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Author: Laura Dugan ; Gary LaFre ; Kim Cragin ; Anna Kasupski

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BUILDING AND ANALYZING A COMPREHENSIVE OPEN SOURCE DATA
BASE ON GLOBAL TERRORIST EVENTS

Laura Dugan and Gary LaFree

University of Maryland

Kim Cragin and Anna Kasupski

RAND Corporation

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BUILDING AND ANALYZING A COMPREHENSIVE OPEN SOURCE DATA BASE ON GLOBAL TERRORIST EVENTS

Abstract

Compared to most types of criminal violence, terrorism poses special data collection challenges. For example, the term “terrorism” itself yields varying definitions, often overloaded with political and emotional implications. As PLO Chairman Arafat so famously noted in a 1974 speech before the United Nations, “One man’s terrorist is another man’s freedom fighter.” In this context, reports on terrorist trends and attacks, whether in the media or from government representatives, can be misleading. In response, there has been growing interest in open source terrorist event data bases. However, these data bases have thus far faced two major problems. First, they have been limited to international events—those involving a national or group of nationals from one country attacking targets physically located in another country. While international events certainly hold interest for the U.S. government as it attempts to deal with threats to its interests overseas, these events do not necessarily provide an accurate picture of evolving tactics or even overarching trends in terrorism. Indeed, most research indicates that domestic incidents greatly outnumber international incidents. Second, those who have assembled prior event data bases have been unable to maintain consistent data collection strategies over time. Thus, while several institutions have attempted to gather data on terrorist events, these data bases have either not gathered data on domestic events or have not maintained consistent data collection strategies making comparisons over time impossible.

For this project, we compiled a standardized, comprehensive, data base on both international and domestic terrorist events from 1970 until 2006. To do this, we utilized data from both the RAND Terrorism Chronology and the Global Terrorism Data base (GTD). The first two authors began the GTD by computerizing data originally collected by the Pinkerton Global Intelligence Service (PGIS), including more than 67,000 events that occurred around the world from 1970 to 1997. PGIS applied a standard definition to their terrorism data collection for 37 years. However, because PGIS was a for profit organization that provided security services to corporate clients, their data collection likely erred on the side of inclusiveness. RAND terrorism analysts have collected information on international terrorist events consistently since 1972. Moreover, RAND began augmenting its international data base with domestic terrorism data in 1998—at exactly the same time that the original PGIS data collection ended. In this project we brought together the GTD team from the University of Maryland that computerized the PGIS data with a RAND team that has long-standing expertise in the collection and analysis of terrorist event data. The GTD-RAND partnership has allowed us to produce a high quality, comprehensive, integrated terrorist event data base, stretching from 1970 to the present.

This report presents the first overview of global terrorism from 1970 to 2006 that includes both international and domestic attacks. We show that terrorism has grown substantially since the early 1970s, peaking first in 1992 and then again in 2006. A closer look at the components of these trends reveals that the latter peak is driven primarily by violence in Iraq. This report also examines the distribution of attacks and fatalities over nine global regions. Findings show that Latin America and the Middle East are the most

violent and lethal of all nine regions. In addition, findings show that South Asia and Western Europe account for a large portion of global terrorism. While Africa accounts for a relatively small portion of global terrorism it nonetheless accounts for a large portion of terrorism-related fatalities..

The report describes the types of activities perpetrated by terrorists over this period. For example, the data reveal that most attacks are bombings or armed attacks using explosive, firearms or firebombs. Furthermore, the three primary targets of choice are private citizens, the government, and businesses. We find that these characteristics do change depending on the region, revealing some unique patterns. For example, the second most common tactic is armed attack, yet terrorists in North America and Western Europe have preferred assassination over armed attack. Also, compared to other regions private citizens are less likely to be targeted in Eastern and Central Asia and North America. In addition to the targets already mentioned, terrorists in Eastern and Central Asia and North America also prefer to target diplomats. Not surprising, police are targeted most in the Middle East since the beginning of the war in Iraq. In fact, the newly compiled GTD-RAND data strongly suggests that terrorism today is largely a byproduct of the war in Iraq, differing greatly from terrorism in the last quarter of the twentieth century.

Introduction

Compared to collecting data on other types of criminal violence, collecting data on terrorist violence is especially challenging. In criminology, data on illegal violence come traditionally from three sources, corresponding to the major social roles connected to criminal events: “official” data collected by legal agents, especially the police; “victimization” data collected from the general population of victims and non-victims; and “self-report” data collected from offenders (LaFree and Dugan 2004: 53-74). In the United States, the most widely used form of official crime data has long been the Federal Bureau of Investigation’s Uniform Crime Report. Major official sources of data on international crime include the International Criminal Police Organization (Interpol), the United Nations crime surveys, and for homicides only, the World Health Organization (LaFree 1999:124-148).

Since 1973, the major source of victimization data in the United States has been the National Crime Victimization Survey. For international data, the International Crime Victimization Survey has collected several waves of data from samples of individuals in several dozen nations around the world (Van Dijk, Mayhew, and Killias 1989).

Compared to the collection of victimization data in the United States, the collection of self-report survey data has been more sporadic. Nevertheless, several major large-scale national self-report surveys now exist (Elliott, Huizinga, and Menard 1989). Similarly, several waves of an international self-reported crime study have been undertaken (Junger-Tas, Terlouw, and Klein 1994). In general, data concerning terrorist events from these three sources are either entirely lacking or face important additional limitations.

Although government departments in some countries do collect official data on terrorism (e.g., the U.S. State Department), these data face at least two major difficulties. First, terrorism data collected by government entities are suspicious either because they are influenced by political considerations, or because many fear that they might be so influenced. Of course, to some extent, this is also a problem with official data on common crimes. Police, courts and correctional officers frequently face political pressure to present their crime data in particular ways. However, owing to the fact that terrorism is a very public and political species of crime, any prevailing political pressure is likely to be especially acute with regard to terrorism.

