol. 52, No. 3 (February 2008), pp. 385–400.

institutionalized processes. It is common for terrorist leaders to suffer from paranoia,<sup>54</sup> a personality disorder worsened by a clandestine existence that can produce “burn syndrome,” or a “pervasive fear that other people know what they’re doing.”<sup>55</sup> For example, believing that his group was plotting against him, Sabri al-Banna (aka Abu Nidal),<sup>56</sup> head of the Abu Nidal Organization, ordered the murder on a single night of 170 followers whom he suspected were traitors.<sup>57</sup> Abimael Guzmán, leader of the Shining Path in Peru, was so paranoid about being ousted in a coup that he “surrounded himself with female lieutenants but readied none to command in his absence.”<sup>58</sup> Because terrorist leaders know that they live and die by the sword, they hesitate to provide subordinates with the knowledge and skills to run the organization in their place. This disinclination to institutionalize not only centralizes power in the hands of the terrorist group’s leader, but it injects an air of uncertainty when a top leader is removed, complicating the ability of a successor to understand and run the organization effectively.<sup>59</sup>

Because of their clandestine nature, terrorist groups are often composed of culturally and ideologically like-minded members. This can be extremely useful for developing cohesion, trust, loyalty, and strong social bonds among members, but it can allow leaders to frame the group’s sense of reality. Depending on how deeply underground the group is, its leaders may be the only source of information, making the group highly susceptible to groupthink.<sup>60</sup> As terrorist groups go deeper underground and the social bonds of their members intensify, the likelihood of opposition to the leader’s decisions decreases even further. This in turn can inhibit organizational learning and result in poor decisionmaking.<sup>61</sup>

#### LEADERSHIP AND LEADERSHIP SUCCESSION IN VALUES-BASED ORGANIZATIONS

Values-based organizations such as religious cults, social clubs, and terrorist groups have greater difficulty replacing their leaders than do profit-based organizations, including drug cartels. Three reasons explain why. First, values-

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54. Marc Galanter and James J.F. Forest, “Cults, Charismatic Groups, and Social Systems: Understanding the Transformation of Terrorist Recruits,” in Forest, ed., *The Making of a Terrorist: Recruitment, Training, and Root Causes* (Westport, Conn.: Praeger Security International, 2006), pp. 51–70.

55. Kenney, *From Pablo to Osama*, p. 145.

56. Patrick Seale, *Abu Nidal: A Gun for Hire* (London: Hutchinson, 1992).

57. Duane R. Clarridge, *A Spy for All Seasons* (New York: Scribner, 1997), p. 336.

58. Christopher C. Harmon, “The Myth of the Invincible Terrorist,” *Policy Review*, No. 142 (April/May 2007), p. 57.

59. This affects other clandestine organizations, such as drug cartels, as well. See Hyder, *Decapitation Operations*, pp. 40–46, specifically the description of Pablo Escobar’s leadership.

60. Irving L. Janis, *Victims of Groupthink: A Psychological Study of Foreign-Policy Decisions and Fiascos* (Boston: Houghton Mifflin, 1972).

61. McCormack, “Terrorist Decision Making.”

based organizations require their leaders to possess unique skill sets that not every leader has, namely, the ability to provide transformational leadership. Finding successors with these requisite skill sets is not easy. Second, leadership succession is less difficult in profit-based organizations because the monetary incentives of holding power are usually sufficient to attract a steady stream of successors, even when leading involves tremendous risk. The incentives for holding power in values-based organizations can be more complex and more abstract. Third, articulating the vision, mission, and strategy of values-based organizations can be especially difficult when these elements are created from scratch and are hard to conceptualize.

Leaders of terrorist groups must possess a unique set of skills to attract and maintain membership. In his seminal work on leadership, James Burns draws a distinction between transactional and transformational leadership.<sup>62</sup> Transactional leadership involves relationships that appeal to people's self-interests. For example, just as a shop owner pays a salary to an employee in return for work, a politician may pass laws that appeal to a particular constituency in return for votes. Transformational leadership, on the other hand, goes beyond personal self-interest by appealing to the values and emotions of followers. Transformational leaders, therefore, seek to create significant change in the behavior and belief systems of their followers, often encouraging personal sacrifice to achieve goals that benefit the team, group, or organization.<sup>63</sup> Although some recruits join terrorist organizations for financial or other personal reasons, I argue that terrorist leaders need transformational leadership to expand and maintain these organizations. Transformational and charismatic leaders are thought to be more effective in ideological organizations than in nonideological organizations,<sup>64</sup> because in the former they must articulate "a vision that draws an emotional and enthusiastic response,"<sup>65</sup> given that the group's goals may not always be "specific, tangible, and calculable."<sup>66</sup> Thus, leaders in

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62. James MacGregor Burns, *Leadership* (New York: Harper and Row, 1978).

63. *Ibid.*, p. 20.

64. Amitai Etzioni, *A Comparative Analysis of Complex Organizations* (New York: Free Press, 1961); Robert J. House, "A 1976 Theory of Charismatic Leadership," in James G. Hunt and Lars L. Larson, eds., *Leadership: The Cutting Edge* (Carbondale: Southern Illinois University Press, 1977); Robert J. House and Jitendra V. Singh, "Organizational Behavior: Some New Directions for I/O Psychology," *Annual Review of Psychology*, Vol. 38 (February 1987), pp. 669–718; and Michael D. Mumford, Jazmine Espejo, Samuel Hunter, Katrina E. Bedell-Avers, Dawn L. Eubanks, and Shane Connelly, "The Sources of Leader Violence: A Comparison of Ideological and Non-Ideological Leaders," *Leadership Quarterly*, Vol. 18, No. 3 (June 2007), pp. 217–235.

65. Ronald R. Aminzade, Jack A. Goldstone, and Elizabeth J. Perry, "Leadership Dynamics and Dynamics of Contention," in Ronald R. Aminzade, Jack A. Goldstone, Doug McAdam, Elizabeth J. Perry, William H. Sewell, Sidney Tarrow, and Charles Tilly, eds., *Silence and Voice in the Study of Contentious Politics* (New York: Cambridge University Press, 2001), p. 152.

66. House and Singh, "Organizational Behavior," p. 686.

ideological organizations must have more than expertise in their field or be more than competent managers if they want to recruit and maintain members; they must also be able to communicate, evoke confidence, and serve as role models for their followers.<sup>67</sup>

Similar to clandestine organizations, values-based organizations operate under more uncertainty than profit-based organizations, which amplifies the importance of their leaders. As a result, "When follower's efforts are directed toward implementation of ideological goals and values, or when their efforts are directed toward creating or delivering some social good," followers are more dependent on their leaders' vision and framing.<sup>68</sup> In contrast, many profit-based organizations generally do not lend themselves to this type of transformational leadership. In profit-based organizations with "roles requiring highly routine, non-thinking effort in institutions directed exclusively to economic ends," charismatic leaders would theoretically be less effective.<sup>69</sup> In these organizations, the demands of leadership are based more on performance than on values, where the image of the leader as a role model is considerably less important than his or her managerial competency—or may even be irrelevant.

In values-based organizations, leadership succession can be difficult because replacements may have ideological differences with the outgoing leadership. Ideological salience in these organizations differs across group leaders and followers, and ideology is generally more prominent in first-generation members than with younger, nth-generational members. For example, Jacob Shapiro argues that lower-level terrorist group members are less committed to the group's objectives than their leaders.<sup>70</sup> Martha Crenshaw writes that, in terrorist groups, "the leadership may possess more complex and differentiated belief structures than do followers."<sup>71</sup> In fact, in some values-based organizations, "the basis for the authority of leaders may lie precisely in the ability to articulate beliefs held implicitly by followers. Or authority may derive from the relevance of the leader's background to the general belief system."<sup>72</sup> When Andreas Baader, leader of the Red Army Faction, was arrested and jailed, second-generation leaders with less impressive ideological credentials tried to

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67. House, "A 1976 Theory of Charismatic Leadership."

68. House and Singh, "Organizational Behavior," p. 691.

69. House, "A 1976 Theory of Charismatic Leadership," p. 204.

70. Jacob N. Shapiro, "The Terrorist's Challenge: Security, Efficiency, and Control," Ph.D. dissertation, Stanford University, 2007.

71. Martha Crenshaw, "The Subjective Reality of the Terrorist: Ideological and Psychological Factors in Terrorism," in Robert O. Slater and Michael Stohl, eds., *Current Perspectives on International Terrorism* (Hong Kong: Macmillan, 1988), p. 19.

