

# **Understanding the Determinants of Terrorist Attack Publicity**

by

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# Chapter 1: Introduction

## Thesis Overview

There has been substantial research on the causes and consequences of terrorism around the world, but only a few studies have examined the role of terrorist attack publicity. The question of what determines the media coverage of terrorist incidents is seldom asked by scholars but is nonetheless crucial to understanding how a terrorist group communicates its message. Terrorism is generally seen as a communicative strategy of extremist organizations that aim to spread fear and disseminate propaganda in order to try to gain concessions from the government through the process of bargaining. Terrorism is premeditated and politically motivated violence perpetrated against noncombatant targets by subnational groups or individuals.<sup>1</sup> It has been used historically by radical leftists, nationalists, and religious fundamentalists in the pursuit of their goals.<sup>2</sup> Terrorist groups typically do not have enough material resources – personnel, funds, or territory under their control – to achieve their aims through military actions or legitimate means such as lobbying or navigating the legislative process. Their supporters are usually in the extreme minority, and they are generally much weaker

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<sup>1</sup> While terrorists typically target civilians, non-state political violence against military personnel who are unarmed, off duty, or not fighting is also considered terrorism. See Title 22, United States Code, Section 2656f(d).

<sup>2</sup> While terrorism has existed throughout history, its modern era is often characterized as starting in 1968 after the Arab-Israeli War. In contrast with previous periods, terrorism today is internationalized. See Combs (2003).

than the authorities they try to coerce (Lake 2002). Instead, terrorist organizations typically engage in psychological campaigns to influence a sizable audience by attacking civilians or striking more symbolic targets.<sup>3</sup>

Communication is inherent to any act of terrorism. Besides attempting to harm the immediate victims, terrorists often threaten a target population and call upon potential sympathizers to support their cause in order to try to coerce the government to concede to their demands. Media attention is generally an important way for terrorist groups to communicate with the public and therefore try to gain concessions from the authorities. The media involves all means and channels of information, including newspapers, television, the radio, websites, and magazines.<sup>4</sup> Journalists employed by media organizations collect, analyze, verify and present information regarding events, trends, issues, and people. The public's awareness of terrorism comes almost entirely from news reporting, making it essential to terrorist organizations' promotion of their goals.<sup>5</sup>

The media's centrality in the calculus of terrorism is affirmed by the notion of the "propaganda of the deed." Schmid and de Graaf (1982, 14) explain that for

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<sup>3</sup> The definition of terrorism remains contested by some scholars who question why some events are labeled as terrorism by governments and the media and others are not. To define terrorism is not to condemn it morally. It is also unclear whether political violence against noncombatants by states should or should not be viewed as terrorism. Nacos (2007) claims, however, that when it comes to studying the media coverage of terrorism, violent political acts against noncombatant targets by states should be discounted because they do not intend to gain publicity for them. Also see Hoffman (2006).

<sup>4</sup> The media also includes books, films, music, theater, and the visual arts. However, these mediums are generally not used to report the news.

<sup>5</sup> The public is usually presumed to be heterogeneous, consisting of people who are knowledgeable about terrorism and those who are ignorant toward it. Nonetheless, it is generally assumed when it comes to terrorism that the vast majority of the public consists of people who are on the side of the government. Anyone who is a supporter or potential sympathizer of a terrorist organization is generally in the extreme minority.

terrorists, “the immediate victim is merely instrumental, the skin of a drum beaten to achieve a calculated impact on a wider audience.” Terrorists generally want the media to cover their activities extensively in order to gain recognition, voice their message, and try to get the government to listen to them. The Geneva Declaration on Terrorism recognizes that the media may play into the hands of terrorists by “uncritically disseminating information” and selectively covering their attacks.<sup>6</sup> Although media organizations today exercise disciplined restraint with respect to terrorist propaganda, they nonetheless continue to publicize terrorist activities day after day.

When terrorist organizations plan their attacks, they often consider the likelihood of gaining media attention. Weimann and Winn (1994, 52) describe terrorism as a theatrical production in which “terrorists pay attention to script preparation, cast selection, sets, props, role playing, and minute-by-minute stage management.” The possibility of receiving the spotlight is important to terrorist groups because it increases the expected returns of carrying out their attacks. Terrorists often vie for publicity by exploiting far-reaching, instant media networks and information highways that carry news about their activities around the world. However, media attention to terrorist incidents varies a great deal. While most acts of terrorism receive almost no attention by the media, a few of them receive overwhelming publicity. Weimann and Winn (1994, 68) estimate that major newspapers in the United States cover about one third of transnational terrorist

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<sup>6</sup> See the United Nations, “The Geneva Declaration on Terrorism,” 21 March 1987, Geneva.

attacks, whereas major American television stations report approximately one in six events. Chermak and Gruenewald (2006) find that even a smaller percentage of terrorist attacks in the United States are reported by prominent domestic media organizations.

In this thesis, I am interested in determining which features of terrorist incidents make them receive more media attention. Under my central assumptions that news reporting is driven primarily by public interests and the access of journalists to information about stories, I hypothesize that terrorist attacks receive greater media coverage when they are more shocking, create more speculation about the perpetrators, involve more identifiable targets, or are more accessible to reporters. This thesis is innovative in that it employs data on media coverage collected with automated content analysis. Previous studies on the media coverage of terrorist attacks, most of which are now outdated by at least two decades, used laborious human coding for data collection. Instead, my machine coding algorithm matches news articles to their respective terrorist incidents according to dates, country locations, and tactics. This method gives me a count of how many documents mention each event.

Using this information, I conduct statistical analysis to test my predictions about the determinants of terrorist attack publicity. I discover that terrorist activities get more media attention when they generate more casualties, are part of a series of terrorist attacks, target transportation systems, occur in the United States, take place in countries receiving more American development and military



aid, span over one day, coincide with national elections, or occur in countries with more press freedom. Furthermore, I find that a terrorist incident gets less media coverage when the perpetrators are exposed through government intelligence but receives more publicity when one or more terrorist organizations claims responsibility for it. Lastly, I find that bombings get more media attention, while assassinations and hijackings get less publicity. Although these findings are robust to various definitions of terrorism, they may be more applicable to domestic than transnational terrorist attacks.

In the remainder of this chapter, I outline the history of media attention to terrorism in the post-Cold War era, discuss the implications of studying the media coverage of terrorist attacks, and explain my central assumptions. In Chapter 2, I present my hypotheses, assess the relevant literature, and discuss my research design, including the unit and scope of analysis as well as the dependent and independent variables. Chapter 3 describes my automated coding scheme for collecting data on media coverage. In Chapter 4, I offer summary statistics and regression analysis to test my hypotheses. Chapter 5 concludes by summarizing my findings, presenting lessons for policymakers and scholars, and suggesting avenues for future research.

## **Background**

Since the end of the Cold War, terrorism has become more prominent because of globalization, the increased cross-border movement of goods, people,

and information. Before the fall of the Iron Curtain, countries in the Western Bloc were frequently the targets of radical leftist and nationalist terrorist groups, all the while enjoying assistance from Eastern Bloc countries in the form of arms, training facilities, and safe havens. Nonetheless, the web of terrorism against the West that extended deep into the Soviet Union served, at the same time, as a mechanism of restraint. The Soviet Union used its influence over its allies and client states to keep anti-Western terrorism beneath an acceptable threshold in order to avert the risk of military confrontations with the United States (Nacos 2007). During the Cold War, anti-imperialists and communists such as the Italian Red Brigades and the German Red Army Faction as well as nationalists such as the Palestinian separatists preferred to target more influential people from the political, business, or military realm rather than innocent bystanders. With the disintegration of the Soviet Union into dozens of independent states, the mechanism of restraining anti-Western terrorism vanished.

As a result, surviving and newly emerging terrorist groups acquired far more autonomy, gained a broader spectrum of viable targets, and began to resort to deadlier measures. The mobilization of religious fundamentalist movements in the post-Cold War era resulted in more terrorist attacks that generate greater casualties. Recent years have seen the rise of Muslim extremists who see themselves as God's soldiers in a holy war, often referred to as *jihad*, in hopes of bringing to power governments that follow the moral code of Islam. Islamic fundamentalist terrorists often target Westerners in their attempts to provoke the United States

into meddling in the affairs of Muslim countries. According to Lake (2002, 16), terrorists seek “to provoke the target into a disproportionate response that radicalizes moderates and drives them into the arms of terrorists, expanding their supporters.” By inspiring further revenge, Islamic fundamentalist organizations such as al-Qaeda seek to end Western pollution of Islamic culture, force the United States to withdraw from the Middle East, and destroy Israel.<sup>7</sup>

In trying to cause greater devastation, terrorist organizations such as the Lebanese Hezbollah often conduct suicide attacks. Suicide terrorism follows strategic logic from the perspective of terrorist organizations seeking to coerce the authorities to consent to their demands. Nacos (2007, 94) observes that “when suicide bombers strike, they are condemned by one side and celebrated as martyrs and heroes by the other.” Pape (2003) argues that consistent concessions by governments in response to bombings by suicide terrorists – such as American, French, and Israeli forces’ abandonment of Lebanon – has incentivized them to pursue more ambitious campaigns.

Terrorist groups today are more militant than ever before, and they have also been bolstered by technological improvements. Over the last two decades, innovations in global communication and transportation, including communication satellites and the digital revolution, have spurred globalization. High-speed, more affordable air travel and the free movement of people within the European Union have increased the ability of terrorists to find hiding places and cross borders for operational purposes by reducing transaction costs. The Internet has been used

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<sup>7</sup> See “Full text: ‘Bin Laden’s Message,” *BBC Monitoring*, 12 November 2002.

increasingly by terrorist organizations to spread fear, distribute propaganda, make demands, coordinate their activities, send warnings about their attacks, and gather intelligence (Post, Ruby, and Shaw 2000). Mobile phones now let terrorist groups coordinate their attacks at widely dispersed places, allowing them to operate in multiple countries at once.

The international media has also grown tremendously after the Cold War due to globalization, providing more opportunities for terrorists to gain publicity. Minimized air travel expenses, more efficient correspondence through the Internet and cell phones, and fewer language barriers have significantly broadened access to information for journalists and the public. The media's expanding global reach creates more favorable circumstances for gaining publicity, often called the "oxygen of terrorism."<sup>8</sup> As media organizations get access to more locations across borders, terrorists are provided with more opportunities to have their attacks noticed. Moreover, political liberalization in Central and Eastern Europe as well as Central Asia has opened up channels of communication that were formerly controlled by autocratic governments. This development has made terrorism more appealing in former Soviet republics. For instance, despite harsh criticism from the Russian government, several television channels outside of the state's control – most notably *NTV* – have broken numerous stories about bombings, hijackings, and hostage takings by Chechen separatists, perpetuating their conflict with the Russian military.

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<sup>8</sup> This quotation is often attributed to former British Prime Minister Margaret Thatcher in her struggle against the Irish Republican Army's terrorism. She sought to use legislation to reduce the coverage given to it by the media.

The aircraft hijackings of September 11, 2001, covered by the international media ceaselessly for countless weeks, are perhaps a watershed moment in terms of the media coverage of terrorism. Around the world, the public was shocked by images and video footage of the smoking World Trade Center. The incredible global scale of terrorism in the post-Cold War era – driven mainly by Islamic fundamentalists – was finally recognized. As a result, 9/11 made the public much more attuned to terrorist activities and therefore made media outlets – which derive their profits mostly from advertising to their consumers – much more likely to report it (Cho et al. 2003; Altheide 2006). In response to 9/11, many countries expanded their homeland security measures, and the United States initiated the War on Terror to crack down on al-Qaeda and the Taliban in Afghanistan.

Since then, the world has seen a rise in terrorist activities despite substantial counterterrorism efforts by numerous governments. Annual terrorist activities more than quadrupled in the decade after 9/11, from 982 in 2002 to 4564 terrorist incidents globally in 2011.<sup>9</sup> The American government often cited the issue of Muslim fundamentalist terrorism as impetus for the 2003 invasion of Iraq. In a meeting with the United Nations Security Council, former U.S. Secretary of State Collin Powell stated that there seemed to be a “sinister nexus between Iraq and the al-Qaeda terrorist network,” speculating that Iraq provided training to al-Qaeda terrorists.<sup>10</sup> But instead of subverting terrorism, the Iraq War seems to have added

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<sup>9</sup> See Peter Apps, “Terrorist Attacks More Than Quadrupled In Decade Since September 11, 2001, Study Finds,” *Reuters*, 4 December 2012.

<sup>10</sup> See the White House, “U.S. Secretary of State Colin Powell Addresses the U.N. Security Council,” 5 February 2003, Washington, D.C.

fuel to the fire. According to the U.S. National Intelligence Council, the war has made Iraq a magnet for international terrorist activities, deepening solidarity among terrorist organizations and spreading radical Islam around the globe.<sup>11</sup> Today, fundamentalist Islamic groups continue to orchestrate noteworthy terrorist attacks regularly. As the War on Terror rages on, the United States may be coming to terms with the notion that publicized terrorism is far from over and an inherent reality of the post-Cold War era.