Second, while huge amounts of detailed official data on common crimes are routinely produced by the various branches of the criminal justice system in most nations, this is rarely the case for terrorism. For example, most suspected terrorists in the United States are not legally processed for their acts of terrorism, but rather for other related offenses. It is true that this situation continues to evolve. For example, in the United States in 1995, Chapter 113B of the Federal Criminal Code and Rules added “terrorism” as a separate offense and the Antiterrorism and Effective Death Penalty Act was signed into law in 1996. Among other things, the 1996 act attempts to cut fundraising by those affiliated with terrorist organizations, enhances the security measures employed by the aviation industry, and expands the reach of U.S. law enforcement over selected crimes committed abroad. Similarly, the U.S. Patriot Act, passed in 2001, strengthens criminal laws against terrorism by adding to the criminal code terrorist attacks against mass transportation systems, domestic terrorism, harboring or concealing terrorists, or providing material support to terrorists (115 Stat. 374, Public Law 107–56 – October 26, 2001).

Nevertheless, it still remains the case that most of those persons who are officially designated as terrorists in the annual reports produced by the FBI are either not prosecuted at all (e.g., the likely outcome for many of those detained at the U.S.'s Guantanamo Detention Facility) or are prosecuted under traditional criminal statutes. So, there is no easy way to gather official data on those arrested, prosecuted or convicted of terrorist activities unless you do as Smith and his colleagues have done (Smith and Orvis 1993: 661-681, and assemble the data on a case by case basis. And of course the ability to use official data to study terrorism in most other nations is even more difficult. In particular, much terrorism data is collected by intelligence agencies that operate partially or entirely outside the realm of domestic criminal justice systems.

In addition, much primary data is collected by intelligence agents, including data from communications intercepts, surveillance, informers, defectors, interrogation of prisoners, and captured internal documents (e.g., memos, training manuals). But most of these sources are not readily available to researchers working in an open, unclassified environment. Still, there are important opportunities provided by official data on terrorism that have not been adequately exploited. In particular, researchers could do more to examine court records and transcripts, government reports and hearings and unclassified intelligence reports.

Victimization data, which have played an increasingly important role in the study of common crime in the U.S. and elsewhere, are almost entirely irrelevant to the study of terrorist activities. Several features of terrorism make it highly unlikely that victimization surveys will ever have widespread applicability. To begin with, despite the attention it gets in the global media, terrorism is much rarer than violent crime. This

means that even with extremely large sample sizes, few individuals in most countries will have been victimized by terrorists. Moreover, because one of the hallmarks of terrorism is that victims are often chosen at random, victims of terrorist events are unlikely to know their perpetrator, making it difficult to produce details about the offender. And finally, in many cases, victims of terrorism are killed by their attackers—a problem in criminology limited to the study of homicides.

Self-report data on terrorists has been more important than victimization data, but it too faces serious limitations. Most active terrorists are unwilling to participate in interviews. And even if willing to participate, getting access to known terrorists for research purposes raises obvious challenges. As Merari (1991:88) has put it, “The clandestine nature of terrorist organizations and the ways and means by which intelligence can be obtained will rarely enable data collection which meets commonly accepted academic standards.” Still, we can learn a good deal from direct contact with terrorists or former terrorists. Examples include recent work by Horgan (2005) based on interviews with terrorists and McCauley (2003) based on examining notebooks and letters left behind by the 9/11 suicide bombers. Increasingly, the internet also provides access to the motives and strategies of individuals and groups that employ terrorism. There may be useful information on the self-reported strategies of terrorists available through analysis of blogs, web sites and chat rooms.

In general, because of the difficulties with the use of official, victimization and self-report data in the case of terrorism, most research has been based instead on secondary data sources: the media (or media derived data bases), books, journals, or other published documents. A review by Silke (2001) concludes that nearly 80 percent of all published

terrorism research is based on secondary data sources rather than on primary contact with suspected or actual terrorists, terrorist victims, or legal agents investigating terrorists. Most of the documents analyzed in these studies are based on unclassified open sources. Nevertheless, over time researchers have begun to use secondary sources to create increasingly comprehensive event data bases. In the next section, we briefly review these developments.

The Global Terrorism Data base

The original data base used as the platform for the GTD, the Pinkerton Global Intelligence Services (PGIS) data base, is compared to seven other terrorism open source event data bases in Table 1. According to Table 1, in 1997 the PGIS data base had by far the largest number of events of any of the other data sets. Indeed, in 1997 PGIS reports about seven times more events than the next three largest data bases available at that time – International Terrorism: Attributes of Terrorism Events (ITERATE), the U.S. State Department and Terrorism in Western Europe: Events Data (Tweed). From 1970 to 1997, PGIS trained researchers to identify and record terrorism incidents from wire services (including Reuters and the Foreign Broadcast Information Service [FBIS]), U.S. State Department reports, other U.S. and foreign government reporting, U.S. and foreign newspapers (including the *New York Times*, the *British Financial Times*, the *Christian Science Monitor*, the *Washington Post*, the *Washington Times*, and the *Wall Street Journal*), information provided by PGIS offices around the world, occasional inputs from such special interests as organized political opposition groups, and data furnished by PGIS clients and other individuals in both official and private capacities. As PGIS data collection efforts matured, their data collectors relied on a wider number of sources. For

example, in the early 1970s, a large proportion of recorded PGIS sources are government reports and FBIS. But by the middle 1970s, data collectors were relying more extensively on a wider range of sources, especially national and international newspapers. In more recent years, PGIS researchers increasingly relied on the Internet. Although the coding form went through three iterations, most of the items included were similar during the entire 28 years of data collection. About two dozen persons were responsible for coding information over the years spanned by the data collection, but only two individuals were in charge of supervising data collection during the entire period.