72. *Ibid.*

assume power but could not, even though they may have had better organizational and managerial skills. Baader's capture marked the end of the first generation's grip on the organization. As Crenshaw notes, "[N]o subsequent leaders possessed their degree of control, and the organization was divided by rivalries between managerial and ideological leadership styles."<sup>73</sup>

Leaders in values-based organizations are responsible for framing their groups' ideology and, in some cases, for creating it, as they have in some terrorist groups and religious cults. Because charismatic and transformational leadership is usually required in forming a purely ideological and values-based group, removal of the leader may cause more instability than it would in a nonideological, profit-based organization. This is especially true if the successor lacks transformational leadership skills or if the former leader has not succeeded in achieving what Max Weber termed the "routinization of charisma" prior to the changeover.<sup>74</sup> Removing a leader can have serious implications if followers have not internalized his or her ideological/values-driven goals, particularly if these goals are abstract and difficult to understand. Two groups, the Solar Temple and Aum Shinrikyo, exemplify this type of values-based organization. Both were founded on complicated belief systems that required significant framing and explanation from their leaders. The Solar Temple melded neo-Christian mystical beliefs of the Holy Grail and the Knights Templar with Egyptian thanatology, oriental folk medicine, and ecological apocalypticism.<sup>75</sup> The Japanese group Aum Shinrikyo combined Indian and Tibetan Buddhism with Christian apocalypticism and New Age medical practices.<sup>76</sup> Both groups lost direction after losing their leaders. The Solar Temple ceased to exist after its leader committed suicide. Following the arrest of Aum Shinrikyo's leader, the group changed its name to Aleph, but membership dropped by more than 90 percent during the 1990s.<sup>77</sup>

#### SUMMARY

The violent, clandestine, and values-based nature of terrorist groups makes them particularly susceptible to leadership decapitation. Each of these three organizational characteristics amplifies the importance of leaders and makes leadership succession problematic. In combination, they produce a potent syn-

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73. *Ibid.* See also Crenshaw, "Why Violence Is Rejected or Renounced," p. 263.

74. Weber, *The Theory of Social and Economic Organizations*, pp. 363–373.

75. Lorne L. Dawson, "Crises of Charismatic Legitimacy and Violent Behavior in New Religious Movements," in David G. Bromley and J. Gordon Melton, eds., *Cults, Religion, and Violence* (Cambridge: Cambridge University Press, 2002), p. 83.

76. *Ibid.*

77. TOPS database.



ergistic effect that increases their susceptibility to decapitation. This helps explain why leadership decapitation has failed against other organizational types that may have one or two of these characteristics, but lack all three. For example, drug cartels are violent and clandestine organizations, but they exist to make profits. Leaders in these organizations are important, but they are easily and quickly replaced. Leadership decapitation has been a central feature in U.S. counterdrug strategy since the early 1990s, but it has failed to produce meaningful results, and may even be counterproductive. A leaked 2010 U.S. Customs and Border Protection report concluded that removing key cartel leaders had no effect on the drug trade.<sup>78</sup> When a U.S./Colombian counterdrug operation killed Pablo Escobar, head of the powerful Medellín cartel, in 1993, the cocaine industry did not suffer a catastrophic blow. Instead, Victor Hyder writes that “eliminating Escobar made things worse.”<sup>79</sup>

### *Data Limitations on Terrorist Groups*

In the previous section, I presented a theoretical argument why leadership decapitation should be effective against terrorist groups. In this section, I discuss some of the problems associated with analyzing terrorist group behavior and provide an alternative method for examining the effectiveness of leadership decapitation as a counterterrorism tactic.

The challenges of conducting quantitative analyses on terrorist group behavior are well documented. To explain this behavior, researchers have tended to focus on the number and frequency of terrorist attacks,<sup>80</sup> as well as their lethality.<sup>81</sup> Limited and incomplete data make analyzing all three dependent variables problematic.<sup>82</sup> For example, 36 percent of all terrorist attacks recorded in the Global Terrorism Database (GTD) are attributed to “unknown groups.” Victor Asal and Karl Rethemeyer used data from another popular source, the Memorial Institute for the Prevention of Terrorism’s (MIPT’s)

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78. U.S. Customs and Border Protection, “Drug Trafficking Organizations Adaptability to Smuggle Drugs across SWB after Losing Key Personnel,” n.d., <http://info.publicintelligence.net/CBP-NoChangeDTOs.pdf>.

79. Hyder, *Decapitation Operations*, p. 45.

80. Mannes, “Testing the Snake Head Strategy”; Jordan, “When Heads Roll”; and Human Security Research Group, “Human Security Brief 2007” (Burnaby, Canada: Simon Fraser University, 2008).

81. Victor Asal and R. Karl Rethemeyer, “The Nature of the Beast: Organizational Structures and the Lethality of Terrorist Attacks,” *Journal of Politics*, Vol. 70, No. 2 (April 2008), pp. 437–439.

82. Alexander Spencer, “The Problems of Evaluating Counter-Terrorism,” UNISCI Discussion Papers (Madrid: UNISCI, October 12, 2006), pp. 179–201; David D. Laitin and Jacob N. Shapiro, “The Political, Economic, and Organizational Sources of Terrorism,” in Philip Keefer and Norman Loayza, eds., *Terrorism, Economic Development, and Political Openness* (New York: Cambridge University Press, 2008), pp. 209–232; and Mannes, “Testing the Snake Head Strategy.”

Terrorism Knowledge Base (TKB), for their study on terrorist group lethality from 1997 to 2005, but they were “only able to account for slightly more than half of all fatalities.”<sup>83</sup>

An important consideration when referencing the most widely used datasets in terrorism research, such as the Terrorist Organization Profiles (TOPS) database and the GTD, is their inclusiveness. The platform for the GTD is the Pinkerton Global Intelligence Services (PGIS), whose database was initially constructed “to provide risk assessment to corporate customers,” and thus “was designed to err on the side of inclusiveness. As a result, the PGIS data includes many acts that likely would not be included in other terrorism open source data bases.”<sup>84</sup> Examples of these acts include attacks on property that resulted in no casualties or injuries, as well as purely criminal acts such as robberies and bank heists devoid of political purpose. Given this inclusiveness, scholars would be hard-pressed to describe many of the 856 groups in the TOPS database as terrorist organizations.<sup>85</sup> Therefore, relying on either the GTD or TOPS database at face value can create misleading conclusions about terrorism and terrorist groups.

### *Terrorist Groups and Terrorist Group Behavior*

Given the difficulty of capturing performance variables such as attack frequency and fatalities, I chose instead to study the mortality rate of terrorist groups. Organizational theorists in fields outside of terrorism research sometimes prefer to study this dependent variable over others because “organizational death is a fundamental standard of organizational performance,” and “[it] has the advantage of relatively unambiguous measurements and interpretation, which is often not the case with performance variables.”<sup>86</sup> Because of the data limitations described above, I was hesitant to rely solely on preexisting terrorist group databases to analyze leadership decapitation, so I created

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83. Asal and Rethemeyer, “The Nature of the Beast,” p. 447.

84. Gary LaFree and Laura Dugan, “Introducing the Global Terrorism Database,” *Terrorism and Political Violence*, Vol. 19, No. 2 (April 2007), p. 187.

85. For example, according to the TOPS database, a German group called the Autonomous Decorators conducted its only “terrorist” attack on January 4, 2001, when group “operatives lobbed bags of paint at Germany’s Interior Ministry Building.” Many “terrorist” activities in Greece during this period were equally dubious. A Greek group called the Knights of the Torched Bank attempted its only “attack” in May 2003, when it tried to set a small fire outside a bank, but the fire extinguished by itself, causing no damage. Similarly, a group called the Solidarity Gas Canisters vandalized a Greek bank ATM on one occasion in November 2003, resulting in “minor damage to the ATM and no casualties.” TOPS database.

86. Glenn R. Carroll, “Dynamics of Publisher Succession in Newspaper Organizations,” *Administrative Science Quarterly*, Vol. 29, No. 1 (March 1984), p. 6.

an original dataset based on multiple sources. In this section, I describe the criteria I used for my dataset, outline which variables influence terrorist group mortality rates, and explain how they are measured.

#### CRITERIA

My dataset consists of 207 terrorist groups from sixty-five countries that were active from 1970 to 2008.<sup>87</sup> Among quantitative analyses that have examined leadership decapitation and terrorist groups, it is the largest dataset of its kind. It includes 204 observations in which the leader or leaders were either killed or captured. Additionally, I recorded 95 other incidents in which the leader or leaders (1) were expelled from their group, (2) died of natural causes or in an accident, (3) voluntarily resigned from their leadership position, or (4) accepted a cease-fire agreement with the government and formally entered the political process. In total, the dataset contains 299 observations of leadership change.