### **Significance**

The reporting of terrorism by the media is significant for several reasons, including the public perception of terrorist activities, terrorist groups' aptitude for gaining supporters and obtaining concessions from the government, and the perpetuation of further terrorism. The coverage of terrorist attacks by the press undoubtedly influences how the public perceives terrorism. It has been found generally that exposure to news reports about terrorist activities increases anxiety. In a survey of Israelis shortly after a series of particularly devastating terrorist incidents, Keinan, Sadeh, and Rosen (2003) find that exposure to the "horrifying details" of terrorist attacks is associated with the development of symptoms related to post-traumatic stress disorder, including uneasiness and dread. Additionally, Slone (2000) finds in an experiment that people exposed to the media coverage of terrorist attacks experience more anxiety.

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<sup>11</sup> See Dana Priest, "Iraq New Terror Breeding Ground," *The Washington Post*, 9 July 2005.

Stress about terrorism may, in turn, elicit public demands for policy changes in democracies, where voters get to set policymaking agendas through the electoral process. Fearing that their safety is in jeopardy from terrorism, people who are exposed to the media coverage of terrorist attacks may clamor for more drastic counterterrorism measures by taken by the government. Berrebi and Klor (2008) find that terrorist attacks in Israel increase political polarization among voters. Huddy et al. (2005) also show that in the United States, greater anxiety in regard to terrorism increases support for the use of military force, the curtailment of civil liberties, increased surveillance, and tighter immigration restrictions. Public support for counterterrorism in the United States increased significantly following 9/11, in contrast with previous public cynicism the government's ability to deal with terrorists. In democracies, the public is influential in shaping the policies of politicians seeking to get elected or reelected. Terrorist incidents that get more media coverage can make the public more worried, which may induce democratic leaders faced by the threat of audience costs to pursue harsher homeland security measures. Conversely, terrorist incidents that get less media attention may be ignored altogether by the public and policymakers in democratic countries. Understanding which properties of terrorist attacks get them greater media attention may provide more insight into the public's attitude toward terrorism and thus into how democratic governments deal with it.

Moreover, terrorist organizations may be able to attract additional supporters with increased media attention to their activities. Hoffman (2006)

argues that by covering their attacks, the media may provide terrorist organizations with a platform to voice their grievances. While the media rarely legitimizes terrorist organizations, their recognition alone in news reports about their attacks may be enough for them to garner more support domestically and globally. In hostage takings, terrorists often request to release statements to the media as a condition of releasing their captives. A terrorist organization may also hope that the media coverage of its attacks will convince potential sympathizers that it is capable of inflicting substantial harm or is more effective than its rivals at challenging the authorities. Kydd and Walter (2006, 76) argue that because potential sympathizers are sometimes uncertain about who truly represents their preferences, a political organization that resorts to terrorism may be able to garner more support by signaling that it is “a strong resolute defender of a cause” rather than being composed of “weak and ineffective stooges of the enemy.” This “zealots versus sellouts” rivalry is exemplified by Palestinian nationalists. Hamas uses terrorism against Israeli civilians not only to threaten them but also to try to persuade Palestinians to prefer it – as opposed to the Palestinian Authority under Fatah – as a negotiating agent with Israel. By seeking media attention, Hamas tries to show to the Palestinian people that it has the capacity to continue to strike rockets on Israel and to bargain more effectively with the Israeli government. Knowledge about the motivations and constraints of the media in reporting terrorist incidents may inform media and public relations for governments involved in counterterrorism. A terrorist incident that receives more media coverage may attract more supporters



for the perpetrators and may therefore require closer inspection by homeland security agencies.

By spreading fear and propaganda, terrorist groups may be able to apply more pressure on the government to give in to their grievances. When its detractors are demoralized and its supporters are encouraged, a terrorist organization may have a greater ability to bargain with the state. Terrorist groups therefore often measure their level of accomplishment by how much media attention their attacks get and their ability to leverage their publicity for bargaining purposes. In barricades and kidnappings, terrorists seize noncombatants and hold them for prolonged periods in order to propagate their message. With the lives of the hostages at stake, terrorists can often hold the attention of the media, the public, and the authorities. Schaffert (1992) discovers that the media coverage of hostage takings affects whether or not the perpetrators receive concessions from the government.<sup>12</sup> The fact that the publicity of terrorist incidents varies tremendously suggests that terrorist organizations differ substantially in their ability to design attacks to garner media attention. Understanding which properties of terrorist incidents get more media attention may provide additional insight into the media savvy and organizational capacity of the perpetrators.

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<sup>12</sup> This relationship, however, may be backwards – terrorist attacks may get more publicity when the perpetrators receive more concessions from the authorities. However, I do not study this issue because it has more to do with long-term media attention to terrorist attacks. Concessions from governments are generally made long after terrorist incidents occur, after much deliberation by policymakers. This thesis uses a two-day window to match news reports to their respective terrorist attacks and therefore can only make inferences about terrorist attack publicity in the short term. Perhaps future studies using longer time windows to sort documents by their corresponding events could deal with this issue.

Finally, the media coverage of terrorist incidents may perpetuate further terrorism. It is commonly believed that a symbiotic relationship exists between terrorism and media coverage. The media and terrorist organizations have a mutual interest in the reporting of their attacks. Media organizations give terrorists access to their viewers, readers, and listeners in exchange for being able to cover their attacks, gaining more consumers and therefore making profits. Some scholars theorize that the symbiotic relationship between terrorism and media coverage creates a feedback loop of terrorist attacks. According to this logic, the media profits from covering additional terrorist incidents by gaining a larger audience, and terrorist organizations, in turn, exploit the media by increasing the rate of their attacks. Nelson and Scott (1992) test this prediction but do not find that the media coverage of terrorist incidents leads to “copycat” terrorist acts. Rohner and Frey (2007) construct a pure coordination, or common-interest, game theoretic model to represent interactions between the media and terrorists. They argue that the media and terrorist organizations desire the same Nash equilibrium outcome in terms of attacks and publicity. Their findings show that media attention and terrorism mutually cause each other, and they attribute their diverging results to the notion that post-Cold War globalization and 9/11 have made the media coverage of terrorism more pertinent.

However, some scholars contest the notion that terrorism and media coverage bolster one another. Scott (2001) disagrees with the assumption that the media coverage of terrorism has no limit and argues that terrorists compete for a

finite amount of media attention because of a “media congestion effect.” Still, this study does not consider the fact that public attunement toward terrorism may change every now and then – especially after particularly devastating terrorist incidents – altering the baseline level of media attention to terrorism. While this phenomenon has not been fully explored, changes in the media coverage of terrorism may at least impact terrorist activities in the short run – if not in the long run. Understanding which features of terrorist incidents get them more media attention may show governments involved in counterterrorism how to better anticipate and respond to changes in terrorism over time.

### **Central Assumptions**

In this thesis, I make two main assumptions about the dynamics of news reporting, which I use to formulate my hypotheses about which attributes of terrorist attacks affect their publicity. First, I assume that public interests dictate much of the news that media organizations report. Media organizations are businesses that seek profits, and they derive much of their revenue from advertising. In order to continue earning money, media outlets must sustain a considerable audience. Media executives therefore choose what to cover based on the interests of their consumers. When receiving information from journalists, editors are believed to exercise ultimate authority over deciding which stories are newsworthy. Since editors have limited space in newspapers, they must limit what gets published to stories that most appeal to the public. Galtung and Ruge (1965)

find that in order to draw in more viewers, listeners, or readers, media outlets tend to cover stories that occur suddenly and unexpectedly, involve conflict, and are provocative. Timing, conflict, and allure are consistently viewed as the most critical attributes of a story when it comes to news reporting (Harcup and O’Neill 2001; Brighton and Foy 2007). The media is often seen as an “infotainment” industry that values more sensational stories.

Second, I assume that the media’s ability to access facts about stories is crucial to news reporting. Journalists in a news-sending country generally conduct interviews to gather information about stories, and they rely on sources of information such as eyewitnesses and specialists in order to collect facts about an event. Because they can hardly ever establish the complete truth about a story themselves, journalists are almost entirely reliant on the people they interview. Schaffert (1992) recognizes this phenomenon as “source dependency” and explains that often self-interested interviewees shape the version of reality that journalists convey. After gathering facts about an event, journalists send this material to local or district bureaus of international news agencies, which pass it on to the central bureau. Local or district bureaus in a news-receiving country pick up this information and send it to newspapers for publishing.<sup>13</sup> Because media organizations are often significantly removed from the stories they cover, the information gathered by journalists is integral to their news content. In the next

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<sup>13</sup> Sometimes media organizations hire correspondents in the field who speed up this process somewhat by sending news straight to the editors they work for. Nonetheless, correspondents merely make news reporting across borders more efficient and do not significantly increase media access. It is important to mention that photographers in the field also experience “source dependency.”

chapter, I use these theoretical considerations to establish my hypotheses. The following chapter also discusses the relevant literature and my research design, including the unit and scope of analysis as well as the dependent and independent variables.

## Chapter 2: Hypotheses and Research Design

### Hypotheses

In this thesis, I test 13 hypotheses about the determinants of terrorist attack publicity. These predictions are derived from my central assumptions that news reporting is mainly influenced by public preferences and journalists' access to facts about stories. I expect acts of terrorism to receive greater attention by the media when they are more shocking, generate more speculation about the perpetrators, have more traceable targets, or are more accessible to journalists. I expect the features of terrorist attacks that I focus on in this thesis to be quite pertinent. However, no argument is made for completeness in my list of factors influencing the media coverage of terrorist activities. I am merely interested in testing the predictions I put forth.

First of all, it seems that more shocking terrorist attacks receive more media attention. According to Breckenridge and Zimbardo (2007), terrorist attacks are often used by media organizations to scare the public and therefore satisfy their profit motives.<sup>14</sup> They argue that public worries about terrorism are overblown because human beings have a “negativity bias” implicit to their perception of the news, which is amplified by social interactions. They explain that more shocking stories attract more people and are therefore more lucrative to the news industry.

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<sup>14</sup> Terrorism as a topic of news content must, of course, compete with other newsworthy topics like the status of the economy, corruption, and wars in order to get media coverage.

However, in contrast to conventional wisdom, smaller-scale terrorist attacks generally do not meet enough news values criteria to be interesting to the public. Instead, only a handful of terrorist incidents – usually ones that cause more carnage – are exploited by media organizations. The more injuries or fatalities a terrorist incident produces, the more bewildering and significant it may appear to the public (Nacos 2003, 2007). Terrorist incidents resulting in greater casualties may receive more publicity.

Hypothesis 1            All else equal, terrorist incidents with more fatalities receive more media coverage.

Hypothesis 2            All else equal, terrorist incidents with more injuries receive more media coverage.

Terrorist attacks in a series are also likely to garner more publicity for their shock value. Acts of terrorism belonging to a series occur in conjunction with one another, generally on the same day, but have discontinuous times of occurrence or local locations. If a terrorist group is able to orchestrate more than one attack at a time, this aggression may demonstrate its resolve and ability to inflict massive damage. When terrorist attacks occur in a series, the media is likely to report them together.

Hypothesis 3            All else equal, terrorist incidents that belong to a series receive more media coverage.

It also seems that public fatigue influences the media coverage of terrorism. This notion is captured by the journalist anecdote that “man bites dog” stories are newsworthy but “dog bites man” stories are not. Novel stories seem to be more shocking and therefore attract more people. Terrorist incidents using more common tactics like armed assaults, assassinations, bombings, infrastructure or facility attacks, or assassinations may receive less media attention, while more innovative ones like hijackings or hostage takings may generate more publicity.<sup>15</sup>

Hypothesis 4            All else equal, terrorist incidents that involve novel tactics receive more media coverage.

Furthermore, uncertainty about the perpetrators seems to increase the media coverage of terrorist incidents. Breckenridge and Zimbardo (2007) explain that when it comes to terrorism, “the unknown is inherently more frightening than the known.” Without certainty about the perpetrators, the media may go to great lengths to speculate about which terrorist group is responsible for an attack, with differential effects. Providing the public with government intelligence about the

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<sup>15</sup> By this logic, terrorist incidents involving novel targets may also get more publicity. However, unlike with terrorist tactics, it is not apparent which targets consistently stand out as the rarest ones. While it may be worthwhile to ponder the notion that novel targets garner terrorist incidents more attention by the media, this consideration is merely speculative.



perpetrators – especially about their fallibility – can make a terrorist incident seem less frightening. However, terrorist groups may be able to garner more media attention to their attacks by claiming responsibility for them. Knowledge about the perpetrators that comes from the authorities is usually credible, reassuring people about their safety. In contrast, a terrorist organization’s assertion of responsibility for an attack is often dubious and unreliable. The public may therefore find a claimed terrorist incident more deplorable. A terrorist attack with attribution – when at least one terrorist organization claims responsibility for it – seems to get more publicity, while an event with known perpetrators may receive less media attention.

Hypothesis 5            All else equal, terrorist incidents with known perpetrators receive less media coverage

Hypothesis 6            All else equal, claimed terrorist incidents receive more media coverage.

Additionally, it seems that the identifiability of the targets of terrorist attacks increases their media coverage. According to Galtung and Ruge (1965, 69), the public gravitates toward news about people they relate to, since “personification is a consequence of the need for meaning and consequently for identification.” The media has a tendency to frame an event around the people involved in it – rather

than presenting a story as the outcome of social forces, as a structural more than idiosyncratic outcome of the society that produced it. In particular, the media tends to report stories about the elite, since their actions are more consequential than those of anyone else. As magazines such as *People* demonstrate, the elite are often used in a sense to tell about everyone. It seems that terrorist incidents involving more symbolic targets such as government officials, businesses, or military personnel get more media coverage than less figurative targets like police officers, civilians, public transit, or other targets.