Table 1. Major Archival Data bases on Terrorist Incident Reports

Author	Scope	Period	Number of Incidents
PGIS	Domestic & International	1970-1997	67,160
ITERATE	International	1968-2000	10,837
TWEED (Europe)	Domestic	1950-1999	10,498
U.S. Dept. of State	International	1980-2001	10,026
RAND	International	1968-1997	8,509
TRITON	Domestic & International	Mid 2000-Mid 2002	2,452
RAND-MIPT	Domestic & International	1998-present	Over 29,937
COBRA	International	1998-1989	1,041

PGIS defined terrorism as:

events involving “the threatened or actual use of illegal force and violence by non-state actors to attain a political, economic, religious or social goal through fear, coercion or intimidation.”

Based on coding rules originally developed in 1970, the persons responsible for collecting the PGIS data excluded criminal acts that appeared to be devoid of any political or ideological motivation and also acts arising from open combat between opposing armed forces, both regular and irregular. Data collectors also excluded actions taken by governments in the legitimate exercise of their authority, even when such actions were denounced by domestic and/or foreign critics as acts of “state terrorism.” However, they included violent acts that were not officially sanctioned by government, even in cases where many observers believed that the government was openly tolerating the violent actions. In sum, because the goal of the data collection was to provide risk assessment to corporate customers, the data base was designed to err on the side of inclusiveness. The justification was that being overly inclusive best served the interest of clients. An employee of a corporation about to move to Colombia would be concerned about acts of violence against civilians and foreigners, regardless of whether these acts were domestic rather than international, threatened rather than completed, or carried out for religious rather than political purposes. However, despite this apparent flexibility in the inclusion criteria, PGIS continued to exclude events that clearly did not meet their definition. Thus, non-terrorist criminal events are excluded from the data base.

The START team at the University of Maryland completed computerizing the original PGIS data in December 2005. Since then START researchers have actively searched open sources to update, correct and extend the data. As part of this process, the research team has compared the PGIS data with other sources. When additional

information was found in other valid sources, the PGIS data base was updated.¹ After making changes to the PGIS data, we renamed it to the Global Terrorism Database (GTD). An important part of this process has involved the current collaborative project with the RAND Corporation. In April 2006 START received additional funding from the Human Factors Division of the Department of Homeland Security to extend the original GTD beyond 1997. The project to extend GTD data is being conducted by a team led by Gary Ackerman and Charles Blair on behalf of the START Consortium. The results of this new data collection were not yet available when the current partnership with RAND began and the GTD included in this report are limited to data collected before 1998. (For a more complete description of the new GTD collection efforts, see LaFree and Dugan, 2007).

The RAND Chronology

In 1972 the RAND Corporation, a non-profit policy research institution, began collecting information on international terrorist attacks. The initiation of this research arose amidst the United States government's growing concern with the escalating occurrence of international terrorist attacks and the potential threat posed to Americans abroad. Given these perceived threats, the Department of State and the Defense Advanced Research Projects Agency (DARPA) approached the RAND Corporation and asked its researchers to examine trends in international terrorism. Brian Michael Jenkins led this effort and undertook a multidisciplinary approach, using the expertise of staff

¹ All of the original sources are coded into the GTD data, allowing users to filter out any cases based on original source.

from various fields such as psychology, political science, intelligence, weapons technology and computer science to address a broad array of terrorism-related topics. These topics ranged from assessing potential nuclear threats to evaluating U.S. government strategy to combat terrorism. Early research showed that major terrorism acts beginning in the 1970s were not isolated incidents, but rather signals of a growing problem.

From the outset, a large part of RAND's terrorism research revolved around the maintenance of its Chronology of International Terrorism (hereafter referred to simply as the "Chronology"). The Chronology immediately proved to be an invaluable resource. Attacks recorded in the Chronology date back to 1968, the same year that experts mark as the advent of modern terrorism. On July 22 1968 three armed members of the Front for the Liberation of Palestine-General Command (PLFP-GC) hijacked an El Al commercial flight scheduled to fly from Rome to Tel Aviv. The hijackers diverted the El Al plane and its 48 occupants to Algeria, releasing some passengers but holding five Israeli passengers and seven crew members hostage. The PFLP-GC subsequently demanded the release of Palestinian guerillas being held in Israeli prisons in exchange for these hostages.

This particular terrorist incident is representative of those included within the Chronology for the first 25 years. At that time, and through today, RAND defined international terrorism as:

Incidents in which terrorists go abroad to strike their targets, select victims or targets that have connections with a foreign state (e.g. diplomats, foreign businessmen, offices of foreign corporations), or create international

incidents by attacking airline passengers, personnel, and equipment (Cordes, et. al. 1984:1).

Notably, at that time, RAND researchers consciously made the decision to exclude from the Chronology those acts of terrorism by perpetrators in their own country inflicted against fellow citizens. This decision was influenced by two main considerations. First, RAND was initially contracted by the U.S. government to research the growing phenomena of international terrorism, as it was perceived to be an increasing safety concern to U.S. interests abroad. The threat of international terrorism, or political violence that would target U.S. interests abroad was viewed as categorically different than internal conflict and violence. And second, the RAND Corporation's focus on international terrorism also was dictated by limitations on the amount of source material available on terrorist attacks at the time of the Chronology's creation. In the 1970s, print media reported domestic attacks of terrorism less frequently, making it more difficult to compile a comprehensive chronology of international and domestic terrorism. Information for international incidents, especially those involving Americans victims, was more readily available.

This methodological decision in many ways was a byproduct of the difficulty encountered when attempting to define terrorism. Even though RAND developed its own definition as a guideline, many incidents fell into areas that did not easily lend themselves to identification as definitive terrorist activity. In *The Study of Terrorism: Definitional Problems*, Jenkins (1980:1) noted the challenge of defining terrorism and some of the stumbling blocks RAND had to overcome in order to assemble the Chronology. One major issue that had to be dealt with was that terrorism has neither an exact or widely

accepted meaning. At the time this report was issued, Jenkins had noticed the term's growing evolution into a "fad word," used without discretion in reference to violent acts regardless of their nature or severity. Jenkins observed that the media also was guilty of this mislabeling, using the phrase to attract attention by heightening the suspense of a particular news story.