I included only groups that posed a legitimate threat to the target state. Terrorist groups that commit merely a few (if any) minor attacks that result in superficial damage may never make it onto the state's "radar" and could conceivably remain active for decades. Or more likely, these groups end soon after committing one or two attacks, never to be heard from again. As such, I included only groups that had committed at least four attacks, with one or more having resulted in fatalities.<sup>88</sup> Because this study is interested exclusively in the organizational decline of consequential terrorist groups, this criterion ensured that only groups that could genuinely be defined as terrorist organizations pursuing a systematic campaign of violence were included.<sup>89</sup>

Additionally, the dataset excluded the killing or capture of high-ranking or upper-echelon leaders who were not the primary leaders or coleaders.<sup>90</sup> It also excluded groups created by states to counter oppositional groups within their borders. I included only umbrella organizations if attacks were conducted in their name. Individual groups that joined umbrella organizations were not

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87. Some of these groups were founded prior to 1970, but all were active for at least part of the period from 1970 to 2008.

88. My initial criterion consisted of five attacks. Although my findings were consistent with the findings using four attacks, my sample size was much larger when I lowered the attack threshold to four.

89. Several datasets in political science employ similar filters. For example, many scholars studying civil wars use coding criteria that include conflicts featuring at least 1,000 total deaths and 100 deaths per year. I felt that limiting my dataset to groups that have killed at least one person and have conducted four attacks would be a fair demonstration of organizational capability.

90. Including leaders at all levels would be an improvement over this study, but it is too difficult to accomplish using open source material. I encourage other researchers, particularly those with access to classified information, to include all levels of leadership.

coded as ending after becoming part of the organization. Instead, I coded these individual groups as surviving as long as the umbrella organization did.<sup>91</sup> Finally, I included groups that appeared on the terrorism lists of the major state powers, even if the groups did not meet my initial attack/fatality criteria.<sup>92</sup> (A list of all of the terrorist groups included in this study is available on the author's website.)

To verify the number of attacks, I used the GTD, which includes domestic and international terrorist incidents from 1970 to 2004, as well as the MIPT's TKB, which lists international terrorist incidents from 1968 to 2007 (but is no longer maintained). Open source research served as a supplement as well as additional validation of the information found in these datasets.<sup>93</sup>

#### THE VARIABLES

To determine whether leadership decapitation increases the mortality rate of terrorist groups, I included several variables and controlled for numerous factors that might influence group behavior. In addition to leadership decapitation, the main explanatory variable, I controlled for the presence of allied and rival terrorist groups; the organizational structure, size, and ideology of the group; the counterterrorism capacity and regime type of states targeting each group; and other forms of leadership turnover. I also examined whether the method of leadership decapitation had any effect on the group's mortality rate. To increase the robustness of my findings, I varied the duration of leadership decapitation's effects on terrorist groups in three ways: I allowed the duration to linger indefinitely and limited it to two and one years, respectively.

I measured the dependent variable, terrorist group mortality, in years. To determine the start time of each group, I used the date of its first attack, not its

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91. For example, the Armed Forces of National Liberation (known by its Spanish acronym FALN) was one of several terrorist groups in El Salvador that joined forces to form the Farabundo Martí National Liberation Front (known by its Spanish acronym FMLN) in 1980. Because the FMLN conducted attacks under its umbrella name, I included it as a separate group in the dataset with a start date of 1980 and an end date of 1991, when it signed a peace agreement with the government. Instead of coding the FALN's end date at the time of the merger in 1980, I gave it the same end date as the FMLN in 1991.

92. Two examples of these groups are the Libyan Islamic Fighting Group and the Moroccan Islamic Combatant Group. Both are on the 2005 U.S. Foreign Terrorist Organizations list and the United Kingdom's list of proscribed terrorist organizations, but they did not have at least four attacks recorded in the GTD or TKB. Additionally, I utilized left censoring for groups with start dates prior to 1970.

93. Websites operated by the South Asia Terrorism Portal, <http://www.satp.org>, and the Conflict Archive on the Internet, <http://cain.ulst.ac.uk>, as well as the dataset created by RAND scholars Seth G. Jones and Martin C. Libicki, were also consulted and cross-checked for accuracy. See Jones and Libicki, *How Terrorist Groups End: Lessons for Countering al Qaeda* (Santa Monica, Calif.: RAND, 2008).

purported founding date.<sup>94</sup> Because all of the groups in the TOPS database are clandestine organizations, accurate information about when each group officially formed is often unavailable or unverifiable. Thus, it made practical sense to use the group's first attack as the start date. Likewise, determining when a group "dies" was equally problematic. Groups can exist for months or years without committing violence. This lack of activity can result from extended planning cycles, reconsolidation efforts, effective counterterrorism campaigns by the state, and of course patience, as a group bides its time until a more advantageous opportunity presents itself. I considered a group inactive if two years passed without a violent attack, with the year of the group's last attack serving as its end date.

Other covariates that help explain terrorist group mortality include the presence of allied and rival groups. Terrorist groups allied with other groups should have greater longevity because they can pool resources and information and coordinate attacks against the state, all of which may improve their chances of achieving their political goals. In addition, if these allied groups operate within the same state, they may force it to divide its counterterrorism resources in an effort to combat multiple threats. The TOPS database lists allied groups in its description of each terrorist organization, and I included these in my database.

Even though they may espouse different ideologies, rival groups may increase one another's survivability by distracting the state from focusing on a particular group. Moreover, the "Red Queen" theory from the literature on organizational ecology suggests that organizations facing intense competition from other groups are better equipped to learn, adapt, and thus survive.<sup>95</sup> There are also cogent arguments, however, for why rivals might reduce the survivability rate of terrorist groups. For example, rivals present a legitimate decapitation threat to other terrorist groups. They also compete for limited resources, especially when replenishing their ranks. Therefore, although groups with allies should be more resilient than groups with none, the predicted relationship between group longevity and the presence of rival groups is less obvious.

Organizational structure—whether the group is hierarchical or decentral-

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94. It is important to note that, starting in this year, I assume that the state knows about the group and therefore targets it even though the group may not have met all of the criteria for inclusion in the dataset in this first year (i.e., conducted at least four attacks and killed at least one person). Some groups, of course, do meet this criteria. I thank Kenneth Schultz for bringing this point to my attention.

95. William P. Barnett and David G. McKendrick, "Why Are Some Organizations More Competitive Than Others? Evidence from a Changing Global Market," *Administrative Science Quarterly*, Vol. 49, No. 4 (December 2004), pp. 535–571.

ized—is another covariate that scholars believe influences terrorist group behavior.<sup>96</sup> Many scholars make the claim that decapitation has greater success against more hierarchical and less decentralized groups.<sup>97</sup> Because verifying the organizational structure of terrorist groups is often impossible, determining the degree to which they are hierarchical or decentralized is difficult.<sup>98</sup> In a self-admittedly weak attempt to measure this, I included *coleader*, a dichotomous variable indicating whether a group was led by a single leader or multiple leaders.<sup>99</sup>

The dataset also includes information about each group's ideology and estimated size. Some scholars argue that ideology and size are important factors for explaining group strategy, resiliency, and longevity.<sup>100</sup> Cronin contends that terrorist groups with a predominantly religious ideology are more dangerous, because these groups may launch attacks to please a certain deity and are seemingly unconstrained by secular laws and norms.<sup>101</sup> This commitment to a nonsecular ideology may lead them to frame their goals within a longer time horizon, which allows them to overlook short-term failures and may increase their longevity. Bruce Hoffman disagrees, arguing that ethnonationalist/separatist terrorist groups are more resilient and ultimately more successful given their ability to “draw sustenance and support from an already existing constituency,” and because they benefit from “the clarity and tangibility” of their stated goals.<sup>102</sup> In other words, ethnonationalist/separatist groups will continue to fight because they believe they are on the right side of history.

96. Brian Jackson, “Groups, Networks, or Movements: A Command-and-Control-Driven Approach to Classifying Terrorist Organizations and Its Application to Al Qaeda,” *Studies in Conflict and Terrorism*, Vol. 29, No. 3 (May 2006), pp. 241–262.

97. Steve Hutchinson and Pat O'Malley, “How Terrorist Groups Decline” (Ottawa: Canadian Centre for Intelligence and Security Studies, Norman Paterson School of International Affairs, Carleton University, 2007).