Hypothesis 7            All else equal, terrorist incidents that involve more symbolic targets receive more media coverage.

This dynamic is likely to apply not only to individuals but also to states. The United States, as the world superpower, seems to receive more media attention when it comes to terrorist attacks on its territory or against its people. This effect is no doubt magnified when looking at to major English language newspapers primarily headquartered in North America and Western Europe. Terrorist attacks that target Americans or U.S. territory may receive more media attention, especially from these news sources.

Hypothesis 8            All else equal, terrorist incidents that occur in the United States receive more media coverage.

Hypothesis 9            All else equal, terrorist incidents that target Americans receive more media coverage.

If this logic holds, then surely the media is more focused on news that the United States deems central to national security. Terrorist attacks are likely to be seen as more important and therefore generate broader news coverage if they put at risk American strategic interests at home or abroad. One way to gauge how vested the American government is in the affairs of other countries is to look at how much foreign aid it gives them. Since the onset of the War on Terror, the United States has poured massive economic and military aid dollars into terrorism-ridden countries such as Iraq and Afghanistan to try to stabilize them. Terrorist attacks are likely to get more publicity when they occur in countries receiving more development and military aid from the United States.<sup>16</sup>

Hypothesis 10           All else equal, terrorist incidents receive more media coverage when they take place in countries that accept more foreign aid from the United States.

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<sup>16</sup> Degrees of American foreign aid are merely a decent proxy for the United States' stake in countries in terms of national security. American development assistance may differ from military assistance in terms of impacting the media coverage of terrorist attacks in a country. Alternative proxies for how important the United States deems countries for strategic reasons may include levels of American trade, immigrant flows, and so on.

Lastly, the access of journalists to terrorist attacks is likely to increase their publicity. The numerous actors surrounding a terrorist incident – including the perpetrators, the immediate victims, law enforcement personnel, and politicians – are sources of information that journalists use to report it. Journalists’ ability to get interviews may determine whether or not a terrorist incident is reported (Crelinsten 1997). Longer-duration terrorist incidents – generally hostage takings – may get more media coverage, because they allow terrorist groups to periodically issue statements about their causes during negotiations, which the media may pick up.<sup>17</sup> I predict that terrorist attacks spanning over one day get more media reporting.

Hypothesis 11      All else equal, extended terrorist incidents receive more media coverage.

Moreover, when a terrorist incident coincides with a distinct newsworthy story, it may garner more attention by the media. Terrorist attacks on the eve of national elections often garner significant publicity, since journalists report them in conjunction with their reporting of highly contested political races. Terrorist attacks associated with national elections seem to get more attention by the media.

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<sup>17</sup> This hypothesis may also apply to the notion that more shocking terrorist attacks get more media attention. The public may find longer-duration terrorist incidents more appalling, identifying with the hostages and pleading for their emancipation.

Hypothesis 12      All else equal, terrorist incidents coinciding with national elections receive more media coverage.

Plus, the lack of robust traditions of press freedom and the desire to suppress any evidence of terrorist groups means that autocracies seem more likely to underreport terrorist attacks. The access of journalists to news is often determined by how much press freedom countries have, especially when it comes to censorship or control of the media by the state (Drakos and Gofas 2006). Countries with less press freedom may have a tendency to underreport terrorist incidents.<sup>18</sup> Terrorist incidents that take place in countries with greater press freedom are likely to get more publicity.

Hypothesis 13      All else equal, terrorist incidents occurring in countries with more press freedom receive more media coverage.

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<sup>18</sup> Although press freedom is not a direct measure of the presence of media organizations in a country, it indirectly functions as a decent proxy for this construct. When a country has less press freedom, there seem to be fewer news sources in it per capita. Unfortunately, any information available on how many media outlets there are in a country – such as the World Bank’s annual count of daily newspapers per 1000 people – is massively incomplete.

**Table 1: Hypotheses**

<b>Explanation</b>	<b>Feature</b>	<b>Predicted relationship to media coverage</b>
shock value	fatalities	positive
	injuries	positive
	part of a series	positive
	tactic type	
	armed assault	negative
	assassination	negative
	bombing	negative
	infrastructure	negative
	hijacking	positive
	hostage taking	positive
speculation about the perpetrators	known perpetrators	negative
	claimed	positive
target traceability	target type	
	business	positive
	government	positive
	police	negative
	military	positive
	civilian	negative
	transportation	negative
other targets	negative	
	American location	positive
	American target	positive
	American foreign aid	positive
journalist access	longer duration	positive
	national election	positive
	press freedom	positive

**Literature Review**

There exist several studies about the determinants of media attention to terrorist incidents. Their findings support some of my hypotheses but not all of them. In studying transnational terrorism, Weimann and Winn (1994) find that terrorist attacks receive more coverage by major American newspapers when they

inflict more injuries or fatalities. Several other studies regarding transnational acts of terrorism have found that hijackings or hostage takings receive more media attention (Weimann and Brosius 1991; Nelson and Scott 1992). Some research has also found that transnational terrorist attacks in Europe or the Middle East, particularly in the Israeli-Palestinian conflict, are more likely to receive at least minimal coverage by prominent American newspapers and television channels. These studies also find that transnational acts of terrorism in Latin America are less likely to receive any media attention at all in the United States (Kelly and Mitchell 1981; Delli Carpini and Williams 1987). Plus, Chermak and Gruenewald (2006) discover in their study of terrorism in the United States that attacks targeting Americans receive greater coverage by major domestic media sources. These findings are consistent with my hypotheses that terrorist incidents get more media coverage when they inflict more injuries or fatalities, involve novel tactics, target Americans, or take place in the United States.

However, some of my predictions are novel or challenged in the relevant literature. Hoffman et al. (2010) put into doubt public pressure explanations of terrorist attack publicity by demonstrating that prominent American newspapers hardly respond to competition when it comes to reporting terrorism. They find that the media reporting of governments' counterterrorism policies is consistently greater than that of terrorist attacks, which indicates that the media may be more professional than sensationalistic. Homeland security policy discussions seem to take precedence in the media over the coverage of the more shocking aspects of

terrorism, showing that the reporting of terrorist incidents may not be entirely up to the choices of media executives in response to public interests. Additionally, Weimann and Winn (1994) find that transnational terrorist incidents with known perpetrators get more attention by widely-published American newspapers, perhaps because this study fails to distinguish between claimed events and ones with known perpetrators. This finding contrasts my fifth hypothesis that terrorist incidents receive more publicity when the authorities fail to announce or are unaware of which terrorist groups have committed them. Lastly, Herman (1982) argues that terrorist attacks against the allies and client countries of the United States were largely ignored by the American media during the Cold War in favor of dissidents in the Eastern Bloc. While this argument may not be relevant today given post-Cold War geopolitical changes, it nonetheless puts into doubt my tenth prediction that terrorist attacks in countries deemed more important to American strategic interests get more media coverage. To the best of my knowledge, my hypotheses that terrorist incidents get more publicity when they come in a series, have more symbolic targets, have a longer duration, coincide with national elections, or occur in countries with greater press freedom have not yet been studied.

The relevant literature has, no doubt, several key limitations. For the most part, previous studies use insufficient data and require updating. A few of these works go through the arduous task of categorizing documents by their respective terrorist incidents, as I do for this project with automated coding. However, most of them simply compare overall levels of terrorism and media coverage over several



years and therefore have limited credibility in making claims about which features of terrorist incidents garner them more media attention. These studies also generally observe only transnational terrorism, missing domestic terrorism altogether.<sup>19</sup> Plus, most of them use only major American newspapers like *The New York Times*, *The Washington Post*, and *USA Today* or American television news broadcasts from prominent channels like *ABC*, *CBS*, and *NBC*. As a result, their ability to discuss media coverage internationally is incredibly limited. The reason these researchers have been unable to include any more data on media attention for analysis is that they have relied primarily on human coding. This process is time-consuming and expensive, limiting the variety of media sources included for analysis. Moreover, much of the relevant literature is now outdated by at least two decades. It is unclear whether or not the patterns found in these studies persist today. Globalization after the Cold War and 9/11 may have expanded the relevance of the media coverage of terrorism, which may affect which properties of terrorist incidents get them more attention by the media. The landscape of terrorism scholarship has changed tremendously in recent years, and the study of terrorist attack publicity requires new investigation.

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<sup>19</sup> At the publication times of most of the relevant studies, data on domestic terrorism was often inaccessible. In the rare instances when it was publically available, relatively low inter-coder reliability made it virtually unusable by scholars. Today, much more reliable data on domestic terrorism exists and is therefore applicable for analysis.

## Unit and Scope of Analysis

The entity that is being analyzed in this thesis is a terrorist incident. In my dataset, I include all terrorist attacks in 2004 and 2005 which have known dates, country locations, and tactics. These years were chosen because of data availability, and because they are after 9/11 but before the 2007 surge of American troops in Iraq, when terrorist activities reached their historic peak.<sup>20</sup> While most terrorist incidents occur on a single day, a few span a longer timeframe – sometimes up to a week. There are as many as 74 countries – most notably Iraq and Afghanistan – in which terrorist attacks took place during these years. There are six variations of terrorist attacks, including armed assaults, assassinations, bombings, infrastructure or facility attacks, hijackings, and hostage takings.<sup>21</sup> As I explain in the next chapter, dates, country locations, and tactics were used to automatically match news articles to their respective terrorist incidents. Because these features were crucial to my machine coding method, it was imperative not to include any terrorist incidents with unknown dates, country locations, or tactics for analysis.

The publically-available *Global Terrorism Database* (GTD) provided me with a record of each terrorist incident during these years. Operated by the University of Maryland’s National Consortium for the Study of Terrorism and Response to Terrorism (START), the GTD contains records of violent acts that meet three criteria for inclusion. First, they must be associated with political, economic, religious, or

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<sup>20</sup> See Glen Kessler, “U.S. Cites 91 Percent Rise in Terrorist Acts in Iraq,” *The Washington Post*, 1 May 2007.

<sup>21</sup> The GTD distinguishes between barricades and kidnappings. However, I consider them a single attack type, hostage takings, since this categorization is consistent with the terrorist tactic dictionary I developed for automated coding.

social goals. Second, they must be intended to coerce or intimidate a larger audience. Third, they must violate international humanitarian law insofar as they target noncombatants.<sup>22</sup> This information is based on open-source materials, including online news archives, books, journals, and legal documents.<sup>23</sup> I eliminated from this list any terrorist incidents with unknown dates, country locations, or tactics. Ultimately, 2730 terrorist incidents made it into my dataset for analysis.<sup>24</sup> Although the GTD assigns identification numbers to each terrorist incident in it, I assigned new identification numbers *newid* from 1 through 2730 in order to keep track of every event in my dataset for automated coding and validation.<sup>25</sup>

### **Dependent Variable**

In this thesis, the dependent variable *nreports* is a count variable measured by the number of articles that a terrorist incident receives by major English language newspapers within two days after the event. These news sources are mainly headquartered in English-speaking countries like the United States and

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<sup>22</sup> While the GTD occasionally keeps data on violent acts that meet just two out of three criteria for inclusion, this information is largely unusable due to haphazard inter-coder reliability. I only observe terrorist attacks that meet all three inclusion criteria of the GTD.

<sup>23</sup> Manual coding of the GTD was retrospective from 1998 to 2007. Some media sources have since become unavailable, impeding the efforts of the GTD team to collect a complete census of terrorist activities. Nonetheless, GTD records are used extensively and are considered fairly reliable among scholars. See Enders, Sandler, and Gaibulloev (2011).

<sup>24</sup> My dataset is available upon request. It is essential to note that there is additional information added to it – besides the data provided by the GTD team – based on the research I conducted for this thesis, including data on media coverage, American development and military aid, national elections, and press freedom.

<sup>25</sup> GTD identification numbers were preserved for research replication purposes. However, they were not used during automated coding or validation.

Britain, though their publication is not limited to Western countries.<sup>26</sup> By having this emphasis, I do not imply that other media types or widely-known newspapers in other languages are unimportant in regard to terrorism. Television news broadcasts bring mainstream stories to the public around the world, and Internet blogs and social networks allow terrorist organizations to circumvent journalists and publicize their activities themselves. “Soft news” from magazines, the radio, and television talk shows – as opposed to “hard news” – may also be valuable to study because of its widespread global following. Nonetheless, this focus allows me to more reasonably and persuasively provide implications about the differential effects of terrorist attacks on a key subset of the international media. Indeed, prominent newspapers in English have a massive global audience, and much of the news content that appears on television, the radio, magazines, and websites is derived from them. They are therefore crucial to terrorist organizations in spreading news about their attacks globally.

Additionally, news report sums show the breadth of a terrorist incident’s media coverage.<sup>27</sup> A news article is about a terrorist incident as long as it is mentioned – whether entirely or in passing – in its opening paragraph, often called its lede. The introductory section of a news report precedes the body section and

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<sup>26</sup> Prominent English language newspapers exist in almost every corner of the globe, including most of the countries in which there were terrorist attacks in 2004 and 2005. Nonetheless, I recognize that they are primarily Western news sources.