In response to the frequent misuse of the word terrorism as misapplied to episodes of violence, RAND devised its own definition. RAND researchers by no means believed this definition to be the final word in the study of terrorism. Indeed, the introduction to a 1975 RAND report, which released the first six years of Chronology data, expressed this uncertainty:

That which is presented is exploratory, derived from common characteristics observed among incidents documented within the Chronology itself. These include terrorists' infliction of violence upon civilian targets in addition to the orchestration of attacks with the intention of gaining maximum publicity...

International terrorism can be a single incident or a campaign of violence waged outside the presently accepted rules and procedures of international diplomacy and war; it is often designed to attract worldwide attention to the existence and cause of the terrorists and to inspire fear. Often the violence is carried out for effect. The actual victim or victims of terrorist attacks and the target audience may not be the same; the victims may be totally unrelated to the struggle (Jenkins and Johnson 1975:3).

This initial definition was substantially shorter and less detailed than subsequent definitions developed by RAND researchers over the next several years. As the

Chronology expanded, RAND researchers constructed another definition with greater precision:

...*terrorism* is defined by the nature of the act, not by the identity of the perpetrators or the nature of the cause. Terrorism is violence, or the threat of violence, calculated to create an atmosphere of fear and alarm. These acts are designed to coerce others into actions they would otherwise not undertake or refrain from taking actions that they desired to take. All terrorist acts are crimes. Many would also be violations of the rules of war, if a state of war existed. This violence or threat of violence is generally directed against civilian targets. The motives of all terrorists are political, and terrorist actions are generally carried out in a way that will achieve maximum publicity. The perpetrators are members of an organized group and, unlike other criminals, they often claim credit for their acts. Finally, terrorist acts are intended to produce effects beyond the immediate physical damage they cause; having long-term psychological repercussions on a particular audience (Hoffman and Hoffman 1998:89).

Carefully devised, this definition has come to represent the core elements of terrorism, used and referenced by U.S. government institutions, other governments, as well as international non-governmental organizations. This definition also has remained consistent throughout the duration of the RAND Terrorism Chronology and was applied retroactively to the previous data, beginning in 2000 as it was understood that the database would be made public. In theory, this consistency has yielded one of the most reliable sources on terrorist attacks from 1968 until today.

Nevertheless, achieving a high degree of consistency has proven to be anything but a clear-cut process. RAND analysts working on the Chronology have had to make numerous judgment calls in order to apply the definition of terrorism with the greatest degree of possible uniformity. For example, a 1987 memorandum sent to Jenkins by his research assistants Karen Gardela and Geraldine Petty demonstrates the challenges faced by RAND analysts as they attempted to determine if an incident should be classified as an act of terrorism. The memo suggests that Palestinian and other attacks in Jerusalem be included in the Chronology, because the city was officially incorporated in Israel in the 1960s. In contrast, attacks perpetrated in the Israeli occupied territories of the West Bank, Gaza Strip and Golan Heights were to be excluded (Gardela and Petty 1987:2).

In 1982 RAND analysts began work on CODA (Concept Organization and Development Aid) as part of a larger Project Air Force Computer Study. At the outset, the sponsors and creators of CODA were interested in the possibility of devising computer programs capable of assisting with research processes. Theoretically, these programs would function as researchers' long-term memory with the capacity to store and retrieve large amounts of information (Dewar 1985:iii). Both the growing size of the Terrorism Chronology and the length of each entry's text made it an ideal candidate for CODA's trial run. Indeed, prior to 1982, information within the data base was not easily accessible. Entries were recorded on card files and stored in file boxes along with the clippings of source material. Answering data inquiries therefore required researchers to manually search through all the entries to gather relevant material. The development of CODA dramatically improved the utility of the Chronology, by transforming the data base into a more manageable research tool. Each entry had always and continues to

include a textual description of the incident along with a listing of key identification features such as the tactic used and country in which it occurred. According to the demands of a request, data could then be manipulated by inputting code combinations into the system to retrieve the desired information.

Despite the multiple advantages of transferring the Chronology from hardcopy into an electronic format, the use of CODA was not without difficulty. CODA lowered the barriers for extracting numerical statistics from the Chronology, but it did not eliminate the data's susceptibility to misinterpretation. Nevertheless, even with the development of an electronic version of the Chronology, the extensive library of supporting reports and articles was preserved and has been maintained until the present.. For instance, each attack in the Chronology has its own folder containing newspaper articles and other information sources used to create an incident in the Chronology. Subsequent articles that RAND researchers use to update any entry also are included in these folders. These folders exist at RAND Corporation's Santa Monica office in hardcopy. Electronic PDF versions of all articles, beginning in 1968, exist in the RAND Corporation's Washington DC office. Since 1998, the Chronology electronic entries also include a field for source data that identifies the newspaper article or other information source that provided the information to RAND researchers as they added new entries to the Chronology.

Despite the resources invested in the Chronology, by 1994 its future looked uncertain. Funding was not the main concern, but rather it was a question of who would continue its maintenance. Bruce Hoffman, familiar with the data base through both his involvement in its upkeep and the application of its evidence in his studies, had left RAND for the University of Saint Andrews in Scotland. The decision therefore was made to relocate the

Chronology to the University of St. Andrews where Bruce and Donna Hoffman would continue to work on its maintenance. At St. Andrews, Donna Hoffman and doctoral candidate David Claridge continued to update the data base with the assistance of various graduate students. Yet the source material used to identify new entries and revise older incidents, unlike that available in the United States, was very limited. Staff had to rely heavily on the Internet search engine Lexus-Nexus. Lexus-Nexus key word searches would bring up hundreds of articles daily that would need to be sorted through to find those (usually about 20 percent) containing relevant material (Hoffman 2005). Bruce Hoffman returned to RAND Corporation in December 1997, bringing the Chronology back with him. The RAND Corporation did not pursue additional funding for the Chronology at this time and research specifically on the Chronology ended.