98. Brian Jackson's work on the difficulty of characterizing terrorist organizations as purely hierarchical or purely decentralized speaks to this point. Ultimately, it is a question of degree; rarely can one label a group as being purely hierarchical or purely decentralized. Instead, Jackson recommends examining the quality and quantity of a group's command and control linkages to better understand the structure. This, however, is also often difficult to accurately determine. For more information, see Jackson, “Groups, Networks, or Movements.”

99. In addition to coding leaders and coleaders, I coded founders and follow-on leaders in previous work. Price, “Removing the Devil You Know: Unraveling the Puzzle behind Leadership Decapitation and Terrorist Group Duration,” Ph.D. dissertation, Stanford University, 2009. Although terrorist groups are 70 percent more likely to survive when one or more of their founders lead the organization, there is no statistically significant difference between the mortality rates of groups with founders at the helm and groups with successor leaders in charge.

100. Bruce Hoffman, *Inside Terrorism* (New York: Columbia University Press, 2002); Audrey Kurth Cronin, “Behind the Curve: Globalization and International Terrorism,” *International Security*, Vol. 27, No. 3 (Winter 2002/03), pp. 30–58; Jordan, “When Heads Roll”; and Mannes, “Testing the Snake Head Strategy.”

101. Cronin, “Behind the Curve,” pp. 41–42.

102. Hoffman, *Inside Terrorism*, p. 171.



Along similar lines, Louise Richardson contends that ethnonationalist terrorist groups survive longer because they have closer ties to their communities than do other types of groups.<sup>103</sup>

Identifying a group's ideology can be problematic, however, leading some scholars to have less confidence in its ability to explain terrorist behavior. Jerrold Post has quipped that "the cause is not the cause."<sup>104</sup> When discussing the relationship between ideology and the motivation behind terrorist group behavior, Crenshaw asserts that cultural influences can be as strong, if not stronger, than ideological influences. Instead of blindly following ideological ambitions, terrorist leaders may first develop a set of beliefs and "then seek justification for them through the selection of fragments of compatible theories."<sup>105</sup> To confuse matters further, groups are not necessarily beholden to one ideology.<sup>106</sup> Finally, ideologies may change over the course of a group's life cycle, as can the importance of ideology to the organization and its goals.

Nevertheless, because ideology can play an important role in explaining longevity in certain types of terrorist groups, I included it as a variable in the dataset. Although several of these terrorist groups could be considered hybrids, groups featuring elements of several ideologies, I used the same ideological types as coded by Seth Jones and Martin Libicki in their RAND study.<sup>107</sup> The authors of this study classified ideology into a common set of four types: right-wing, left-wing, nationalist, and religious.<sup>108</sup> Although all four types of organization are in some ways values based, and thus especially susceptible to organizational death following leadership decapitation, religious groups may be more susceptible given the important role that leaders play in framing and interpretation.

Some scholars use the size of a group to explain mortality rates in organizational ecology. Additionally, several large-*N* terrorism studies use size as a proxy for group capability based on the idea that larger groups have access to

103. Louise Richardson, *What Terrorists Want: Understanding the Enemy, Containing the Threat* (New York: Random House, 2006), p. 48.

104. Jerrold M. Post, "Terrorist Psycho-logic: Terrorist Behavior as a Product of Psychological Forces," in Walter Reich, ed., *Origins of Terrorism: Psychologies, Ideologies, Theologies, States of Mind* (Washington, D.C.: Woodrow Wilson Center Press, 1990), p. 35.

105. Crenshaw, "The Subjective Reality of the Terrorist," p. 27.

106. For example, one could argue that the Popular Front for the Liberation of Palestine advocates both nationalist/separatist and Marxist-Leninist ideologies. Hamas is both nationalist and Islamist.

107. Jones and Libicki, "How Terrorist Groups End."

108. As a robustness check, I also ran a Cox model with the ideologies as coded in the TOPS dataset. I coded ideology in this dataset as follows: anarchist, anti-globalist, socialist/communist, environmental, leftist, nationalist/separatist, racist, religious, right-wing conservative, right-wing reactionary, and other. Because the results exhibited no major changes and because the RAND typologies are easier to comprehend, I used the RAND ideologies.

more resources than smaller groups, which makes the former better equipped to conduct attacks and withstand a state's counterterrorism efforts, including successful leadership decapitation.<sup>109</sup> Research in anthropology suggests, however, that leaders of groups with fewer than 150 members are more influential than larger groups. Groups of this size are optimal for the cognitive capacity of humans to establish genuine social relationships, which increase the group's trust, cohesion, and transactive memory.<sup>110</sup> Thus it is unclear how a group's size will affect its mortality rate following leadership decapitation. Instead of estimating a group's size down to the individual member, as some scholars have,<sup>111</sup> I used the less ambitious but probably more accurate estimates from the RAND study of how terrorism ends.<sup>112</sup> These estimates placed terrorist group size in one of four "buckets": fewer than 100, 100–999, 1,000–10,000, and more than 10,000 members.<sup>113</sup>

Because states may be in a position to determine the longevity of terrorist groups, I included control variables that might influence their ability to combat such groups. This required estimating state counterterrorism capacity and regime type. States, like terrorist groups, are hesitant to make their capabilities part of the public record, mainly because doing so would reveal their sources and methods of intelligence gathering. Although reliable data on state counterterrorism budgets and the size of their counterterrorism bureaucracies are not readily available, it is still possible to approximate their counterterrorism capabilities by employing the same logic used to measure a terrorist group's capacity to attack—the more resources that are available, the more robust a state's capability to wage a counterterrorism campaign. In other words, wealthier states are better equipped to create, resource, and maintain counterterrorism agencies than are poorer states. I used the Penn World Tables to obtain the gross domestic product (GDP) per capita of the target state to measure this capacity.<sup>114</sup> This variable becomes tricky to measure, however, when transnational terrorist groups are involved and thus wage violence

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109. Jordan, "When Heads Roll"; and Asal and Rethemeyer, "The Nature of the Beast."

110. Malcolm Gladwell, *The Tipping Point: How Little Things Can Make a Big Difference* (New York: Back Bay Books, 2002), p. 180.

111. Jordan, "When Heads Roll"; and Asal and Rethemeyer, "The Nature of the Beast."

112. Jones and Libicki, "How Terrorist Groups End."

113. This type of bracketing is a common feature in several academic studies on terrorism. See Mannes, "Testing the Snake Head Strategy"; and Jones and Libicki, "How Terrorist Groups End."

114. This method is consistent with that used in other works in political science. See, for example, James D. Fearon and David D. Laitin, "Ethnicity, Insurgency, and Civil War," *American Political Science Review*, Vol. 97, No. 1 (March 2003), pp. 75–90. This was admittedly an imperfect measure, but because no other studies of leadership decapitation have attempted to control for a state's counterterrorism capability, I felt that using an imperfect measure was better than ignoring the issue altogether. Fortunately, averages were needed for only 37 groups in my dataset (17 percent). Of these 37 groups, 11 were terrorist groups operating in Northern Ireland. For these groups, I averaged the counterterrorism capacities of Ireland and the United Kingdom.

against more than one state. To estimate the counterterrorism capacity of the target states of transnational groups,<sup>115</sup> I took an average of the top three target states' GDP per capita estimates.<sup>116</sup>

Regime type served as another control variable because many scholars believe that democracies are at a greater disadvantage than autocracies in combating terrorism within their borders.<sup>117</sup> According to this line of thought, politicians in democracies are constrained by commitments to civil liberties and accountability to electorates, and thus cannot use the heavy-handed tactics and tools that many authoritarian regimes rely on to fight terrorism. Therefore, one could argue that terrorist groups are more likely to have shorter life spans in autocratic states than they are in democracies. Another argument for using regime type as a control variable, and one that comes to a different conclusion, centers on the initial motivation for groups that resort to terrorism in the first place. The logic here is that terrorist organizations in democratic governments may not last as long, because these groups have more options to achieve their political ends than they do in authoritarian governments.<sup>118</sup> As a result, I included Polity IV scores for each group-year in the analysis.