<sup>27</sup> Alternative ways to measure media coverage may include word counts per related document as well as page numbers within newspapers. However, these measures are more about the depth or prominence of an event’s publicity rather than the breadth. I am concerned mainly with how widely reported a terrorist incident is. In addition, using these measures is less reliable for understanding media attention when there are relatively few documents about a terrorist incident, since news report word counts and page numbers vary significantly among broadsheet, tabloid, and compact format newspapers.

provides a synopsis of the story to the reader. Using a lede as a news article summary is conventional in journalism around the world, since journalists aim to grab the attention of the reader right away. I focus on ledes because they allow me to weed out any news reports which are not directly about terrorist incidents but rather indirectly reference them. Therefore, any mention of a terrorist incident in a news article's lede generally indicates that the document is about the event. Moreover, news reports about a terrorist incident are observed within two days after the event. This timeframe is sufficient for finding variation in media coverage and all the while feasible for machine coding. The rapid pace of news reporting around the world today usually allows newspapers to report on events within 24 hours of their occurrence – and often much sooner. Since a terrorist attack may occur at any time in the course of a day, a two-day window is used for matching news reports to their respective events.

### **Independent Variables**

In order to test my hypotheses about the determinants of media attention to terrorist attacks, I present 13 independent variables. First, *ln\_nkilled* is a transformed count variable measured as the natural logarithm of the number of persons killed in a terrorist attack plus one. Second, *ln\_nwounded* is a transformed count variable that reflects the natural logarithm of the number of injuries resulting from a terrorist incident plus one. These predictors are based on a tally in the GTD of all immediate victims and attackers who died or were injured as a result of

hostilities. This data is based on the most reliable and recent news sources about a terrorist incident.<sup>28</sup> Because of their “burstiness,” I transformed these counts by adding one to them and then taking their natural logarithm.<sup>29</sup> A single death or injury resulting from a terrorist attack may not be independent of any others. When the event kills or wounds a person, it presumably has a higher chance of killing or wounding someone else. When it comes to predictors, overdispersed count data such as death or injury tallies for a terrorist attack must be transformed in order to make it closer resemble a normal distribution.

Third, the dummy variable *multiple* from the GTD indicates whether or not a terrorist incident belongs to a series. Terrorist acts in a series occur in conjunction with one another, often on the same day, but have discontinuous times of occurrence or local locations. Fourth, the GTD contains six tactic categories, including armed assaults, assassinations, bombings, infrastructure or facility attacks, hijackings, and hostage takings. Fifth, *known* is a dummy variable that accounts for whether or not a terrorist incident has known perpetrators. In order for a terrorist attack to be designated as having known perpetrators, the GTD must list at least one terrorist group responsible for it. Although this information comes from media accounts rather than government intelligence, it often reflects

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<sup>28</sup> Occasionally there are questions about the validity of the information provided in a news report about the number of fatalities or injuries in a terrorist attack. The GTD team makes note of these situations and records this information to the best of its understanding. When multiple terrorist incidents are linked and reported together, the GTD team evenly divides the cumulative figure of deaths or injuries by each event.

<sup>29</sup> Transforming counts by their natural logarithm may lead to some distortion of information, given that one must be added to each count to preserve any zeros. See O’Hara and Kotze 2010. Nonetheless, any marginal information fudging from this process is offset by increasing the statistical power of a count variable when it acts as a predictor.

statements from politicians and law enforcement officials that journalists pick up. Sixth, *claimed* is a dummy variable from the GTD that indicates whether or not at least one terrorist group claims responsibility for it through a video, phone call, letter, or other mode. Seventh, the target type of a terrorist incident is a categorical variable that contains seven categories. They include business, government, military, police, civilian, transportation, and other targets. Although the often symbolic nature of the targets of terrorism sometimes makes it difficult to precisely categorize them, I am constrained by target type information from the GTD, which makes a fair attempt at identifying the immediate victims.<sup>30</sup>

Eighth, *us\_location* is a dummy variable based on GTD country location data that indicates whether or not an act of terrorism occurs in the United States. Ninth, the dummy variable *us\_target* indicates whether or not a terrorist incident targets at least one person from the United States. This information is based on GTD target nationality data.<sup>31</sup> Tenth, *ln\_us\_aid* is a transformed count variable that reflects how much development and military aid is accepted from the United States per year by a country in which an act of terrorism takes place. This predictor is measured as the natural logarithm of the number of 2011 U.S. dollars received plus one. This data

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<sup>30</sup> The GTD lists up to three target types per terrorist incident, but I only consider the primary target type for analysis. While the GTD has as many as 22 target types, I aggregate them into seven categories. First, business targets include restaurants, gas stations, and cafes. Second, government targets include diplomats, policymakers, and political parties. Third, police targets include members of a police force and law enforcement installations. Fourth, military targets include military units, patrols, barracks, convoys, and jeeps. Fifth, civilian targets include private citizens and property as well as tourists. Sixth, transportation targets include airlines, airports, buses, trains, subways, highways, bridges, and roads. Seventh, other targets include abortion clinics, educational institutions, food or water supply, journalists, maritime targets, NGOs, religious figures or institutions, terrorists, other violent political groups, unknown targets, and so on.

<sup>31</sup> The GTD generally provides information about the nationalities of up to three targets of a terrorist incident. There are only seven terrorist incidents in my dataset that lack any information about target nationalities, and they are assumed not to involve any people from the United States.

comes from the *U.S. Overseas Loans and Grants, Obligations, and Loan Authorizations* database at the U.S. Agency for International Development (USAID). A logarithmic transformation was used for this predictor because American foreign aid is dominated by several countries – most notably Iraq and Afghanistan.

Eleventh, the dummy variable *extended* from the GTD indicates whether or not a terrorist incident spans over a single day. Twelfth, *election* is a dummy variable indicating whether or not a terrorist attack is associated with a national election. Using data from the *National Elections Across Democracy and Autocracy* (NELDA) database at Yale University,<sup>32</sup> I manually coded each terrorist incident on whether or not it took place in a country within one month before an election occurred in it. Although this timeframe is somewhat arbitrary, it was chosen merely as a marker of when a national election seems more under the public radar and thus likely to attract more news reporting – rather than as a statement about the timing of electoral races. Thirteenth, the degree of press freedom in a country in which a terrorist incident occurs is reflected by the semi-continuous variable *free\_press*, which can take any value between its lower bound of 0 and its upper bound of 110. These scores are taken from the *Press Freedom Index*, compiled by Reporters Without Borders, and reflect the degree of freedom that journalists, media organizations, and cybercitizens enjoy in each country annually. A higher score corresponds to lower press freedom – in other words, to greater restrictions on the freedom of expression. Press freedom scores are based on annual questionnaires

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<sup>32</sup> This database was created for a study on measuring electoral competition. It contains the dates of all national elections from 1945 to 2006. See Hyde and Marinov (2012).



sent to news organizations around the world, which take into account pluralism, media independence, environment, self-censorship, legislative framework, transparency, and infrastructure.

The influence of these predictors on media coverage is assessed using summary statistics and regression analysis. There is little reason to suspect spuriousness, given that the relevant literature does not present any other predictors of terrorist attack publicity. While there may be other features of terrorist attacks that are important to their publicity, I leave them for future studies to explore. In the next chapter, I discuss my automated coding method for data collection on media coverage.

**Table 2: Independent Variables**

<b>Name</b>	<b>Construct</b>	<b>Measure</b>	<b>Source</b>
<i>ln_nkill</i>	fatalities	natural logarithm of the number of persons killed plus 1	GTD
<i>ln_nwound</i>	injuries	natural logarithm of the number of persons wounded plus 1	GTD
<i>multiple</i>	part of a series	yes (1) or no (0)	GTD
<i>assassination</i> <i>bombing</i> <i>infrastructure</i> <i>hijacking</i> <i>hostage_taking</i>	tactic type	yes (1) or no (0); <i>armed_assault</i> is a reference category	GTD
<i>known</i>	known perpetrators	yes (1) or no (0)	GTD
<i>claimed</i>	claimed	yes (1) or no (0)	GTD
<i>business</i> <i>government</i> <i>police</i> <i>military</i> <i>civilian</i> <i>transportation</i>	target type	yes (1) or no (0); <i>other_target</i> is a reference category	GTD
<i>us_location</i>	American location	yes (1) or no (0)	GTD
<i>us_target</i>	American target	yes (1) or no (0) regarding involvement of at least one American target	GTD
<i>ln_us_aid</i>	American foreign aid	natural logarithm of the number of 2011 U.S. dollars in American economic and military assistance obligations to a corresponding country per year plus 1	USAID
<i>extended</i>	longer duration	yes (1) or no (0)	GTD
<i>election</i>	national election	yes (1) or no (0) regarding occurrence in a country within one month before an election takes place in it	NELDA
<i>free_press</i>	press freedom	score of 0 to 110 in a corresponding country during a corresponding year; a higher score means more restrictions on press freedom	<i>Press Freedom Index</i>

## Chapter 3: Data Collection

### Automated Content Analysis

Political scientists have long recognized the notion that political behavior often occurs in the written and spoken word. Knowing what politics is about requires understanding what political actors are saying and writing. However, the massive costs of analyzing even moderately sized collections of text have hindered their use in political science research. The new availability of online news archives and automated content analysis tools is providing scholars with a much more efficient and systematic way to gather information on media coverage. There are no substitutes to careful thought by human coders, and data collected via automated coding requires extensive and problem-specific verification. Nonetheless, computational approaches promise to substantially reduce the costs of text analysis. The complexity of natural language implies that computer-aided text analysis methods are unable to substitute careful deliberation, but it is up to researchers to guide this process, make modeling decisions, conduct validity checks, and interpret the output.

For this project, I developed a machine coding heuristic to collect data on media coverage, with the objective of quantifying the articles from major English language newspapers that a terrorist incident gets within two days afterward. Several studies have been done using computational event data analysis, in which

information about political actors and their actions have been pulled from text using automated content analysis (Schrodt 2012). To the best of my knowledge, however, there has not been any research before that has used event data extracted from documents to automatically categorize them according to a set of pre-defined events. In order to gather data on news reporting, I built a document corpus and wrote a computer algorithm to reformat, organize, and sort news articles by the terrorist incidents they mention. My automated coding scheme used dates, country locations, and tactics to match news articles to the terrorist attacks they describe. Unlike previous studies on the media coverage of terrorist incidents, my machine coding method allowed me to observe domestic and transnational terrorist incidents as well as prominent English language newspapers from around the world – not just the United States.

Initially, I constructed a corpus containing every news article required for analysis. I employed *LexisNexis*, an online collection of journalistic documents,<sup>33</sup> in order to obtain every available news report. Using this service, I conducted a query to find and download all articles about terrorist incidents by newspapers classified as major world publications in 2004 and 2005 – plus the first day of 2006.<sup>34</sup>

Newspapers designated as major world publications in *LexisNexis* are well-respected English language news sources held in high esteem for their content

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<sup>33</sup> *LexisNexis* is perhaps the most widely-employed online news archive by political scientists. While a few major news sources may be missing from it, it is quite reliable in terms of representing event coverage by the international press, at least for English language news sources. See Ridout, Fowler, and Searles (2012). Nonetheless, if there are any biases in the way SmartIndexing Technology in *LexisNexis* categorizes news reports, they may reflect on the document corpus I built.

<sup>34</sup> Since documents were matched to events according to a two-day window, news reports from the first day of 2006 were obtained for the purpose of potentially attributing them to any terrorist incident that occurred on the last day of 2005.

reliability. Major world publications in *LexisNexis* are comprised of as many as 631 news sources, industry and trade publications, and magazines – including *The Wall Street Journal*, *The Daily Telegraph*, *The Jerusalem Post*, and so on. They are selected for their relevance to the global news market by a team of customer service, training, sales, product, and content representatives. When it comes to newspapers, key national and regional news sources are emphasized over local ones, and broadsheet formats are stressed over tabloid or compact ones. Furthermore, SmartIndexing Technology in *LexisNexis* contains the subject of terrorist attacks, which I specified in searching for all the news articles I needed. This taxonomy indexes documents by subjects using weighted terms written by human indexers, not machines. It scores documents according to their relevance to subjects, and a relevance score of 85 percent or more is considered a major reference to a subject.<sup>35</sup>

After building a document corpus, it was essential to process the text in it. *Python*, a general-purpose high-level programming language, was used to automate this phase.<sup>36</sup> The objective for this task was to strip from each document only its essential elements for analysis. This procedure extracted the date as well as the lede – stripped of all punctuation marks and lowercased – of every document according to *LexisNexis* formatting.<sup>37</sup> Any duplicate news reports or ones with missing dates or ledes were removed from analysis. Nearly all documents had dates, but some had

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<sup>35</sup> This information was obtained in an email correspondence with Senior Indexing Analyst Carol W. Sullivan in Taxonomies and Semantic Enrichment at *LexisNexis*.

<sup>36</sup> The *Python* script I wrote for automated coding is available upon request.

<sup>37</sup> Documents downloaded from *LexisNexis* contain formatting which distinguishes dates, word counts, newspaper titles, headlines, and so on. These sections are generally divided with uppercase labels.

missing manuscripts, making them unanalyzable by machines or human coders. All unique documents that I considered were also given identification numbers in order to keep track of them for computer-aided text analysis and validation. As a result of this process, I was left with 12095 documents for analysis.<sup>38</sup> In this case, each document was assumed to be a “bag of words” lacking any word order or sentence structure, a crucial step for facilitating automated content analysis. Every word in a document was assumed to be a single-word string of letters, often called a *unigram*.<sup>39</sup> All words in a document were kept and preserved in the form they appeared in originally.<sup>40</sup>

Following this procedure, the country locations and tactics of terrorist incidents were extracted from each document using dictionary mapping in my *Python* script. These features were detected because they are easily recognizable when it comes to news reports about terrorism. A news article about a terrorist incident usually includes, at a minimum, facts about where the event took place and what happened generally. Specifics about the number of casualties, the perpetrators,

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<sup>38</sup> The document corpus I originally created had 12975 documents. It is available upon request. However, 262 records had missing dates or ledes, and an additional 618 records were detected as duplicates. Occasionally a news article in *LexisNexis* is archived more than once, creating multiple versions of the same text. I considered a news article to be a duplicate when its lede matched that of another news article word-for-word.