Upkeep of the Chronology resumed in April 2001 under the sponsorship of the National Memorial Institute for the Prevention of Terrorism (MIPT). Since this time the data base has witnessed a number of significant modifications to its maintenance, format and use (described below). These changes arose from both RAND's partnership with MIPT and decisions made to accommodate shifts in the nature of terrorism. To ease this breach, the Chronology underwent a process of standardization in 2004 and 2005, as stipulated by MIPT to merge the two different entry formats for purposes of simplification. Collectively, the Chronology is now known as the RAND-MIPT Terrorism Incident Data Base, part of the larger Terrorism Knowledge Base available on MIPT's website as of September 2004 for use in the public domain.

One of the most significant changes to the Chronology was the introduction of "domestic terrorism incidents" beginning in January 1998. RAND researchers, including

Bruce Hoffman, Michael Wermuth and Kim Cragin, advocated the inclusion of domestic terrorism in the new Chronology. They argued that when the Chronology of International Terrorist Incidents was created in 1972, the distinction between international and domestic acts of terrorism was relatively clear. However, by 2001 this distinction was becoming much less obvious. For example, terrorist groups were increasingly difficult to classify along purely ethnic and nationalist lines. Additionally, as information on domestic acts of terrorism was more readily available, it made sense to include these attacks to more accurately understand emerging trends.

RAND defined domestic terrorism as “incidents perpetrated by local nationals against a purely domestic target (MIPT 2002:4).” The application of this definition resulted in RAND researchers recording an average of six domestic terrorist incidents for every single international act between 1998 (as the collection was applied retroactively) and 2003. Several conflicts account for this ratio, including the al-Aqsa Intifada, ongoing attacks in Colombia, Kashmir and Chechnya. The conflict in Iraq has increased this ratio even more. As the amount of information entered into the Chronology began to grow exponentially, so did the research team, drawing on individuals with language expertise and knowledge of certain geographic areas. Accordingly, the world was divided into eight regions: Western Europe, Eastern Europe, South Asia, Southeast Asia and Oceania, Africa, Latin America and the Caribbean, North America, and the Middle East/Persian Gulf. A layered filtering system was established to guarantee consistency and quality in the data base, similar in concept to that used by Gardela beginning nearly two decades earlier. A pyramid structure was created and terrorist attack entries had to pass through four checkpoints before they could be included in the Chronology. At the bottom of the

pyramid are RAND research assistants, who read news reports (often in local languages) in search of terrorist incidents and compose individual profiles on each, complete with the applicable information. All of this information is then entered into an electronic data base, which is password protected so that only the researchers can change their entries. These entries are then monitored by another member of the research team, who must approve all entries into the data base. Those entries clearly not in accordance with RAND's definition are marked not-for-public-release at this point, although not deleted from the Chronology. Likewise, entries of questionable standing are set aside for review by senior RAND terrorism experts, the third checkpoint. These senior researchers either make a determination, or bring the most difficult decisions before a joint RAND-MIPT Vetting Committee.

The vetting committee examines events of an undetermined status and creates new criteria that must be met by incidents for inclusion. A typical agenda for a vetting committee meeting includes a discussion of both specific incidents considered for inclusion as well as more general types of attacks. For example, during a meeting held on April 1, 2005 the committee considered whether or not to include attacks on Iraqi polling stations, Iraqi barber and alcohol shops, as well as envelopes sent to various U.S. state governors that contained matches set to ignite when opened. Together the group of five persons decided that the attacks on polling stations would be incorporated into the Chronology for their being a government target. Attacks against barber and alcohol shops would count as well. . Essentially, as with GTD, the RAND Chronology does not track open combat between opposing armed forces, even if these are non-state actors. But if in the midst of instability, like with Iraq, civilians are targeted specifically as part of a wider

campaign, these attacks are included. That is, if civilians are targeted as part of a wider political message and not just as part of general mayhem, they are included in the Chronology. For example, in recent years in Iraq, barbershops are being attacked because Islamists do not want men to cut their hair – we regard this as a political statement about the nature of the future Iraqi state. And, thus, the RAND Chronology included these particular types of attacks. Finally, the committee determined that the letters sent to governors did not constitute terrorism, as the perpetrators had no underlying political motive. These attacks therefore were labeled an act of vandalism and omitted from the Chronology (Peck 2005). Following these decisions new guidelines were provided to the research assistants as they searched news articles for terrorist attacks worldwide.

Prior to RAND's contract with MIPT, full data base access was limited to its maintenance staff. Not even RAND researchers and terrorism experts were granted this privilege. This was done primarily to preserve the integrity and accuracy of the data base by restricting the number of people who could make adjustments to its contents. Today, however, the Chronology in its entirety, now containing over 37,000 incidents, is available to the public online.

Combining the GTD and RAND Data bases

Matching Variables

Because the GTD and RAND data bases were collected by different groups using different methods and definitions, their resulting coding structures naturally differ as well. In order to prepare the GTD data to be combined with the RAND Chronology, we

first had to convert the GTD to match the fields in RAND as closely as possible. In most cases, after some coding the GTD variable was an exact match to the RAND variable. In other cases, even after recoding the GTD variables have slightly different meanings. In the sections that follow, we discuss each of the variables that differed between GTD and RAND and explain the coding decisions we made to combine the two data sets. In order to combine the GTD and the RAND Chronology we generally preserved the RAND variable names. We list below selected variables whose correspondence may not be exact.

INCIDENTID, GTDID, UNIQUEID: These are the unique identifiers for the combined data base. Because the original identifiers, *INCIDENTID* and *GTDID* are only unique for the source data base, each variable is preserved separately. When the original source is GTD, *INCIDENTID* will be missing. Similarly, when the case is drawn from RAND, *GTDID* is missing. *UNIQUEID* was created as a text variable that uniquely identifies all cases in the dataset by concatenating either “GTD” or “RAND” to the identifier for that case depending on its original source.