Because proponents and critics of decapitation continue to debate the merits of whether killing or arresting terrorist leaders hastens a group's demise, I conducted a test on this as well. Some scholars believe that arresting the leader is more beneficial for several reasons.<sup>119</sup> First, there are more legal and moral is-

115. As an example, for al-Qaida, I used the GDP per capita of the United States, the United Kingdom, and Pakistan.

116. In Resolution 1373, the United Nations developed evaluation criteria for state counterterrorism capacity that obligated member states to revise laws and enhance their law enforcement capabilities. Additionally, the UN encouraged states to sign and ratify twelve counterterrorism conventions. The UN's counterterrorism program, however, suffers from several weaknesses. The resolution contains vague language (e.g., the resolution declares that a member state must have "the administrative capacity to enforce various counter-terrorism mandates") and has no mechanism for evaluating compliance. According to David A. Cortright, "Evaluating whether states are actually implementing these conventions and complying with the requirements of Resolution 1373 is a difficult challenge. There are no agreed criteria for evaluating implementation capabilities, or determining what additional steps a state should take to achieve compliance." See Cortright, "A Critical Evaluation of the UN Counter-Terrorism Program: Accomplishments and Challenges," in *Global Enforcement Regimes Transnational Organised Crime, International Terrorism, and Money Laundering* (Amsterdam: Transnational Institute, 2005), pp. 6-7. Therefore, I did not find compliance with these conventions to be a better measure than GDP per capita.

117. Robert J. Art and Louise Richardson, *Democracy and Counterterrorism: Lessons from the Past* (Washington, D.C.: United States Institute of Peace Press, 2007); Ian O. Lesser, Bruce Hoffman, John Arquilla, David Ronfeldt, and Michele Zanini, *Countering the New Terrorism* (Santa Monica, Calif.: RAND, 1999); Paul Wilkinson, *Terrorism versus Democracy* (London: Frank Cass, 2000); Cronin, "How al-Qaida Ends"; Doron Zimmerman and Andreas Wenger, *How States Fight Terrorism: Policy Dynamics in the West* (London: Lynne Rienner, 2007); and Walter Enders and Todd Sandler, *The Political Economy of Terrorism* (New York: Cambridge University Press, 2006).

118. I thank Martha Crenshaw for this point.

119. Cronin, "How al-Qaida Ends"; Hutchinson and O'Malley, "How Terrorist Groups Decline"; and Cronin, *Ending Terrorism*.

sues involved with targeted killings than with capturing and incarcerating terrorist leaders.<sup>120</sup> Second, not only can the state interrogate a leader and obtain useful information, but a group that knows that its leader is in custody may experience damage to its psyche. According to Cronin, the incarceration of a group's leader is "an implicit answer to the illegitimacy of terrorism, and demonstrates the authority of the rule of law."<sup>121</sup> Steven Hutchinson and Pat O'Malley note that "the demoralization that accompanies seeing a leader captive and under control of the enemy appears highly relevant to group perseverance."<sup>122</sup>

In contrast, some scholars argue that decapitation acts as a deterrent. First, killing the leader sends a message that successors will face a similar fate.<sup>123</sup> Second, when the leader is killed, the operational routine of the organization is interrupted, and the group must invest resources in finding a suitable successor. Moreover, knowing that the state is targeting the leadership means that the organization will probably invest resources in protecting successors, a move that ultimately detracts from its ability to conduct terrorist attacks. Boaz Ganor argues that interruptions in a group's organizational routine are "liable to have ongoing consequences, rather than merely a short-term effect."<sup>124</sup>

Therefore, I coded each decapitation according to whether a terrorist group's leader was killed or captured. I also coded a dummy variable, *Both*, for when the leader is captured and then killed by the state at a later date. The logic here is that the state has an opportunity to interrogate a captured leader and obtain information about his or her organization in hopes of destroying it. Killing the leader afterward may provide the deterrent that Ganor describes above.<sup>125</sup> Therefore, the decapitation method of *Both* includes cases where death was a result of execution or wounds suffered at the hands of the state, often during brutal interrogation sessions.

Figure 1 and Table 1 offer descriptive statistics about the terrorist groups in this dataset. shows the status of the 207 groups in the dataset and denotes whether they experienced leadership decapitation. Seventy percent of the groups that experienced such an event from 1970 to 2008 are no longer in existence. Table 1 shows the sizes and ideological types of all groups in the dataset

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120. Catherine Lotrionte, "When to Target Leaders," *Washington Quarterly*, Vol. 26, No. 3 (Summer 2003), pp. 73–86; Ganor, *The Counter-Terrorism Puzzle*; Scott Shane, "Government Hit Squads, Minus the Hits," *New York Times*, July 19, 2009; and Mark Mazzetti and Scott Shane, "CIA Had Plans to Assassinate Qaeda Leaders," *New York Times*, July 14, 2009.

121. Cronin, *Ending Terrorism*, p. 30.

122. Hutchinson and O'Malley, "How Terrorist Groups Decline," p. 6.

123. Ganor, *The Counter-Terrorism Puzzle*.

124. *Ibid.*, p. 128.

125. *Ibid.*

Figure 1. Terrorist Mortality and Leadership Decapitation, 1970–2008

		group ended	
		no	yes
experienced decapitation	no	32	44
	yes	38	93

and denotes which ones have experienced leadership decapitation and their current status.

THE MODEL

I used survival models to analyze the effect of leadership decapitations on terrorist group duration. Scholars use these models to understand the causes and consequences of change over time in a particular population, for example, in evaluating the effect of medical treatment on different patient populations or understanding the failure rates of machine components. In this study, my “patients” were terrorist groups, and leadership decapitation was the “treatment.” One of the more attractive features of these models is their ability to account for censored data, which is more difficult to do with linear regression models.<sup>126</sup> In other words, these models are capable of using data on mortality rates from past terrorist groups to predict what to expect from terrorist groups that have remained active since 2008, the last year of this study’s observation period.

Central to all survival models is the hazard rate, defined as the “rate at which units fail (or durations end) by  $t$  (a predetermined period of time) given that the unit has survived until  $t$ .”<sup>127</sup> For Cox models, which I used in my study, “the hazard rate for the  $i^{\text{th}}$  individual [or terrorist group in this case] is:

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126. The Cox proportional hazards model is the most widely used model in survival analysis, not only because it can accommodate censored data and time-varying covariates, but also because it is a semi-parametric model that allows researchers to use event history analysis without knowing the exact distribution function of failure times. If a researcher knew that the risk a terrorist group endures from a decapitation event would always increase or decrease with time, then parametric models such as the Weibull model or the exponential model would be preferable. If, however, there is any doubt as to what the distribution function of failure times is, as is the case with terrorist groups and decapitation events, the Cox model is a better choice. See Janet M. Box-Steffensmeier and Bradford S. Jones, *Event History Modeling: A Guide for Social Sciences* (Cambridge: Cambridge University Press, 2004), p. 21.

127. *Ibid.*, pp. 13–14.

Table 1. Descriptive Statistics of Politically Relevant Terrorist Groups and Leadership Decapitation

	N	Decap	Not Decap	Decapitated		Not Decapitated	
				Alive	Dead	Alive	Dead
Number of Members							
Fewer than 100	48	37	11	1	36	3	8
100-999	87	63	24	24	39	11	13
1,000-10,000	52	25	27	11	14	14	13
More than 10,000	20	6	14	2	4	4	10
Ideology							
Left-wing	74	55	19	6	49	4	15
Nationalist	74	36	38	13	23	15	23
Right-wing	6	4	2	0	4	0	2
Religious	53	36	17	19	17	13	4
Total	207	131	76	38	93	32	44



$$h_i(t) = h_0(t)\exp(\beta'x),$$

where  $h_0(t)$  is the baseline hazard function and  $\beta'x$  represents the covariates and regression parameters.<sup>128</sup> The models seek to explain how certain covariates affect the survival rate of terrorist groups. They identify which variables increase or decrease the mortality rate or have no effect at all.

If the hazard ratio is greater than “1,” then that variable increases the hazard rate for a terrorist group and places it more at risk of “dying”; a hazard ratio of less than “1” means that the variable reduces the hazard rate for the terrorist group and makes it more resilient to organizational death. If the hazard ratio is “1,” then the variable neither increases nor decreases the risk to the terrorist group. For example, if the hazard ratio for the dummy variable *ally* (“1” indicates the presence of an ally, “0” otherwise) is 0.5, this can be interpreted as a 50 percent decrease in the mortality rate for terrorist groups with allies. Another way of saying this is that terrorist groups with allies are 50 percent less likely to end than terrorist groups without allies.

To control for *ideology*, a variable with four factors in my model, I had to omit one ideological type to serve as a comparison group.<sup>129</sup> In Cox models, it is customary to drop the most prevalent factor and use it for comparison. The choice, however, is ultimately up to the researcher. I chose nationalist/separatist groups as my comparison group for two reasons. Not only were these groups the most prevalent in my dataset, but I wanted to see how they compared to religious groups. As previously mentioned, there is a debate among scholars about which type of terrorist group is more resilient, so I wanted to determine if there was a statistically significant difference between religious and nationalist/separatist groups.