<sup>39</sup> Occasionally researchers use *bigrams*, word pair, or *trigrams*, word triples, in their analysis. But in practice, *n-grams* have been shown to do little to enhance the performance of automated coding. See Hopkins and King (2010).

<sup>40</sup> Scholars sometimes remove “stop words,” or terms that appear too frequently in a document corpus to have any importance. They also occasionally use stemming, which removes the ends of words in order to reduce the number of unique words in a document corpus. Stemming generally reduces complexity by mapping words that refer to the same basic concept into a single root form. However, I chose not to use these processes. I do not measure how often words appear in documents, and removing “stop words” may risk deleting country location and terrorist tactic terms from documents. Furthermore, words reduced to their base forms through stemming are fairly difficult to keep track of when using dictionary mapping, since dictionaries for feature extraction usually consist of words not in their base forms.

the nationalities or occupations of the immediate victims, the weapons used, and so on are often missing or speculative in news reports, so they are rather difficult to detect for human coders – let alone machines. However, it is almost impossible for a journalist to mistake the country location and tactic of a terrorist attack, since these properties are obvious to any onlooker at the scene. As a result, it is quite simple to identify them in text.

In order to perform this task, I built country and terrorist tactic dictionaries in *Extensible Markup Language* (XML) format, an easily accessible method for storing structured text. Schrodtt (2006) has developed several dictionaries for identifying political actors and their actions from text. He has applied his dictionaries, using event data analysis computer programs, to the ledes of *Reuters* records in order to create datasets on international cooperation and regional conflicts. Each of his dictionaries contains a set of categories, and each category contains numerous terms that identify it. I consulted with these works in constructing dictionaries for detecting countries and terrorist tactics in the ledes of the documents I analyzed.<sup>41</sup> My country dictionary contains 74 categories, including every country in which a terrorist incident occurred in 2004 or 2005. Terms for indicating a country include its name, adjectival forms and synonyms of its name, its capital city, cities in it with a population of over one million, regions in it, and its

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<sup>41</sup> Schrodtt (2006) has used natural language processing as well as *n-grams* in order to detect event features in text. He has developed the *Kansas Events Data System* (KEDS) at the University of Kansas – now called the *Text Analysis by Augmented Replacement Instructions* (TABARI) program at Pennsylvania State University – to perform this function. This approach is somewhat more sophisticated than mine, which only used *unigrams* as indicators of country locations and terrorist tactics and did not detect subject-verb patterns in sentences. As a result, I had to make a few alterations to the dictionaries he developed for computational event data analysis, emphasizing single-word strings of letters.

geographical features.<sup>42</sup> My terrorist tactic dictionary contains six categories – armed assaults, assassinations, bombings, infrastructure or facility attacks, hijackings, and hostage takings – each with a set of words corresponding to them. These terms include a terrorist tactic’s name, adjectival forms and synonyms of its name, and weapons commonly related to it.<sup>43</sup> Whenever there was an ambiguous case of a word that could belong to multiple dictionary categories, I erred toward exclusivity rather than inclusivity, placing it in the category in which it makes the most sense.<sup>44</sup>

After mapping my country and terrorist tactic dictionaries in my *Python* script, I applied them to all the news reports I had gathered earlier. Every term in each document’s introductory section was checked against every term in my country and terrorist tactic dictionaries. Whenever a document’s lede was found to contain a dictionary term, it was assigned a corresponding country location or terrorist tactic represented by a label. A document’s country location and terrorist tactic labels were contained in two separate lists, with each label represented as a single-word string of letters. There were 1016 documents that lacked any country location or terrorist tactic labels, 3980 lacked one or the other, and 7099 had at

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<sup>42</sup> This information was largely supplied by *CountryInfo*, the country dictionary used for TABARI, as well as the *CIA World Factbook*. My country dictionary is available upon request.

<sup>43</sup> In order to come up with words corresponding to terrorist tactics, I read numerous news articles about terrorist activities and used *WordNet*, a lexical database for the English language. My terrorist tactic dictionary is available upon request.

<sup>44</sup> Examples of ambiguous dictionary terms include *congo* and *guinea* for countries as well as *shooting* and *firing* for terrorist tactics. While it may have been easier to attribute these terms to multiple categories, this leniency may have increased the risk of falsely labeled documents.



least one of each.<sup>45</sup> Only documents tagged with at least one country location and terrorist tactic were kept for automated coding. It was assumed that a document with missing country location or tactic labels is not about a terrorist incident. In addition, I assigned identical country location and tactic labels to all terrorist incidents in my dataset. This assignment was based on information from the GTD on the country locations and tactics of terrorist attacks.<sup>46</sup>

Ultimately, news reports were categorized automatically according to their respective terrorist attacks based on dates, country locations, and tactics. Each document's date was converted into an integer corresponding to a day count from the beginning of 1990, a standard metric in *Microsoft Excel*. All terrorist incidents in my dataset were also assigned dates in this format. A terrorist attack that occurred on a single day was assigned a start date and an end date immediately following it. A longer-duration terrorist incident was also assigned a start date, but it was given an end date immediately following the last day of hostilities. There were only 78 terrorist attacks in my dataset that took place over more than one day, most of them hostage takings. Finally, each document was checked against each terrorist incident in my dataset. In order to be matched to an event, a document had to meet three criteria. First, the document's date had to be greater than or equal to the event's start date but less than or equal to its end date. Second, at least one of the country

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<sup>45</sup> There were 10171 documents labeled with at least one country, 5275 with one label and 4896 with multiple labels. There were 8007 documents labeled with at least one terrorist tactic, 5925 with one label and 2082 with multiple labels. This data is available upon request.

<sup>46</sup> There were no terrorist incidents in my dataset with multiple country locations. However, 197 events had secondary or tertiary attack types. I only considered primary terrorist tactics for the purposes of automated coding and analysis.

labels assigned to the document had to match that of the event. Third, at least one of the terrorist tactic labels assigned to the document had to match that of the event.

As a result, 2479 unique documents were attributed to at least one terrorist incident. There were 5651 matches overall, demonstrating that many news articles got sorted into more than one terrorist attack. This situation occurred when there were multiple terrorist attacks in the same country and with the same tactic within two days after the publication of a document. This circumstance also happened when more than one country location or terrorist tactic was extracted from a document, leading it to be matched to multiple events. These records seem mostly accurate. The GTD often finds information on multiple terrorist incidents using a single news report. A journalist who is assigned a story on the subject of terrorism may cover multiple terrorist attacks at once, especially when they occur together in a series. However, some documents may be incorrectly matched to events because of greater informational nuances surrounding them – other than basic facts about dates, country locations, and terrorist tactics.

## **Validation**

Automated content analysis made data collection on media coverage largely more efficient and systematic. However, there remain some concerns about the validity of my machine coding method. There may be a few false negatives or false positives when it comes to matching documents to their respective terrorist incidents according to dates, country locations, and tactics. A false negative is a

news article that is about a terrorist incident – within two days afterward – but is not assigned to it. This situation may occur, for instance, when a country location or tactic is not extracted from a news article due to insufficient dictionary terms or typographical errors in it, leaving it unsorted when it may, in fact, be about a terrorist incident. However, there is almost no reason to believe that there will be many false negatives, since my country and terrorist tactic dictionaries are quite thorough.

A false positive is a document that is falsely assigned to a terrorist incident. A news report with a detected country location and terrorist tactic may not, in fact, be about the terrorist incident that it is matched to. Perhaps the document discusses another unrelated event. When it comes to transnational terrorist incidents, news reports' ledes occasionally discuss not only the countries in which events took place but also the nationalities of the immediate victims or perpetrators. As a result, sometimes countries may be incorrectly attributed to news articles about transnational terrorist attacks, leading to them to be sorted incorrectly. Moreover, there are sometimes multiple unrelated terrorist incidents within two days of one another, in the same country, and using the same tactic – aside from terrorist attack series. When this situation occurs, there is not enough information to know which terrorist attack a document is referring to. Therefore, news articles may occasionally be falsely attributed to terrorist incidents based on a lack of details beyond their dates, country locations, and tactics.

**Table 3: Precision and Recall**

<i>newid</i>	<i>nreports</i>	<b>False positives</b>	<b>False negatives</b>	<b>True positives</b>	<b>Precision</b>	<b>Recall</b>
89	1	1	0	0	0.00	1.00
166	0	0	0	0	1.00	1.00
237	0	0	0	0	1.00	1.00
379	5	0	2	5	1.00	0.71
405	0	0	0	0	1.00	1.00
416	4	3	0	1	0.25	1.00
628	0	0	0	0	1.00	1.00
635	0	0	0	0	1.00	1.00
672	3	3	0	0	0.00	1.00
722	4	0	1	4	1.00	0.80
750	0	0	0	0	1.00	1.00
842	9	1	1	8	0.89	0.89
857	12	3	0	9	0.75	1.00
908	2	1	0	1	0.50	1.00
955	0	0	0	0	1.00	1.00
978	10	1	4	9	0.90	0.69
1038	8	0	0	8	1.00	1.00
1120	0	0	0	0	1.00	1.00
1140	0	0	0	0	1.00	1.00
1167	0	0	0	0	1.00	1.00
1170	0	0	0	0	1.00	1.00
1280	0	0	0	0	1.00	1.00
1330	3	2	0	1	0.33	1.00
1362	0	0	0	0	1.00	1.00
1376	0	0	0	0	1.00	1.00
1413	4	0	0	4	1.00	1.00
1435	1	1	0	0	0.00	1.00
1590	0	0	0	0	1.00	1.00
1609	0	0	0	0	1.00	1.00
1635	2	0	0	2	1.00	1.00
1685	0	0	0	0	1.00	1.00
1689	0	0	0	0	1.00	1.00
1714	0	0	1	0	1.00	0.00
1732	0	0	0	0	1.00	1.00
1784	0	0	0	0	1.00	1.00
1807	1	0	0	1	1.00	1.00
1821	0	0	0	0	1.00	1.00
1947	9	8	0	1	0.11	1.00
1970	3	3	0	0	0.00	1.00

1971	15	7	0	8	0.53	1.00
2048	0	0	0	0	1.00	1.00
2077	9	5	0	4	0.44	1.00
2123	25	5	0	20	0.80	1.00
2299	0	0	0	0	1.00	1.00
2404	1	1	0	0	0.00	1.00
2485	2	1	0	1	0.50	1.00
2512	0	0	0	0	1.00	1.00
2570	0	0	0	0	1.00	1.00
2572	9	0	0	9	1.00	1.00
2715	0	0	0	0	1.00	1.00
<b>Mean</b>	2.84	0.92	0.18	1.92	0.80	0.96
<b>Variance</b>	24.38	3.42	0.44	14.67	0.12	0.02

In order to determine the reliability of my machine coding scheme, I conducted a validity check. My validation sample was composed of 50 randomly selected terrorist incidents.<sup>47</sup> I read all reports about terrorist attacks by newspapers designed as major world publications in *LexisNexis* within two days after each of these events, counting the number of false positives, false negatives, and true positives.<sup>48</sup> A true positive is a document that is correctly matched to an event. Precision and recall scores for each of these events were then calculated. These measures are commonly used in computational information retrieval and categorization. Precision is the fraction of matched documents that are, in fact, relevant to an event. From this sample, the mean of all precision scores – also

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<sup>47</sup> Because validating my automated coding scheme was fairly time-consuming, I was limited in how many events I could include in this sample. With 2730 events in my dataset, a sample of 50 events produces an error level of 13.73 percent with 95 percent confidence.

<sup>48</sup> I note that true negatives are not used in calculating precision and recall. A true negative is a document that is properly not assigned to an event.

known as a macro-average<sup>49</sup> – was 0.80, and its variance was 0.12, indicating that there were occasional false positives. Recall, often referred to as sensitivity, is the fraction of relevant documents that are, in fact, matched to an event. The macro-average of recall for this sample was 0.96, and its variance was 0.02, demonstrating the near absence of false negatives. The mean of the number of news reports attributed to a terrorist attack for this sample was 2.84, and its variance was 24.38. Therefore, interpreting the precision and recall macro-averages, there were approximately 0.57 false positives, 0.09 false negatives, and 2.27 true positives per event.<sup>50</sup>

Finally, the F-score, the harmonic mean of precision and recall, was calculated for their macro averages. It is a test of the accuracy of the automated coding method, reaching its best value at one and its worst value at zero. The F-score based on the macro-averages of precision and recall was 0.87, demonstrating relatively high accuracy. When it comes to the data that I collected on media coverage, false negatives mainly produce random errors, and there are so few of them that they are admissible. However, there may be some need for concern about occasional false positives, which may produce systematic errors when terrorist attacks are transnational or occur within two days of each other, in the same

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<sup>49</sup> A macro-average, in which the mean of all precision or recall scores in a sample is taken, is distinct from a micro-average, in which a single precision or recall score is calculated for an entire sample. I prefer to use macro-averages, since I am more concerned about the performance of the machine coding method among events, the units of analysis.