INTERNATIONALINCIDENT, DOMESTICINCIDENT: RAND defines international incidents as those “in which terrorists go abroad to strike their targets, select domestic targets associated with a foreign state, or create an international incident by attacking airline passengers, personnel or equipment (MIPT 2007).” All but five cases in the RAND Chronology are listed as either international or domestic. In the GTD, cases were only marked as either international or domestic when both the perpetrators and their country of origin were known. Therefore the GTD excludes information on whether an incident is international or domestic in a majority of cases—62% of the total.

ATTACKCLAIMED: RAND marks the attack as claimed when the perpetrator has made a statement of responsibility. This information allows researchers to make a determination of the validity of the perpetrator field, as sometimes authorities attribute attacks to a particular terrorist group but the responsibility is unknown. It is worth noting that in other instances, terrorist groups claim responsibility for attacks that cannot be confirmed in media or other reports. These claims get catalogued by RAND researchers but do not get incorporated into the publicly available Chronology. There is not an exact correspondence on this variable for the GTD data, as PGIS did not note whether the claim was made by the alleged perpetrators or by authorities. For purposes of the synthesis we included all GTD cases under the attack claimed variable when either they were claimed by the perpetrators or attributed to the perpetrators by the authorities.

TARGET: RAND categorizes targets into one of the following 20 categories: Abortion Related, Airports/Airlines, Business, Diplomatic, Educational Institutions, Government, Food or Water Supply, Journalists/Media, Maritime, Military, Non-governmental Organizations, Other, Police, Private Citizens and Property, Religious Figures/Institutions, Telecommunication, Tourists, Transportation, Unknown, and Utilities. In the original GTD data, all information on the target was found in a text field that describes up to three targets. In order to match the RAND code, the GTD staff examined all of the original GTD cases and reassigned them to one of the 20 RAND categories according to the primary target.

STATESPONSORED: This variable is only included in the RAND data. The original GTD includes no state sponsored terrorist events. Moreover, due to the controversial nature of this variable, it is also not made available to the public on the RAND-MIPT

Terrorism Knowledgebase website. That is, states never claim that they have “sponsored” terrorist attacks and so this information tends to be less than reliable. Given the limited reliability, neither RAND nor GTD make this information available.

COORD: RAND codes an incident as coordinated when the perpetrator clearly planned more than one attack to be executed at the same time. Each attack is entered separately, but is marked as a coordinated attack to signal that other events occurred within the same sequence of attacks. The GTD codes incidents that are identically implemented in the same city on the same day as “multiple incidents.” In analysis on the GTD, these multiple incidents are weighted to reflect each as a separate attack. For purposes of the synthesis, we counted all parts of a coordinated attack as one incident.

FATALITIES, INJURIES: These variables list the total number of persons killed or wounded in each incident. When a GTD incident represents more than one attack (coordinated attack), these variables record the total number of fatalities or injuries in all attacks. In the RAND Chronology, victims of coordinated attacks are counted according to the specific event and not summed. We should also note that terrorism fatalities and injuries are often misrepresented in open source data.

WEAPON: RAND has classified its weapons into nine types which include biological agents, chemical agents, explosives, fire or firebombs, firearms, knives and sharp objects, other, remote detonated explosives, and unknown. Events are catalogued according to their most specific weapon. So, for example, a remote-detonated explosive is more specific than explosives only. Other data, such as whether or not the explosive is an IED, or the type of chemical agent, is captured in a description field of the RAND Chronology. The GTD data allows up to four weapons to be recorded for each incident. In order to

synthesize the data sets, the GTD staff recoded the first weapon for each incident into one of the RAND weapon category types.

INFORMATIONSOURCE, SOURCEDATE: As mentioned previously, RAND researchers catalogue the media or other reports that provide background information on the specific incident. Most events are informed by multiple reports, captured in hardcopy, but researchers only identify the primary information source. The source date then parallels the media or other report for quality control purposes or to allow researchers to look up additional information on any given attack. During the original GTD data collection, sources were listed for most attacks. When there were multiple sources listed for the GTD, we include only the first source for the merger.

TACTIC: Both the RAND and GTD data categorize each attack into one tactic or type. In order to synthesize the data, we recoded the GTD to match RAND's coding of tactics. While most were one-to-one matches (Arson, Assassination, Bombing, Hijacking, and Kidnapping), others needed to be reconstructed. For instance, RAND designates attacks on facilities using assault weapons as armed attacks. Thus, facility attacks, maimings and assaults in the GTD were recoded as armed attacks. Thus, any incident that reported hostages were recoded as barricade/hostage. Finally, any attack that was originally coded as mass disruption or used chemical weapons was recoded as an "unconventional attack."

ABORTED: Both RAND and GTD researchers also collect data on attacks that have been unsuccessful, interrupted and foiled by security services. RAND codes an attack as "aborted" when it is interrupted. So, for example, if terrorists place a bomb outside a building but it fails to detonate or security forces make that bomb "safe" before it can be

detonated, this attack is recorded as “aborted.” Similarly, suicide bombers who are discovered and arrested as they move towards the target are catalogued as “aborted.” GTD instead distinguishes between “successful” and “unsuccessful” attacks. To synthesize the data bases, we therefore coded any unsuccessful attacks from GTD as aborted. Thus, both GTD and RAND include in this category all cases where the attack was unsuccessful.

MISSING DATA. Another issue is that GTD data for 1993 are missing. Prior to transferring the PGIS to the University of Maryland, boxes containing the 1993 terrorism attacks were lost. START is in the process of recollecting the 1993 data but these efforts were not complete at the time of this report. For this reason, most of the 1993 data in the appended GTD-RAND data base will be exclusively from RAND. Wherever appropriate, 1993 marginal figures will be estimated based on the mean differences between GTD and RAND in 1992 and 1994.