## Results

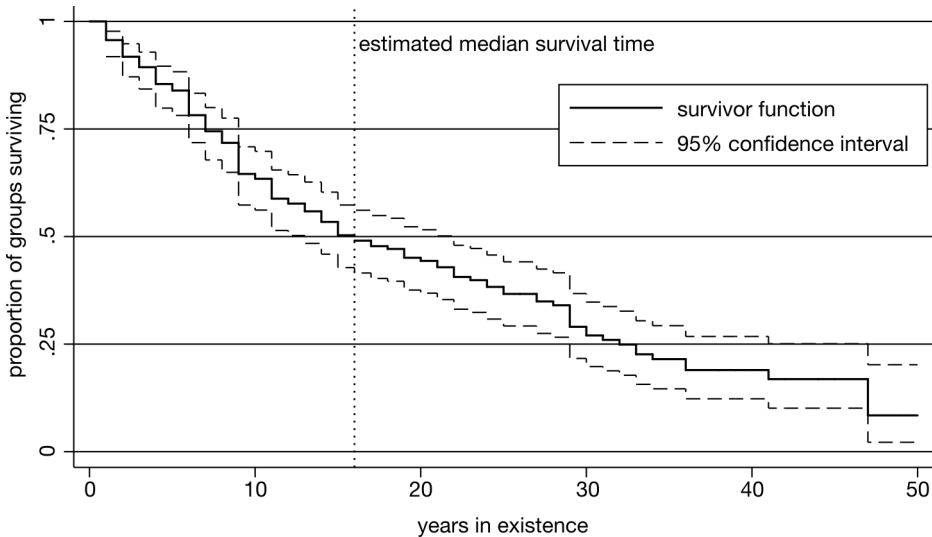
Previous analyses of leadership decapitation, almost all of which focus on short-term consequences, present a bleak picture of the effectiveness of this counterterrorism tactic. The findings from this study tell a different story. In this section, I present my findings on the duration of all terrorist groups in my dataset. After satisfying the Cox proportional hazards assumption and accounting for the timing of decapitation in my study, I graphically display lead-

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128. *Ibid.*, p. 48.

129. I had to make this omission because Cox models do not have an intercept term. All results are interpreted relative to the baseline hazard rate. For more information, see Terry M. Therneau and Patricia M. Grambsch, *Modeling Survival Data: Extending the Cox Model* (New York: Springer, 2000).

Figure 2. Terrorist Group Survivorship, 1970–2008



ership decapitation's effects on terrorist group mortality rates over time. I then briefly discuss the major findings from seventeen Cox models on group size, ideology, decapitation method, and other forms of leadership turnover. (For more detailed findings from the models, see the author's website.)

The null model, in which I treated all of the terrorist groups as a single population without including any of the covariates, can be graphically illustrated by a survival curve using Kaplan-Meier (K-M) estimates.<sup>130</sup> Figure 2 depicts the K-M curve along with its 95 percent confidence intervals. The confidence intervals widen at the longer periods, because there are fewer observations at these higher group ages (i.e., fewer groups "die" in those particular years of group age). The dotted vertical line that intersects the K-M curve represents the estimated mean survival time for all 207 groups in the sample. It is estimated because 76 of these groups were still active when the study ended in 2008. The estimated mean group survival time is 16.2 years. Of the 131 groups that ended from 1970 to 2008, the mean survival time is 13.9 years.<sup>131</sup>

130. K-M estimates are maximum likelihood estimators that allow researchers to estimate survival functions of populations over time, even when individual subjects drop out of the study. In this case, it computes the number of terrorist groups that have ended at a certain point, divided by the number of terrorist groups still remaining in the study.

131. The mean survival time for terrorist groups in this study differs drastically from David C. Rapoport's widely cited claim that 90 percent of all terrorist groups survive less than a year, with

## BASE MODELS AND THE INCLUSION OF TIME

Given how little scholars know about decapitation's effect on the longevity of terrorist groups, I specified the main explanatory variable, *Exp.Decap*, in three ways. In model 1, I allowed the effect of a decapitation strike to linger in the organization indefinitely. In this case, once the group's leadership was decapitated, the effect was "left on" as long as the group was active. This may or may not be a valid assumption. Specifying the variable in this way suggests that decapitation permanently affects the group, and thus it will have a different survival rate than groups that have not experienced it.

In model 2, I "turned off" the effect of decapitation on terrorist groups after two years. This model assumes that the effect of decapitation is short and temporary. Following a two-year period of organizational chaos, the group copes with the loss of its leader; a successor assumes power; and the group's mortality rate is the same as that of a group that has not experienced decapitation. I chose this two-year time horizon so that I could compare my findings with those from Jordan's empirical tests, which examined the probability of a group ending within two years after a decapitation.<sup>132</sup>

Model 3 assumes that the group is able to quickly recover from a decapitation. In this model, I "turned on" the effect of decapitation for only the year in which the leader was decapitated. After a momentary shock to the mortality rate of the group during the first year, model 3 assumes that the group has the same mortality rate in subsequent years as groups that have not experienced decapitation.

Regardless of how I conceptualized the effect of decapitation, terrorist groups that experienced the loss of a leader had higher mortality rates than those that did not. Depending on how I modeled the effect of decapitation, terrorist groups were 3.6 to 6.7 times more likely to end than those that did not experience decapitation.

The variables representing group size, state regime type, and organizational structure were statistically insignificant. The results also show that ideology did not affect the group's mortality rate. Right-wing groups were more than

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nearly half of the remaining groups unable to survive for more than a decade. See Rapoport, "Terrorism," in M. Hawkesworth and M. Kogan, eds., *Encyclopedia of Government and Politics* (London: Routledge, 1992), p. 1067. Many scholars, including top names in the field, have referenced this estimate so often that it has become the conventional wisdom. Rapoport did not include empirical evidence to support his claim, however. In his defense, the relevant sentence reads: "Perhaps as many as 90 percent last less than a year." This leads me to believe that he never intended it to be taken as a bold empirical fact. Although it is possible that his estimate is correct if one considers the overly inclusive number of politically inconsequential groups that have committed few, if any attacks—or, in some cases, only threatened attacks—this does not give policymakers an accurate assessment of the durability of politically relevant terrorist groups.

132. Jordan, "When Heads Roll."

four times as likely to end following leadership decapitation when compared to nationalist/separatist groups, but this becomes less interesting when one considers that there were only six right-wing groups in the dataset, four of which ended following decapitation. Terrorist groups with allies are up to 52 percent less likely to end than groups without them, and 39 percent less likely to end if they are competing with rival terrorist groups. The one state-level control that was highly statistically significant throughout all of the models was GDP per capita, a proxy for state counterterrorism capacity. An increase in the log of GDP per capita resulted in a 47 to 53 percent increase in the mortality rates for terrorist groups.

In model 4, I satisfied the Cox proportional hazards assumption by including an interaction effect between *Exp.Decap* and time.<sup>133</sup> This was necessary to maintain the model's time independence. As a result, the magnitude of the effect on the group's mortality rate decreases every year after a decapitation, which is a fairly intuitive assumption. For example, in the first year of its existence, a terrorist group is 8.757 times more likely to end if its leader is killed or captured. In the second year, the group's risk of death is reduced by the interaction effect, making it only 8.1 times more likely to end.<sup>134</sup> Figure 3 depicts how the mortality rate decreases as a function of time as specified in model 4.

The more time a state requires to remove a terrorist leader, the less impact leadership decapitation will have on the group's mortality rate. As figure 3 shows, the effect of decapitation on a terrorist group's survival rate is cut approximately in half after ten years. At approximately twenty years, decapitation may have no effect at all. The most important finding from this graph, however, is that time matters when decapitating a terrorist group leader.