<sup>50</sup> These figures were derived using backward induction, given the mean number of documents attributed to an event for this sample as well as the macro-averages of precision and recall. In reality, there were, on average, 0.92 false positives, 0.18 false negatives, and 1.92 true positives for this sample. The variances were 3.42 for false positives, 0.44 for false negatives, and 14.67 for true positives.

country, and using the same tactic without being part of a series. Yet the relatively high reliability of my machine coding method gives me considerable confidence about the media coverage data I collected. To test my hypotheses about what determines terrorist attack publicity, I present summary statistics and regression analysis in the following chapter.

## Chapter 4: Statistical Analysis

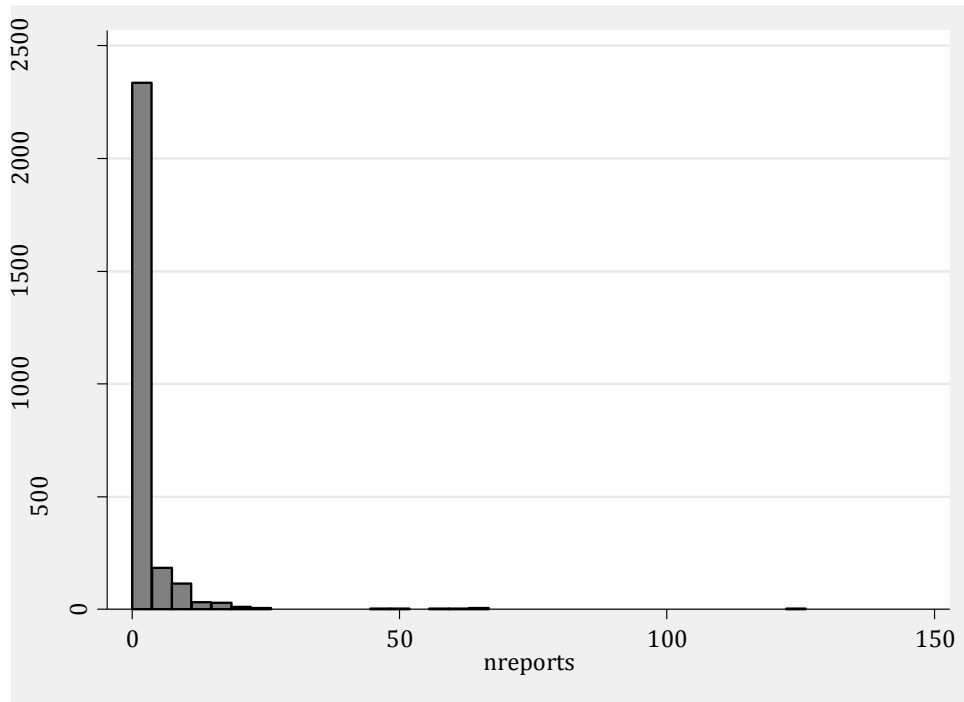
### Summary Statistics

To provide an overview of my dataset, I present summary statistics. The previous chapter mentions that there were 2479 unique documents attributed to at least one terrorist attack, with 5651 matches overall. Given that there are 2730 events in my dataset, the average number of news reports per terrorist attack is 2.07. The variance of the number of news reports is 52.60, showing a relatively large spread. There are 1705 events that received no documents at all, as opposed to 1025 events that got at least one document.

It is important to note that each act of terrorism is assumed to have at least negligible coverage by the media, given that it made it into the GTD based on open-source materials – if not from major newspapers in English then from news content elsewhere. Unsurprisingly, several terrorist incidents in my dataset garnered overwhelming attention by the press. In 2004, for instance, each of the six Madrid train bombings received 63 news reports, and the Australian embassy bombing in Jakarta received 45 documents. The most publicized terrorist incidents in my dataset were the four London transit bombings in 2005, each of which was assigned 126 news articles.



**Figure 1: Frequency Histogram of *nreports* (All Cases)**



These observations are consistent with previous studies suggesting that most terrorist incidents receive almost no media attention, while a few receive substantial publicity. The following table demonstrates summary statistics for each predictor relative to media coverage using my primary sample, which contains all cases in my dataset. For this step, all transformed count and semi-continuous variables were split into lower and higher sections according to their medians for ease of interpretation.

**Table 4: Summary Statistics (All Cases)**

Feature	Number of cases	<i>nreports</i>	
		Mean	Variance
higher fatalities	1078	3.47	90.18
lower fatalities	1652	1.16	26.00
higher injuries	1277	2.78	78.24
lower injuries	1453	1.44	29.26
part of a series	395	5.04	269.53
not part of a series	2335	1.57	14.26
armed assault	719	0.46	1.69
assassination	301	0.23	0.47
bombing	1423	3.45	92.65
infrastructure or facility attack	118	0.84	4.07
hijacking	4	0.50	0.33
hostage taking	165	1.52	25.19
known perpetrators	1296	2.08	86.76
unknown perpetrators	1434	2.06	21.77
claimed	504	4.45	203.92
unclaimed	2226	1.53	26.83
business	251	1.93	33.75
government	553	1.36	12.59
police	400	1.89	14.97
military	286	2.30	17.20
civilian	651	1.42	14.35
transportation	131	9.89	700.00
other target	458	1.71	18.13
American location	28	1.89	5.36
non-American location	2702	2.07	53.09
American target	141	3.70	20.21
non-American target	2589	1.98	54.21
higher American foreign aid	1287	2.86	20.00
lower American foreign aid	1443	1.37	80.65
extended	150	1.79	28.66
non-extended	2580	2.09	54.00
national election	169	5.41	166.41
no national election	2561	1.85	44.37
higher press freedom	1379	1.51	84.47
lower press freedom	1351	2.63	19.47

Terrorist incidents resulting in greater fatalities, on average, received 2.31 more news reports than ones generating fewer fatalities. Acts of terrorism inflicting more injuries, on average, got 1.34 more news articles than ones generating fewer injuries. Moreover, terrorist attacks that are part of a series got 3.47 more news reports, on average, than ones that do not belong to a series. Furthermore, bombings stand out as having particularly high media coverage, on average, while assassinations stand out as having particularly low media coverage. Although terrorist incidents with known perpetrators received roughly the same amount of media coverage, on average, as those with unknown perpetrators, claimed terrorist attacks generated an average of 2.92 additional news articles, in comparison to unclaimed ones. Plus, acts of terrorism targeting transportation systems stand out as having particularly high media coverage, on average. Evidently, terrorist incidents occurring on American soil did not, on average, get more publicity than those occurring outside the United States. Additionally, terrorist attacks targeting Americans received 1.72 more news reports, on average, than those not targeting people from the United States. Terrorist attacks occurring in countries receiving more American development and military aid also received 1.49 more news reports, on average, than ones occurring in countries getting less U.S. foreign aid.

Notably, extended terrorist incidents got roughly the same amount of media attention, on average, as ones that occur within a single day. Terrorist attacks coinciding with national elections also garnered 3.56 news reports more, on average, than those not accompanying them. It is also found, unexpectedly, that

terrorist incidents occurring in countries with greater press freedom got an average of 1.12 fewer news articles than ones taking place in countries with more press freedom. It is also important to mention that the variance of *nreports* changes dramatically among terrorist attack features – perhaps an indication of heteroskedasticity, which I note when performing regression analysis. While summary statistics provide an understanding of my dataset at large, regression analysis is required to test the influence of an individual predictor on terrorist attack publicity *ceteris paribus*.

### **Regression Analysis**

I use regression analysis to model how features of terrorist attacks affect their publicity. Media coverage is best suited for the negative binomial regression because it is a count variable that is prone to overdispersion. In contrast to the ordinary least squares (OLS) model, count variables are discrete, placing probability mass only at nonnegative integer values, and often are not distributed normally. Regression models for count variables must reflect their discreteness and nonlinearity. In particular, negative binomial distributions are highly appropriate for overdispersed count data. Unlike the commonly used Poisson regression for count data, the negative binomial regression allows for the conditional variance of the dependent variable to exceed its mean. The negative binomial regression can be considered a generalization of the Poisson regression, since it has the same mean structure as the Poisson model and an extra parameter *alpha* to model dispersion.

The iteration algorithm generated for the negative binomial regression begins by fitting the Poisson model to the data and then fits the constant-only model to it, finding the maximum likelihood estimate for the mean and dispersion parameter of the dependent variable. Using these values, the negative binomial model then iterates until it converges. Ultimately, the negative binomial regression models the natural logarithm of the expected count of the dependent variable as a function of the independent variables (Hilbe 2007).

My primary sample for regression analysis includes all cases in my dataset,<sup>51</sup> and the model I use contains every predictor of *nreports* that I put forth. Predictably, media coverage data generally applies to the negative binomial model because of its “burstiness.” International newswires facilitate the spread of news – when a story gets picked by one newspaper, it has a better chance of being covered in another newspaper. In other words, a single news article regarding a story may breed more reports about it.<sup>52</sup> In this sample, the mean number of news reports per terrorist event is 2.07, which is far exceeded by the variance of 52.60, suggesting relatively high overdispersion. The negative binomial model is therefore well suited for analyzing which properties of terrorist attacks garner them more publicity.

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<sup>51</sup> For the purpose of running regression diagnostics in *Stata*, I also ran the OLS regression by transforming *nreports* into *ln\_nreports*, adding one to news report counts and taking their natural logarithm. In addition, I ran the generalized linear model of the negative binomial distribution with a logarithm-link function to determine any discrepancies. It assumes a default value of one for the dispersion parameter *alpha*, but otherwise it performs almost identically to the negative binomial regression. This information is available upon request.

<sup>52</sup> Because all events I observed were assumed to have at least minimal media coverage, this phenomenon was predicted to apply to each of them. If this assumption were not to hold, it is possible that a zero-inflated negative binomial distribution could be more suitable for media coverage data. This situation would assume that there is a different process responsible for the generation of any publicity for an event, as opposed to those which are responsible for the creation of additional news reports about it.

**Table 5: Negative Binomial Regression (All Cases)**

<b>Variable</b>	<b>nreports</b>	
<i>ln_nkilled</i>	0.2918	**
	(0.0463)	
<i>ln_nwounded</i>	0.1029	*
	(0.0376)	
<i>multiple</i>	0.6686	**
	(0.1620)	
<i>assassination</i>	-0.8701	**
	(0.1923)	
<i>bombing</i>	1.6317	**
	(0.1232)	
<i>infrastructure</i>	0.4407	
	(0.2528)	
<i>hijacking</i>	-1.2952	*
	(0.3802)	
<i>hostage_taking</i>	-0.2024	
	(0.3131)	
<i>known</i>	-0.6333	**
	(0.1466)	
<i>claimed</i>	0.7725	**
	(0.1245)	
<i>business</i>	0.0999	
	(0.2362)	
<i>government</i>	-0.0711	
	(0.1463)	
<i>police</i>	-0.1299	
	(0.1737)	
<i>military</i>	-0.3985	
	(0.1539)	
<i>civilian</i>	-0.0069	
	(0.1934)	
<i>transportation</i>	1.1702	**
	(0.2568)	
<i>us_location</i>	1.3286	*
	(0.4436)	
<i>us_target</i>	0.3353	
	(0.1746)	
<i>ln_us_aid</i>	1.0946	**
	(0.0657)	
<i>extended</i>	1.0589	*
	(0.3096)	
<i>election</i>	0.9526	**

<i>free_press</i>	(0.1776) -0.0234 ** (0.0045)
constant	-1.6175 ** (0.2612)
<i>alpha</i>	1.7563 (0.1617)
number of cases	2730
Wald chi-square	1724.05
logarithmic pseudo-likelihood	-3614.23
*p-value<0.01; **p-value<0.001; robust standard errors in parentheses	

Some predictors of *nreports* are found to be significant, with a p-value below 0.01, while others are not. The Wald chi-square test statistic of 1724.05 reveals that there exists a substantial effect on terrorist attack publicity to be analyzed. Another way to detect overdispersion after running the negative binomial regression is to look at the dispersion parameter *alpha*. When *alpha* is significantly different from zero, the Poisson distribution may not be appropriate. For this sample, *alpha* is 1.7563, which again demonstrates that the negative binomial model is very much applicable. Despite some intuition about the interconnectedness of terrorist attacks in terms of media coverage, there is hardly any presence of autocorrelation detected.<sup>53</sup> Contrary to some expectation to the contrary, there are also no apparent outliers in this sample.<sup>54</sup> I also use robust standard errors to cope with

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<sup>53</sup> It may be expected that the media coverage of terrorist attacks is a function of time separation. Perhaps when one terrorist attack gets substantial media coverage, another event following it is more likely to get it as well. However, according to the Durbin-Watson statistic, there is negligible presence of autocorrelation.