Criteria for Inclusion

After START and RAND modified the GTD data so that the weapons, targets and tactics paralleled each other, the next step was to filter the GTD data according to RAND’s criteria for inclusion into the Chronology. As previously mentioned, the challenge of determining which attacks constitute terrorism and therefore should be entered in the Chronology has been ongoing at RAND since 1972. As a result, researchers associated with the Chronology have developed multiple criteria or thresholds that help make this determination. These criteria became particularly important once the Chronology was made available to the public through the auspices of MIPT. Up to that point, RAND researchers might have included attacks that did not meet the strict

definition of terrorism being employed. For example, earlier versions of the data base included some attacks by criminal organizations against nuclear facilities even though they did not include all of the elements of the terrorism definition being applied.

Terrorism analysts associated with the Chronology filtered these non-terrorism-related incidents out as appropriate for internal research efforts and external data requests.

However, once the Chronology was made public, RAND researchers had less control over the data. Thus, RAND placed identifiers in the Chronology data that signaled which incidents were and were not terrorist attacks as strictly defined. Only those identified as terrorism were made available to the public. Of the data collected between 1998 and 2007, roughly 4 percent of the incidents were classified as “not terrorism-related.”

However, a much higher proportion of non terrorism cases were in the data prior to 1998—largely a consequence of the fact that RAND researchers sometimes collected information on domestic events particular to one country for one specific research effort.

In the process of merging RAND and GTD terrorism data one of the most difficult tasks was to apply the RAND criteria to GTD incident data. The core aspects of these criteria can be derived from the definitions provided previously: act of violence, perpetrated against civilian populations, intended to cause fear, in order to achieve a political objective. The subsequent paragraphs discuss these criteria in greater detail and provide an explanation of how we applied them to the GTD incident data.

INTENT. Over time *political intent* has become one of the most stringently applied criteria for whether an attack gets entered into the RAND Chronology. It is not enough that the militant group that engaged in terrorist activity has an overarching political agenda. Rather, the specific attack must be aimed at a widespread audience in order to

achieve a political objective. This criterion eliminates criminal activity, even if it is undertaken by a so-called terrorist organization. For example, the Basque terrorist group, ETA, is well-known for its criminal activities, particularly attacks against banks, to collect operational funds. Even though these funds sustain ETA's terrorist attacks, attacks by ETA against banks in Spain generally do not get included in the RAND Chronology. Similarly, kidnappings-for-ransom, frequently conducted by FARC in Colombia, are not entered into the Chronology. These attacks clearly cause widespread fear, but their *intent* is essentially fundraising. In many way, this first criterion is the most difficult to filter from the GTD data because it requires knowledge of specific incidents.

As START and RAND initially began to compare information on targets, we paid special attention to the *types* of targets in an effort to apply the political intent filter. For example, attacks against financial institutions received greater scrutiny than attacks against United Nations buildings. RAND researchers similarly went through all kidnapping incidents in GTD to remove those conducted for criminal purposes. This process eventually resulted in screening out more than 2,500 attacks from the GTD.

VIOLENCE. One of the most obvious criterion for screening events is whether they include **violence or the threat of violence**. This criterion requires, for example, that all hoaxes be rejected from the Chronology. GTD, therefore, was filtered for any incident apparently related to a hoax that did not result in violence. Somewhat more difficult, the violence criterion also has been expanded to incorporate defused bombs. That is, the Chronology uses separate coding to identify situations in which a bomb has been placed by the terrorist, but security forces have successfully defused the bomb. These acts of violence get included in the Chronology, even though they have a separate identifier. If a

terrorist is building a bomb in his basement, however, and the explosives pre-maturely detonate, this attack will get captured by researchers but not included in the publicly-released Chronology. While hoaxes can be filtered from the GTD data, this latter criterion posed some difficulties and it is likely that we were not able to capture fully and screen all incidents that did not meet it.

TARGETS. Finally, *civilian targets* is another criterion often overlooked in other terrorism data bases. This criterion is linked closely to *political intent* but it also stands on its own. Once applied, it requires that most attacks against military targets be rejected from the Chronology. That is, attacks against military targets are clearly threatening and could even be interpreted in some contexts as having a political objective, but still not be counted as *terrorism* per se. Some exceptions exist to this basic rule. Primarily, peacekeeping forces are not counted as military targets and, thus, attacks on peacekeeping forces get included in the Chronology. In addition, attacks against military forces on leave away from their area of operation, such as in the attack on the *USS Cole*, or attacks against military forces in their place of residence get entered into the Chronology. RAND researchers therefore filtered the GTD data for attacks against military targets, compared these attacks against the Chronology, and eliminated approximately 12,000 incidents from GTD based on this criterion. Moreover, in some countries, police forces act in concert with and under the direct authority of the military apparatus. RAND researchers therefore reviewed GTD attacks coded as against “police” or “national police” targets. Of the approximately 11,000 incidents in the GTD data coded as “target-police”, only 1,342 met the criteria to be included in the merger with the RAND Chronology.

DUPLICATIONS. After filtering the GTD incidents to match RAND criteria, the next step was to identify and eliminate any duplication between RAND and GTD before the merger could take place. To do this, we first removed any categories of data known to be collected by both RAND and GTD. Specifically, RAND collected incidents of “domestic” terrorism in the United States between 1968 and 1997, even if it did not for the rest of the world. So we removed all incidents from GTD that included attacks against US domestic targets. RAND computer programmers then compared the two data bases, primarily based on date of the incident and country. The computer program identified possible matches within the same country over a period of 10 days. Each of these possible matches then had to be gone through individually by RAND analysts. Based on this initial analysis, RAND identified 2,405 duplicates between the Chronology and GTD of a possible 8,509 or a 28 percent match. This percentage was somewhat lower than expected. Theoretically, GTD should include all of the 8,509 international terrorism incidents in the RAND Chronology plus a larger number of domestic terrorism incidents. The 29 percent match, therefore, presented a dilemma – could the data be so different as to make a merger impossible or did our computer program just miss a large proportion of true matches?