#### SIZE MODELS

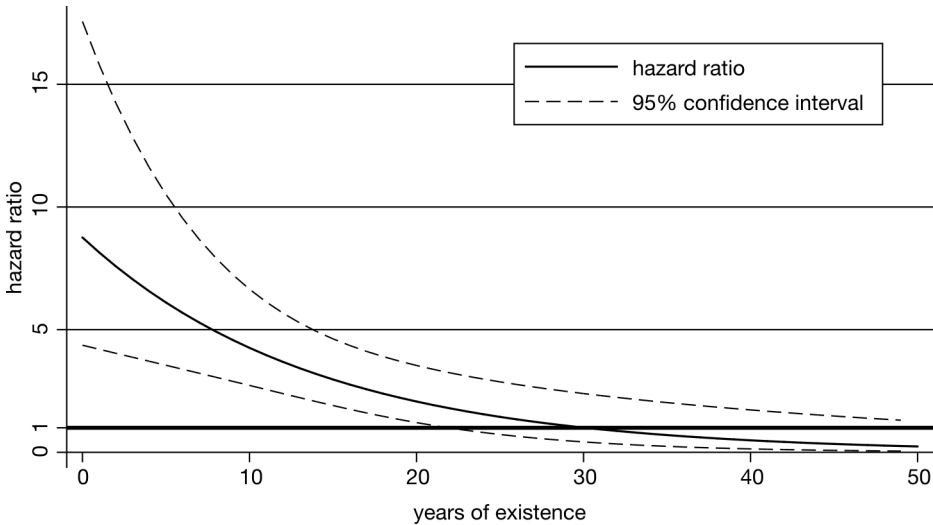
I estimated three models to determine how group size affected terrorist group mortality rates. Earlier I hypothesized that smaller groups should have higher mortality rates than larger groups following decapitation, because larger groups have more resources and thus more capacity to endure. The findings from the size models, however, show otherwise.

Model 5 is a slightly modified version of the base model using the log of group size (the only difference being the addition of *decaptime*, a running coun-

133. In addition to testing every covariate, I tested the model as a whole. The explanatory variable, *Exp.Decap*, was the only covariate to violate the test (so much so that it made the whole model fail as well). For more on the Cox proportionality test and how to fix variables that violate the time independence assumption, see Box-Steffensmeier and Jones, *Event History Modeling*.

134. Thus, in subsequent years, the net effect of decapitation =  $e^{(2.17 - (t \times 0.073))}$ , where  $t$  represents time and  $i$  represents the years after decapitation.

Figure 3. Effect of Decapitation over Time on the Hazard Ratio of Group Survival



ter of time since the last decapitation). Model 6 features dummy variables for the four “buckets” of size and tests whether groups with 100 to 1,000 members are more susceptible to organizational death than smaller or larger groups. Finally, model 7 includes interaction terms involving the explanatory variable and size. It tests whether groups of varying size are at greater risk when their leaders are decapitated.<sup>135</sup>

In all three models, size is not an important variable in explaining organizational decline in terrorist groups. There are no statistically significant differences in the mortality rates among groups of varying sizes. More important, smaller groups seem to behave no differently than larger groups when their leaders are killed or captured.

IDEOLOGY MODELS

I employed a similar progression to determine how groups with different ideologies affect terrorist group mortality rates. Models 9 and 10 include dummy variables for each ideological type and interactions between ideological type and *Exp.Decap*, omitting nationalist groups and right-wing groups, respec-

135. The reason for including separate models instead of adding variables to the base model is for ease of interpretation. Because the Cox model does not utilize an intercept term, I omitted one type of each factored variable. I then compared the hazard ratios of the remaining types to the omitted variable. Interpretation becomes extremely confusing when multiple factored variables are included, especially interaction terms.

tively. Again, groups that experience leadership decapitation are significantly more at risk of ending than those that do not. In addition, the presence of allies and rivals enhances terrorist group survival.

Unlike the base model, where right-wing groups were the only ideological type to be statistically different from nationalist groups, the religious groups in model 9 are statistically different from their nationalist-group counterparts. Compared to nationalist groups, religious groups are almost 77 percent less likely to suffer organizational death. When a religious group suffers the loss of its leader, however, it is almost five times more likely to end than are nationalist groups. Of the fifty-three religious groups in the dataset, nineteen have ended, including sixteen that ended after the government killed or captured their leaders. Of the thirty-four religious groups still active, twenty have experienced decapitation.

In model 10, I omitted right-wing groups and used them as the comparison group. In this model, none of the interaction terms involving ideology are statistically significant. This is an indication that groups with other ideologies do not respond differently from right-wing groups when they experience decapitation. Here, religious groups exhibit great resiliency when compared to right-wing groups, with right-wing groups being 90 percent more likely to end than their religious counterparts.<sup>136</sup>

#### METHOD OF DECAPITATION MODELS

I examined the effect of the method of decapitation on the mortality rate of terrorist groups in three separate Cox models. The results show that all three methods I identify—killing the leader, capturing the leader, and capturing then killing the leader—significantly increased the terrorist group mortality rate.

In model 11, I considered only the group's first decapitation. Doing so removed all of the "noise" from this test (i.e., multiple decapitations and cases of leadership removal via other means). If killing a leader has a deterrent effect, it should be evident in this model, and it was. When I interacted the variable for decapitation with each method (for the first decapitation only), all three methods significantly increased a group's mortality rate. In relative terms, killing

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136. I also studied models on how the decapitation of the group's founding leaders affected its mortality rate. See the founder models on the author's website. Although removing both founders and follow-on leaders increases the mortality rate of terrorist groups, I cannot say with certainty that killing or capturing the founder affects the mortality rate differently than decapitating successor leaders. I can conclude, however, that groups with their founders still in power are significantly less likely to end than groups without their founders in charge.



the leader produces the lowest relative increase; the group experiences larger increases when its leader is captured, and the largest increase when the leader is captured and then killed. Chi-square tests confirm, however, that these interaction terms are not statistically different from one other, although they all significantly increase the mortality rate.

I included all three methods of decapitation in model 12. Additionally, I allowed the effects of these decapitations to exist independent of previous decapitations and to linger until the next decapitation (if one occurred). In other words, a group would continue to experience the decapitation effects of *Kill* as long as no other decapitations took place. If this group were to lose its next leader to arrest, the effect of *Kill* is “turned off” and the effect of *Capture* is “turned on.” The results from this model reflect a change in the relative ordering of the three methods. According to model 12, capturing a terrorist leader now appears to be the most conducive method to ending the group, but killing or capturing produces similar results. When the effect of the method of decapitation is conceptualized this way, capturing and then killing a leader has the smallest increase in the mortality rate.

In model 13, I limited the effect of decapitation to the first two years after it occurred. In this model, I assumed that the group’s mortality rate after two years is the same as that of a group that has never experienced leadership decapitation. The interactions, including capturing and killing a leader, are both highly statistically significant, whereas the interaction involving cases in which the leader is captured and then killed is only statistically significant out to 10 percent, and larger in magnitude than the other two mortality ratios. These relative differences among all three methods become less interesting when one considers that the effects from these methods are not statistically different from one another based on chi-square tests.

#### LEADERSHIP TURNOVER MODELS

Finally, I compared the effects of leadership decapitation to other means of leadership turnover in three separate models. In model 14, I collapsed all forms of leadership turnover to include decapitation into a single variable, *T/O all* (*T/O* is an abbreviation for turnover), and limited the duration of the turnover’s effect to the year in which it occurred. This included decapitations as well as the leader’s resignation from the organization (*T/O mutual*), his or her ouster (*T/O throwout*), and his or her death from natural causes (including illnesses and accidents). Groups that experienced any form of leadership turnover are 6.5 times more likely to end than groups that experience no turnover.

In model 15, I compared leadership decapitation to other kinds of leadership

turnover, such as a leader's resignation or ouster from the group.<sup>137</sup> The results show that leadership decapitation has the largest effect on a group's mortality rate (7.235) compared to other forms of turnover (5.842 and 4.727 for when a leader is ousted and when he resigns, respectively), but chi-square tests confirm that it is impossible to determine which type of leadership turnover ends the group faster.

Model 16 is similar to models 14 and 15 except that it allows the effects of leadership decapitation and turnover from other means to linger indefinitely. When all leadership turnover is collapsed into a single variable, groups that experience any form of leadership turnover are almost 3.5 times as likely to end as groups that experience no turnover.

#### CONTROLLING FOR ENDOGENEITY AND OMITTED VARIABLE BIAS

Some scholars may argue that instead of measuring the effect of leadership decapitation on terrorist group mortality, the main explanatory variable, *Exp. Decap*, measures "bad" groups or "bad" leaders that needlessly put themselves in jeopardy. In other words, "bad" groups and "bad" leaders get selected out of the system, but this is not necessarily evidence to suggest that decapitation is to blame for the group's demise. To control for this potential endogeneity problem, I included a dummy variable for groups whose leaders die while in command for reasons having nothing to do with state efforts. These include leaders who have died of natural causes or who were killed in some other random way, such as in a car or plane accident. If the hazard ratio for this variable is statistically significant and greater than "1," then this reduces the chances that my analysis suffers from an omitted variable bias or an endogeneity problem.