<sup>54</sup> Several observations have relatively large fitting errors – whether standardized residuals in the case of OLS regression on *ln\_nreports* or Pearson residuals in the case of the generalized linear model

heteroskedasticity.<sup>55</sup> In the negative binomial regression formula,  $\ln(y) = \beta_0 + \beta_1x_1$ , the natural logarithm of the outcome is predicted by a linear combination of the predictors. This equation can be rewritten as  $y = e^{\beta_0 + \beta_1x_1} = e^{\beta_0} \cdot e^{\beta_1x_1}$ . Given this equation, I interpret the coefficient of a predictor by solving for its one-unit change – or alternatively for its one percent change if it is logarithmically transformed.<sup>56</sup>

First of all, there is strong evidence to support my first and second hypotheses that terrorist incidents are more publicized when they kill or injure more people. The coefficient of *ln\_nkilled* 0.2918 is positive and significant. Every other predictor being held constant, this value indicates that a one percent increase in the number of fatalities generated by a terrorist attack leads to a 0.2918 percent increase in the number of news reports attributed to it. Similarly, *ln\_nwounded* has a positive and significant coefficient of 0.1029. This value shows that, all else equal, a one percent increase in the number of injuries resulting from a terrorist attack leads to a 0.1029 percent increase in the number of news reports it receives. There is also substantial support for my third hypothesis that terrorist incidents get more media coverage when they are part of a series. The coefficient of *multiple* 0.6686 is positive and significant, showing that terrorist acts that belong to a series receive 1.9515 times as many news reports as ones that are not part of a series, all else equal.

However, there is little support for my fourth prediction that terrorist attacks involving novel tactics get more publicity. In fact, there is some evidence to suggest

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of the negative binomial regression using a logarithm-link function. However, there is little indication to suggest that any single observation has excessive leverage.

<sup>55</sup> The Breusch–Pagan test shows the presence of heteroskedasticity, demonstrating that the estimated variance of the residuals depends on the values of the predictors.

<sup>56</sup> These values can also be calculated using incidence rate ratios in *Stata*.



that the opposite effect exists – that terrorist acts using more common tactics garner more media attention. The reference category of terrorist tactics is that of armed assaults. Interestingly, *assassination* has a significant negative coefficient of -0.8702, *bombing* has a significant positive coefficient of 1.6317, and *hijacking* has a significant negative coefficient of -1.2952. These values show that all else equal, assassinations get 0.4189 times as much publicity, bombings get 5.1127 times as much media attention, and hijackings get 0.2738 times as many news reports as armed assaults.<sup>57</sup> None of the other terrorist tactic predictors are found to be significant.

Furthermore, there is plenty of backing for my fifth and sixth predictions that terrorist attacks get more media attention when they are unknown or claimed. I find that *known* has a significant negative coefficient of -0.6333, while *claimed* has a significant positive coefficient of 0.7725. Therefore, all else equal, known terrorist incidents get 0.5308 times as much media coverage as unknown ones, and claimed acts of terrorism receive 2.1651 times as much publicity as unclaimed ones. There is little evidence, though, to support my seventh hypothesis that terrorist attacks involving more symbolic targets such as government officials, businesses, or military personnel get more media attention. In fact, there is some evidence that the opposite phenomenon exists – that terrorist attacks involving more common targets such as police officers, civilians, or mass transit generate greater publicity. The reference category of target types is that of other targets. Terrorist acts targeting

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<sup>57</sup> I am somewhat hesitant to report the importance of *hijacking*, since there were only four cases belonging to this terrorist tactic category in my dataset. Nonetheless, its coefficient is found to be significant.

public transit are demonstrated to get more coverage by the media. The coefficient of *transportation* 1.1702 is positive and significant. Therefore, all else equal, terrorist attacks targeting transportation systems receive 3.2225 times as much media attention as those involving other targets. None of the other target type predictors are found to be significant.

In addition, there is considerable support for my eighth hypothesis that terrorist attacks occurring in the United States attract more media attention. The coefficient of *us\_location* 1.3286 is positive and significant. Terrorist attacks occurring on American soil thus receive 3.7758 times as much media coverage as events that take place outside the United States. Plus, my ninth hypothesis is that terrorist attacks targeting Americans get more media coverage, but this prediction lacks any substantive backing. The coefficient for *us\_target* is not significant, demonstrating that terrorist incidents involving American targets do not receive greater publicity, all else equal, than those targeting people not from the United States. There is also plenty of support for my tenth prediction that terrorist attacks are more publicized when they occur in countries receiving more American development and military aid. The coefficient of *ln\_us\_aid* 1.0946 is positive and significant, demonstrating that a one percent increase in U.S. dollars in foreign aid to a corresponding country leads a 1.0946 percent increase in the media coverage of a terrorist incident, all else equal.<sup>58</sup>

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<sup>58</sup> There existed collinearity between *free\_press* and *ln\_us\_aid*, the Pearson product-moment correlation coefficient of which was 0.52 for my primary sample. Nonetheless, they were each found to be significant, and they each predictably control for one another.

Moreover, there is considerable evidence in support of my eleventh hypothesis that extended terrorist incidents generate more media attention. The coefficient of *extended* 1.0589 is positive and significant.<sup>59</sup> Therefore, all else equal, terrorist attacks spanning over one day get 2.8833 times as much media attention as those occurring within a single day. Finally, there is strong evidence to support my twelfth and thirteenth predictions that acts of terrorism get more attention by the media when they coincide with national elections or occur in countries with greater press freedom. It is discovered that *election* has a significant positive coefficient of 0.9526 and that *free\_press* has a significant negative coefficient of -0.0234. Therefore, all else equal, terrorist attacks coinciding with national elections get 2.5925 times as much media attention as those that do not occur within one month before a national election. Plus, all else equal, a single-point increase in a corresponding country's press freedom score leads to a decrease in the publicity of a terrorist attack by a factor of 0.9769. Greater press freedom in a country is reflected by a lower score, which signifies fewer barriers to the freedom of expression. Although I find substantial support for many of my predictions using this sample, some reservations remain about whether or not each event is, in fact, an act of terrorism and whether or not these relationships are persistent among transnational and domestic terrorist incidents.

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<sup>59</sup> There existed collinearity between *extended* and *hostage\_taking*, the Pearson product-moment correlation coefficient of which was 0.76 for my primary sample. Predictably, hostage takings often span over one day. There may therefore be some reason to suspect that hostage takings may, in fact, receive more media attention in and of themselves.

## Robustness Checks

I employ four alternative samples for regression analysis to test the robustness of my model. My first alternative sample excludes from my dataset any terrorist incidents for which there is some uncertainty about whether or not they meet all GTD inclusion criteria. While there is a strong possibility that these cases are indeed acts of terrorism, they are identified by the dummy variable *doubt* if there is some chance instead that they are part of an inter or intra-group conflict, lack intentionality, or are acts of insurgency, guerilla actions, or other crime types. There are 439 doubtful terrorist attacks in my dataset, leaving me with 2291 events for this breakdown. My second alternative sample contains only terrorist attacks that are carried out. In the GTD, *success* is a dummy variable that specifies whether or not a terrorist incident is carried out. There are 149 failed terrorist attacks in my dataset, leaving this sample with 2581 events.

My third alternative sample contains only transnational terrorist incidents, and my fourth alternative sample contains only domestic events. Enders, Sandler, and Gaibulloev (2011) propose separating transnational terrorist attacks from domestic ones in the GTD. They define transnational acts of terrorism as ones that occur in multiple countries or involve at least one foreign, diplomatic, or nongovernmental organization (NGO) target. Conversely, they define domestic terrorist attacks as ones that do not cross borders or target any foreigners, diplomats, or NGOs. I used these definitions to manually code *transnational*, a

dummy variable distinguishing between transnational and domestic events.<sup>60</sup> There are 2289 domestic cases in my dataset and 441 transnational cases. Because of collinearity, *hijacking* is removed from regression analysis for my third alternative sample with only transnational cases, and *us\_target* is removed from regression analysis for my fourth alternative sample with only domestic cases.

**Table 6: Negative Binomial Regression (Alternative Samples)**

<b>Sample</b>	<b>no doubtful cases</b>	<b>carried out cases</b>	<b>transnational cases</b>	<b>domestic cases</b>
<b>Variable</b>	<b>nreports</b>	<b>nreports</b>	<b>nreports</b>	<b>nreports</b>
<i>ln_nkilled</i>	0.3254** (0.0520)	0.3026** (0.0465)	0.6093** (0.0871)	0.2485** (0.0508)
<i>ln_nwounded</i>	0.1131* (0.0405)	0.1093* (0.0387)	0.0736 (0.0634)	0.0947 (0.0383)
<i>multiple</i>	0.7042** (0.1638)	0.7108** (0.1702)	0.1614 (0.2207)	0.7370** (0.1675)
<i>assassination</i>	-0.7429** (0.2046)	-0.8902** (0.2023)	0.0504 (0.7960)	-0.8651** (0.1969)
<i>bombing</i>	1.6818** (0.1309)	1.6687** (0.1289)	1.5511** (0.2194)	1.6634** (0.1405)
<i>infrastructure</i>	0.5111 (0.2784)	0.4841 (0.2743)	-0.1912 (0.4031)	0.5232 (0.2933)
<i>hijacking</i>	-1.1611* (0.3831)	-1.2496* (0.4006)		-1.1233* (0.4012)
<i>hostage_taking</i>	-0.0883 (0.4145)	-0.2160 (0.3271)	0.1138 (0.3975)	-1.0715* (0.4117)
<i>known</i>	-0.7073** (0.1622)	-0.6116** (0.1573)	-0.0081 (0.2187)	-0.7226** (0.1625)
<i>claimed</i>	0.7781** (0.1366)	0.7700** (0.1301)	0.3514 (0.2200)	0.7618** (0.1418)
<i>business</i>	0.0061 (0.2425)	0.0830 (0.2494)	0.3833 (0.2891)	0.0156 (0.2853)
<i>government</i>	-0.0208	-0.1142	0.4436	-0.1882

<sup>60</sup> There are only seven events in my dataset with missing nationalities, and all of them are assumed not to be transnational.

	(0.1487)	(0.1540)	(0.2706)	(0.1481)
<i>police</i>	-0.1311	-0.2559	0.4692	-0.1499
	(0.1761)	(0.1590)	(0.4769)	(0.1733)
<i>military</i>	-0.5576*	-0.3788	0.4005	-0.4785*
	(0.1976)	(0.1603)	(0.2702)	(0.1671)
<i>civilian</i>	-0.0392	-0.0143	0.4204	-0.1054
	(0.2034)	(0.2017)	(0.2682)	(0.2144)
<i>transportation</i>	1.0790**	1.0699**	0.7575	1.1548**
	(0.2562)	(0.2783)	(0.4278)	(0.2569)
<i>us_location</i>	1.0463	1.4717*	1.3195**	1.5779**
	(0.4359)	(0.5170)	(0.3243)	(0.4105)
<i>us_target</i>	0.4027	0.2445	-0.0404	
	(0.2577)	(0.1689)	(0.1710)	
<i>ln_us_aid</i>	1.039**	1.1238**	0.5594**	1.1994**
	(0.0700)	(0.0652)	(0.1115)	(0.0708)
<i>extended</i>	1.1121*	1.1165*	1.3423	0.9950
	(0.4210)	(0.3223)	(0.3926)	(0.3965)
<i>election</i>	0.9461**	0.9452**	1.2634**	0.6561**
	(0.2140)	(0.1935)	(0.2711)	(0.1434)
<i>free_press</i>	-0.0252**	-0.0237**	0.0140	-0.0281**
	(0.0046)	(0.0048)	(0.0058)	(0.0049)
<i>constant</i>	-1.5216**	-1.6837**	-3.4067**	-1.4110**
	(0.2766)	(0.2770)	(0.3977)	(0.2647)
<i>alpha</i>	1.8715	1.7052	1.1144	1.7341
	(0.1773)	(0.1643)	(0.1383)	(0.1779)
number of cases	2291	2581	441	2289
Wald chi-square	1340.66	1686.03		1696.42
logarithmic pseudo-likelihood	-3060.39	-3399.65	-724.60	-2817.60

\*p-value<0.01; \*\*p-value<0.001; robust standard errors in parentheses

My findings are generally robust to varying definitions of terrorism – with the exception of a few predictors – but they may be largely more applicable to domestic than transnational terrorism. For my first alternative sample with doubtful cases removed, the coefficient of *military* is positive and significant, and the coefficient of *us\_location* is not significant. Still, the results for this sample are

otherwise the same as those for my primary sample with all cases in my dataset. The results for my second alternative sample with only successful cases mirror those for my primary sample with my full dataset. Therefore, there is little reason for concern about whether or not my findings are pertinent to narrower sets of terrorist attacks based on definitional discrepancies. However, for my third alternative sample with only transnational cases, the coefficients of *ln\_nwounded*, *multiple*, *assassination*, *known*, *claimed*, *transportation*, *extended*, and *free\_press* are not significant – even though the coefficients of *ln\_nkilled*, *us\_location*, *ln\_us\_aid*, *bombing*, and *election* remain positive and significant. Nonetheless, this situation may be the consequence of fewer observations in this sample, leading to higher robust standard errors. For my fourth sample with only domestic cases, the coefficient of *ln\_nwounded* is not significant, while the coefficients of *military* and *hostage\_taking* are negative and significant. Otherwise, though, the results for this sample mirror those for my primary sample containing my full dataset. There is thus a possibility that my findings apply more to domestic terrorist attacks than transnational ones. On the whole, though, these robustness checks confirm the results for my primary sample. In the next chapter, I summarize my findings, present recommendations for policymakers and scholars, and suggest avenues for future research.

## Chapter 5: Conclusion

### Thesis Findings

In this thesis, I provide at least a partial answer to the question of which terrorist attack attributes garner them more publicity. Although this topic has not been thoroughly investigated to date, it is essential to understanding terrorism as a communicative strategy. Publicity is the overriding objective of terrorist organizations. *The Encyclopedia of Afghan Jihad*, which was used as a training guide for al-Qaeda, advises terrorists to conduct their attacks in series and to target nuclear power plants, skyscrapers, or football stadiums “so that any strike should cause thousands of deaths.” These recommendations read like a blueprint for particularly devastating acts of terrorism like 9/11. Yet this manual also recommends terrorist operatives to target “sentimental landmarks” such as the Statue of Liberty in New York, Big Ben in London, and the Eiffel Tower in Paris, because their destruction “would generate intense publicity with minimal casualties.”<sup>61</sup> Indeed, terrorist groups are far less interested in harming the immediate victims than they are in communicating their message. Unfortunately, killing or injuring more people is one way that terrorists can garner substantial media coverage. Getting the spotlight allows terrorists to threaten a target

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<sup>61</sup> See Hamza Hendawi, “Terror manual advises on targets,” *Associated Press*, 2 February 2002.



population and call upon potential sympathizers to support their cause, thereby increasing their leverage in bargaining with the state.

This project updates the relevant literature and presents automated coding as a viable way to collect data on media coverage. My central assumptions about the importance of public preferences and media access to news reporting seem to closely pertain to terrorist attack publicity. My findings generally confirm my predictions that terrorist attacks get more media coverage when they are more shocking, lead to greater speculation about the perpetrators, involve more identifiable targets, or provide more access to journalists. I discover that terrorist attacks get more publicity when they result in greater injuries or fatalities, come in a series, target transportation systems, take place on American soil, occur in countries getting more American foreign aid, span over one day, coincide with national elections, or take place in countries with greater press freedom. I also find that acts of terrorism receive less publicity when they have known perpetrators but garner greater media coverage when they are claimed. Finally, I discover that bombings receive more news reports, while assassinations and hijackings are less publicized. While these findings are consistent among various definitions of terrorism, they may apply more to domestic terrorist attacks than transnational ones.

Understanding which terrorist incidents get more media attention may provide more insight into the broader investigation of the causes and consequences of terrorism. By pointing out terrorist incidents that get extensive publicity and therefore may lead to greater public anxiety, this research may provide more

awareness of the counterterrorism policies of democratic leaders responding to public demands through the electoral process. This research may also demonstrate which terrorist attacks draw in more supporters and gain more concessions from the government because of their substantial media coverage. Lastly, this thesis may provide more insight into the theorized symbiotic relationship between terrorism and media coverage, demonstrating which terrorist incidents may perpetuate further terrorism due to their extensive publicity.

### **Policy Recommendations**

With the findings I make in this thesis, I am able to propose several recommendations for policymakers. These policy prescriptions include the need for more publically accessible information about terrorist groups, for greater security of transportation systems, for the United States to take more caution about its foreign assistance, for faster hostage negotiations, for amplified counterterrorism measures during national elections, and for balancing press freedom with homeland security efforts. While the scope of this policy advice is somewhat limited, it is essential that policymakers know which characteristics of terrorist attacks they ought to focus on when seeking to reduce their publicity. If indeed public anxiety about terrorism amounts to harsher counterterrorism measures in democracies, then chances are that some states are already implementing some of these measures – perhaps without being fully aware of their implications with regard to terrorist attack publicity. Therefore, I highlight a few lessons that this research provides in terms of

homeland security in order to illustrate how the authorities can further undermine publicized terrorism.

Notably, policymakers may need to seek thorough intelligence about the perpetrators of terrorist attacks and make it available to the public. I find that terrorist incidents get less publicity when the terrorist groups responsible for them are known, which indicates that the authorities may not need to shy away from publically revealing intelligence information about the perpetrators. When the American embassy in Benghazi was assaulted by a heavily armed group in 2012, the public response of the U.S. government was muddled by speculation and inconsistency. U.S. Director of National Intelligence James R. Clapper Jr. conceded that American intelligence analysts at first believed the attack was part of a spontaneous protest but eventually revised their initial assessment “to reflect new information indicating that it was a deliberate and organized terrorist attack carried out by extremists.”<sup>62</sup> The inconsistent attempts of the U.S. intelligence community to identify the perpetrators of the attack led to massive speculation in the media about the possible involvement of al-Qaeda. By providing knowledge about terrorist organizations – particularly about the limits of their capabilities to inflict damage – to the public, the government can subvert media speculation about terrorist attacks and alleviate public anxiety at least to some degree.

In addition, the government may benefit from investing more money in defending transportation systems from terrorist attacks, given the strong evidence I find that terrorist attacks targeting public transit get more media attention. Unlike

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<sup>62</sup> See Scott T. Shane, “Clearing the Record About Benghazi,” *The New York Times*, 17 October 2012.

airlines or airports, which continually implement stricter screening methods at checkpoints, buses, trains, subways, highways, bridges, and roads rarely monitor their passengers, allowing millions of commuters daily to go unscreened. As a result, they are left quite vulnerable to terrorist attacks that can generate massive publicity. For example, the 1995 sarin gas attack on the Tokyo subway gained tremendous media attention globally. Besides focusing their homeland security measures on air travel, policymakers may also need to consider how to better secure other forms of mass transit.

I also recommend that American politicians pay closer attention to where they send foreign aid dollars, which may have unforeseen and nefarious consequences. This policy advice is based on my finding that terrorist attacks receive greater attention by the media when they occur in countries getting more economic and military assistance from the United States. The 2002 National Security Strategy of former U.S. President George W. Bush called for increased foreign assistance to prop up failing states, arguing that “poverty, weak institutions, and corruption can make weak states vulnerable to terrorist networks” within their borders.<sup>63</sup> However, if the goal of sending foreign aid is to stabilize terrorism-ridden countries, American policymakers may need to consider its influence on the publicity of terrorist attacks that occur in them. Likewise, aid-receiving countries may need to more critically evaluate the costs and benefits of accepting money from

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<sup>63</sup> See the White House, “The National Security Strategy of the United States of America,” September 2002, Washington, D.C.

the United States, understanding that it may create more opportunities for terrorists to gain publicity for their attacks.

Furthermore, policymakers may benefit from trying to resolve hostage crises as quickly as possible, given my discovery that extended terrorist attacks receive more media attention. For instance, the abduction of Israeli soldier Gilad Shalit by Hamas militants in 2006 took five years to resolve, ending in 2011 with a massively disadvantageous prisoner swap for the Israeli government. As outrage grew throughout Israel and around the world, with the public calling for his release, the Israeli authorities were faced with no other option but to make enormous concessions to Hamas. While the government does not have full control over how long hostage negotiations take, allowing them to simply run their course seems counter-productive to homeland security because of the substantial publicity they receive. Still, being overly hasty in combatting terrorists during hostage situations may also backfire. For example, the Beslan school hostage crisis in 2004, conducted mainly by Chechen separatists, resulted in significant bloodshed when the standoff was broken on the third day by Russian security forces. The government may need to seek a middle ground that focuses on minimizing the duration of hostage takings to limit their publicity, while simultaneously emphasizing the well-being of the hostages.

Moreover, the authorities may opt to increase counterterrorism efforts in times of tense electoral competition, given my finding that terrorist attacks coinciding with national elections get more publicity. For instance, in 2009, the

German government boosted its terrorism alert level a few weeks before its election in response to a series of al-Qaeda videos on the Internet threatening to strike German civilians. Former German Interior Minister Wolfgang Schäuble stated that “the federal elections offer a special opportunity for propaganda and operative activity by terror groups.” There was a rampant fear at this time in the media that Germany would see a heightened period of terrorism.<sup>64</sup> The government may need to be more cautious about terrorist incidents coinciding with national elections and attempt to minimize their publicity.

Finally, policymakers may need to consider developing counterterrorism policies that aim to subvert terrorist attack publicity without compromising press freedom. Although I find that terrorist attacks are more publicized when they occur in countries with greater press freedom, I believe that democracies should avoid sacrificing any part of the incredibly cherished freedom of expression. Still, it is worth considering the possibility of curtailing the incentives that may lead media organizations to exaggerate the news. Rohner and Frey (2007) propose providing indirect price supports – such as reduced postal rates for delivery – to newspapers that are more professional than sensationalistic. They argue that by indirectly subsidizing quality news content, policymakers can blunt the pressure that media outlets feel to produce “infotainment.” This measure may reduce the opportunities that terrorist groups get to attract publicity for their attacks.

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<sup>64</sup> See Frederik Pleitgen, “Germany boosts terrorism alert level,” *CNN*, 18 September 2009.

## Insight for Scholars

My findings suggest that researchers may benefit from taking into greater consideration the dependency of terrorist attack data on media coverage. Along with the GTD, terrorism databases available to scholars generally use open-source information.<sup>65</sup> For example, *International Terrorism: Attributes of Terrorist Events* (ITERATE), perhaps the most utilized terrorism database among political scientists, collects data on transnational terrorism from 1968 through 2008. ITERATE relies primarily on printed information from major international news agencies such as the *Associated Press*, *United Press International*, the *Foreign Broadcast Information Service*, and *Daily Reports* (Mickolus et. al. 2009). The ITERATE team attempts to create a complete census of transnational terrorist incidents' properties. However, when a terrorist incident gets almost no publicity, human coders may have trouble recording all of its characteristics, including the number of persons killed or wounded, the terrorist organization responsible, the immediate victims' nationalities or occupations, the weapons used, and so on.

Terrorism databases like the GTD and ITERATE constantly strive to improve their information gathering techniques by branching out to newly accessible media sources and retrospectively filling in data when it becomes available. Nonetheless, political scientists may need to pay closer attention to which terrorist attack attributes influence their publicity and how even the most thorough terrorism databases may be biased toward them. Pape (2003, 347) collects data on suicide

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<sup>65</sup> I used a much narrower assortment of news sources – prominent English language newspapers – than terrorism databases usually do, and therefore the news articles I collected using automated coding covered only a minority of the terrorist attacks I observed.

attacks from 1980 to 2001 by scouting *LexisNexis*, contending that “the survey is probably reliable, because a majority of the incidents were openly claimed by the sponsoring terrorist organizations.” My finding that claimed terrorist attacks get more media attention puts into doubt this contention, indicating that his dataset may have a bias toward claimed events. Scholars may need to be more careful about presuming the reliability of terrorism data without careful consideration about which terrorist attack attributes it may be biased toward.

### **Avenues for Future Research**

Numerous areas surrounding the media coverage of terrorism remain to be explored. There are still many opportunities to study terrorist attack publicity in terms of additional properties, across media types, over time, or as it related to the labeling of terrorism. There may be features of terrorist attacks impacting their publicity that this thesis does not study. For instance, future studies could investigate the possibility that terrorist attacks occurring in urban areas receive more media attention than those taking place in rural locations, given that media organizations are generally concentrated in major cities and therefore seem to have more access to terrorist attacks nearby.<sup>66</sup> There is also no guarantee that my findings are generalizable beyond major English language newspapers in 2004 and 2005. It is possible that the properties of terrorist incidents that influence their media coverage may change from time to time or across media types. Further

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<sup>66</sup> The local location information in the GTD is far from comprehensive, and there was not enough time for me to manually code urban as opposed to rural terrorist incidents.



research is required to determine if the patterns I observe in this thesis exist beyond the scope of this project.

This research suggests the potential of computer-aided text analysis to be used for data collection on the coverage of terrorist incidents by the media. In the future, scholars could devise more reliable automated coding schemes by using more sophisticated automated content analysis algorithms or translating other languages into English. My country and terrorist tactic dictionaries were applied to *unigrams* in documents' ledes, and my computer-aided text analysis method did not distinguish between parts of speech or identify the context in which words are placed in sentences. Natural language processing with parsing, or syntactic analysis, can be used to detect subject-verb patterns in sentences, and *n-grams* can be used to represent multiple-word strings of letters (Schrodt 2012). These methods could more precisely extract political actors and their actions from text, leading to more valid categorization of documents by their respective events. Machine language translation tools could also be used by researchers to translate documents from other languages into English, allowing them to be used for analysis.

With more reliable automated coding, researchers could analyze more news sources – not only newspapers but also television, the radio, websites, and magazines – and more events over a longer timeframe. Major news sources could also be supplemented by local news content – not only in English but also in other languages. Improved automated coding may also allow scholars to categorize news reports by their respective events over a longer window of time – more than merely

two days afterward. These advances may help political scientists investigate the media coverage of terrorism over time, showing how terrorist attack publicity may have changed since the onset of post-Cold War globalization as well as 9/11. These improvements may also assist scholars in studying potential differences among media types when it comes to publicizing terrorist attacks. Bennet (2001) explains that “hard news” is increasingly crowded out by “soft news” today, shifting the paradigm of news reporting from what journalists deem important for the enlightenment of the public to what profit-oriented editors consider interesting for entertainment. Therefore, it may be worthwhile for scholars to study whether “hard news” and “soft news” sources emphasize terrorism according to different sets of attack characteristics.

Finally, more valid machine coding may allow scholars to better understand how the labeling of terrorism affects its publicity. Media organizations sometimes implicitly report acts of political violence targeting noncombatants without explicitly branding them as terrorism. The decision to characterize an event as terrorism is subject to inherent editorial biases. For instance, Nacos (2003) explains that newspapers in the United States generally designate political violence against Americans at home as acts of terrorism but use other, less direct terms for describing similar events involving foreigners abroad. While SmartIndexing in *LexisNexis* captures documents with major references to the subject of terrorism, it may have some trouble indexing a news report that skirts common terrorism-related terms in favor of a more subtle characterization of an event. More reliable

automated content analysis could allow researchers to process and organize larger document corpuses, distinguishing between news reports that label events as terrorism and those that do not.

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