In model 15, the variable for natural causes drops out because the effect of decapitation is "turned on" only for the year in which decapitation occurred and because there are no instances in which a group ended in the same year as a result of this form of leadership turnover (16 observations). In model 17, however, I changed the specification for the effect of decapitation so that the effect is "left on" for the duration of the terrorist group's life cycle. Here the variable for natural causes is statistically significant at the 10 percent level ( $p$ -value = 0.07) and greater than "1," indicating that groups that lose their leaders from an illness or an accident are 2.5 times likelier to end than groups that do not lose their leaders in a similar fashion. Given that several of these cases include leaders who lost long battles with chronic diseases such as

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137. There were 11 cases where a leader died of natural causes, but none of the terrorist groups in these cases ended in the same year.

cancer (i.e., cases that allowed the group to diligently prepare and plan for the day when their leader died), this is an impressive finding. Because transportation accidents and illnesses are random events, are unassociated with leadership, and could conceivably affect any group, this finding suggests the absence of an endogeneity problem.

### *Conclusion*

This article has advanced an argument that runs counter to the near scholarly consensus that leadership decapitation has been ineffective at best and counterproductive at worst in the fight against terrorist groups.<sup>138</sup> I argue that terrorist groups are susceptible to decapitation because they have unique organizational characteristics (they are violent, clandestine, and values-based organizations) that amplify the importance of leaders and make leadership succession difficult. To provide evidence for this claim, I eschewed short-term metrics and instead analyzed the effects of leadership decapitation on the mortality rate of terrorist groups over a longer period of time. My study yielded six primary findings.

First, decapitated terrorist groups have a significantly higher mortality rate than nondecapitated groups. Regardless of how I specified the duration of the effect from leadership decapitation (i.e., whether I limited it to the year in which decapitation occurred, limited it to two years, or allowed it to linger indefinitely), killing or capturing a terrorist leader increased the mortality rate of the group. There is no guarantee, however, that organizational death will be immediate; only 30 percent of decapitated groups (40 of 131) ended within two years of losing their leader.

Second, the earlier leadership decapitation occurs in a terrorist group's life cycle, the greater the effect it will have on the group's mortality rate. Additionally, the magnitude of this effect decreases over time. Killing or capturing a terrorist leader in the first year of the group's existence makes the group more than eight times as likely to end than a nondecapitated group. The effects, however, diminish by half in the first ten years, and after approximately twenty years, leadership decapitation may have no effect on the group's mortality rate. This finding is in line with the conclusion of other scholars who argue that a terrorist group's organizational capacity increases with age, making it more durable with time.<sup>139</sup>

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138. Jordan, "When Heads Roll," p. 754.

139. Michael C. Horowitz, *Diffusion of Power: Causes and Consequences for International Politics* (Princeton, N.J.: Princeton University Press, 2010).

Third, all three methods of leadership decapitation in this study—killing, capturing, or capturing and then killing the leader—significantly increase the mortality rate of terrorist groups. The relative ranking of each method differs according to how one specifies the duration of the decapitation effect, but even then, the effect is statistically indistinguishable across all three methods.

Fourth, any type of leadership turnover, not just decapitation, increases the mortality rate of terrorist groups. This is an important finding because states may not have to kill or capture a leader to hasten the group's demise.

Fifth, group size does not affect terrorist group duration. Smaller groups are just as durable as larger groups, and groups of different size react similarly after losing a leader.

Sixth, contrary to findings in other studies,<sup>140</sup> I found that religious terrorist groups were less resilient and easier to destroy than nationalist groups following leadership decapitation. Although religious groups appear to be 80 percent less likely to end than nationalist groups based on ideology alone, they were almost five times as likely to end than nationalist groups after experiencing leadership decapitation. I believe this is because of the important role leaders of religious terrorist groups play in framing and interpreting organizational goals and strategies.

Given these findings, states that are willing to employ leadership decapitation as part of their counterterrorism strategy should target terrorist group leaders as early as possible and allocate their resources accordingly. As terrorist groups age, especially as they approach the twenty-year mark, states might consider reducing the amount of resources aimed at killing and capturing the group's leadership and instead invest in other counterterrorism initiatives. States that are unwilling to employ decapitation tactics, whether for moral or legal reasons, or fear of the retaliatory "boomerang effect,"<sup>141</sup> can still achieve similar effects without lethally targeting terrorist leaders. The findings suggest that states can hasten a terrorist group's demise by exploiting intra-organizational rifts and removing the leader either through shaming or by pitting one group faction against another.<sup>142</sup> It is unclear, however, how long these internal processes would take to remove the leader, not to mention how difficult it is to implement this type of strategy in the first place. Ultimately, states must

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140. Jordan, "When Heads Roll," p. 727.

141. Ganor, *The Counter-Terrorism Puzzle*; and Hafez and Hatfield, "Do Targeted Assassinations Work?"

142. Jarret M. Brachman and William F. McCants, *Stealing Al-Qa'ida's Playbook* (West Point, N.Y.: Combating Terrorism Center, United States Military Academy, 2006); Shapiro, "The Terrorist's Challenge"; and Joseph N. Felter, "Cracks in the Foundation: Leadership Schisms in al-Qa'ida 1989–2006," in Felter, ed., *Harmony Project* (West Point, N.Y.: Combating Terrorism Center, United States Military Academy, 2007).

weigh the costs and benefits associated with implementing decapitation strategies.

In the introduction, I asked what effect Osama bin Laden's death would have on al-Qaida. Given that the organization is widely considered to be more than twenty years old, bin Laden's death will most likely increase the group's chances of organizational death, but not nearly at the rate that it would have had it occurred during the group's early years. Preliminary reports, however, indicate that leadership succession within al-Qaida may lead to organizational instability.<sup>143</sup> Three points deserve mention.

First, it was a month and a half before the group responded to bin Laden's death and named long-time deputy Ayman al-Zawahiri his successor.<sup>144</sup> This long delay seems odd for an organization known for both its media savvy and its knowledge that bin Laden was the number one target for the most powerful nation on the earth.

Second, previous to bin Laden's death, scholars and pundits believed that al-Qaida's decentralized and amorphous organizational structure—features that many analysts failed to acknowledge were the product of necessity rather than choice—made the group more dangerous in the long run. Much of the evidence gleaned from the bin Laden compound since, however, indicates that the al-Qaida leader was still very much in charge and was heavily involved in the operational planning, and potentially in the tactical planning, of future attacks. Contrary to theories of the “leaderless jihad” that were popular before bin Laden's death but consistent with a leader of a violent, clandestine, and values-based organization,<sup>145</sup> bin Laden was still centralizing power and maintaining information at the highest levels. As a result, the bin Laden operation landed what is considered to be the largest single intelligence find in the post-September 11 era.<sup>146</sup>

Finally, bin Laden was a charismatic and transformative leader who will be very difficult to replace. Although al-Zawahiri is now acting as bin Laden's successor, he is thought to lack the charisma that made bin Laden so beloved and revered.<sup>147</sup> In addition, Lawrence Wright includes a story in *The Looming Tower* that sows doubt about al-Zawahiri's ability to effectively lead the organization. Prior to al-Zawahiri leaving al-Jihad (his old terrorist organization)

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143. Mary Beth Sheridan, “Zawahiri Named New al-Qaeda Leader,” *Washington Post*, July 16, 2011.

144. *Ibid.*

145. Marc Sageman, *Leaderless Jihad: Terror Networks in the Twenty-First Century* (Philadelphia: Pennsylvania State University Press, 2008).

146. Siobhan Gorman and Adam Entous, “Massive Intelligence Haul,” *Wall Street Journal*, May 4, 2011.

147. Sheridan, “Zawahiri Named New al-Qaeda Leader.”

for al-Qaida, one of his closest friends and mentors gave him the following advice: "Remember, if you are a member of any group, you cannot be the leader."<sup>148</sup>

Leaders play important roles in organizations, especially in terrorist groups. The organizational characteristics of terrorist groups make replacing their leaders very difficult. Some scholars have called leadership decapitation "a misguided strategy," "an ineffective means of reducing terrorist activity,"<sup>149</sup> and even "counter-productive."<sup>150</sup> Strategies and tactics aimed at removing terrorist leaders may have negative consequences in the short term, but they increase the mortality rates of the groups they lead, a factor that policymakers should include in their decision calculus.

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148. Lawrence Wright, *The Looming Tower: Al-Qaeda and the Road to 9/11* (New York: Alfred A. Knopf, 2006), p. 217.

149. Jordan, "When Heads Roll," p. 754.

150. *Ibid.*, p. 723.