To answer this question, we randomly selected 50 of the 6,104 “no matches” and found 33 of these 50 (66 percent) were in fact true matches that had been missed because of differences in target dates between the two data bases. We therefore performed a second analysis based on the same computer program, but this time extended the match period between the two data sets from 10 to 30 days. Even with this revised procedure,

each collection of possible matches still had to be visually examined--a time-consuming process.

Table 2 summarizes the results from these initial filters. Between 1968 and 1997, RAND only collected information on international attacks, totaling 8,509 attacks for a period of 30 years or an average of 275 attacks per year. Between 1998 and 2007, RAND collected information on both international and domestic attacks, totaling 29,937 attacks for a period of 10 years or an average of 2,994 attacks per year. The ratio of domestic to international attacks between 1998 and 2007 in the Chronology was therefore 12:1. The ratio of domestic to international attacks between 1968 and 1997, based on our initial merger of RAND and GTD data was 4:1.

Table 2. Changes in Case Frequency after Accounting for Criteria

	RAND Chronology	START GTD (unweighted)
Total Incidents	38,446	61,740
1968-1997 Incidents	8,509*	61,740
1998-2007 Incidents	29,937	--
Incidents removed due to criteria	(1,771)	(16,615)
Incidents removed due to duplication	--	(2,851)
Total	36,675	42,274

* Denotes international attacks only

The Appended GTD-RAND Data base, 1970-2006

The appended data base allows for the exploration of a wide range of new research issues. The combination of these two data bases provides the most extensive set of open source data on both international and domestic global terrorist attacks ever assembled. In the rest of this report, we summarize the data paying special attention to trends over time.

Figure 1 presents the trend of global terrorism from 1970 to 2006.² Here we see that there are two early local peaks ending with a global peak in 2006. Terrorist attacks in the early 1970s were relatively infrequent. Through 1976 recorded terrorist attacks were relatively infrequent, with fewer than 1,000 incidents reported each year. From 1977 to 1979 the frequency of reported events nearly doubled, peaking in 1980 with 2,407 events.³ The next peak in 1992 shows 3,654 attacks worldwide. Global attacks remain

² The estimate for 1993 in this figure and in other trend figures was calculated by taking the average value of 1992 and 1994.

³ We recognize that the relatively small number of recorded incidents from 1970 through 1976 could be in part a consequence of the fact that PGIS data collectors simply invested fewer resources in data collection during the early years of data collection. Based on an analysis of the data, we do know that the early data are based on fewer recorded sources than the later data. Thus, for the year 1970, PGIS only reported 6 different sources, but by 1977 they reported 53 separate sources. However, this assessment is further complicated by the fact that PGIS data collectors frequently excluded their sources in the early years—68% of the cases in 1970 and 42% in 1977 included no sources. We should also point out that media-related information sources

below that peak until thirteen years later in 2005 with 4,996 attacks. Finally, the series ends with a global peak of 6,660 attacks in 2006. This last rise in attacks may have from contentions in the Middle East following the U.S. invasion in Iraq. Nearly one-half of all attacks since 2003 were in Iraq.

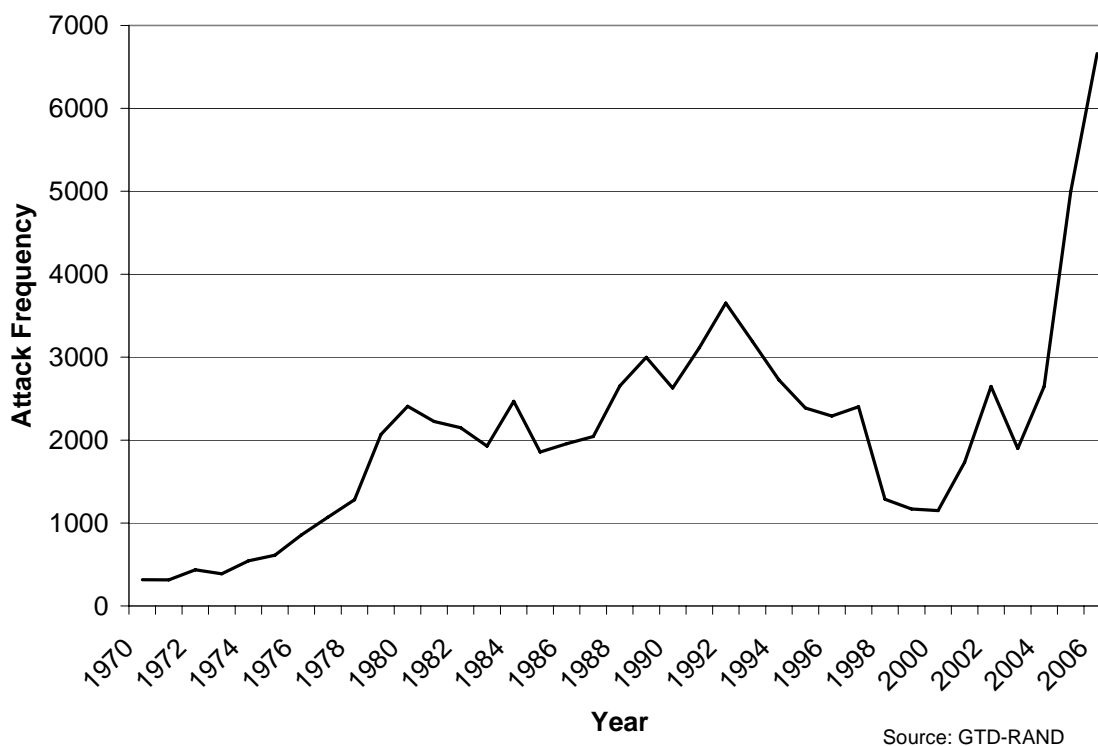


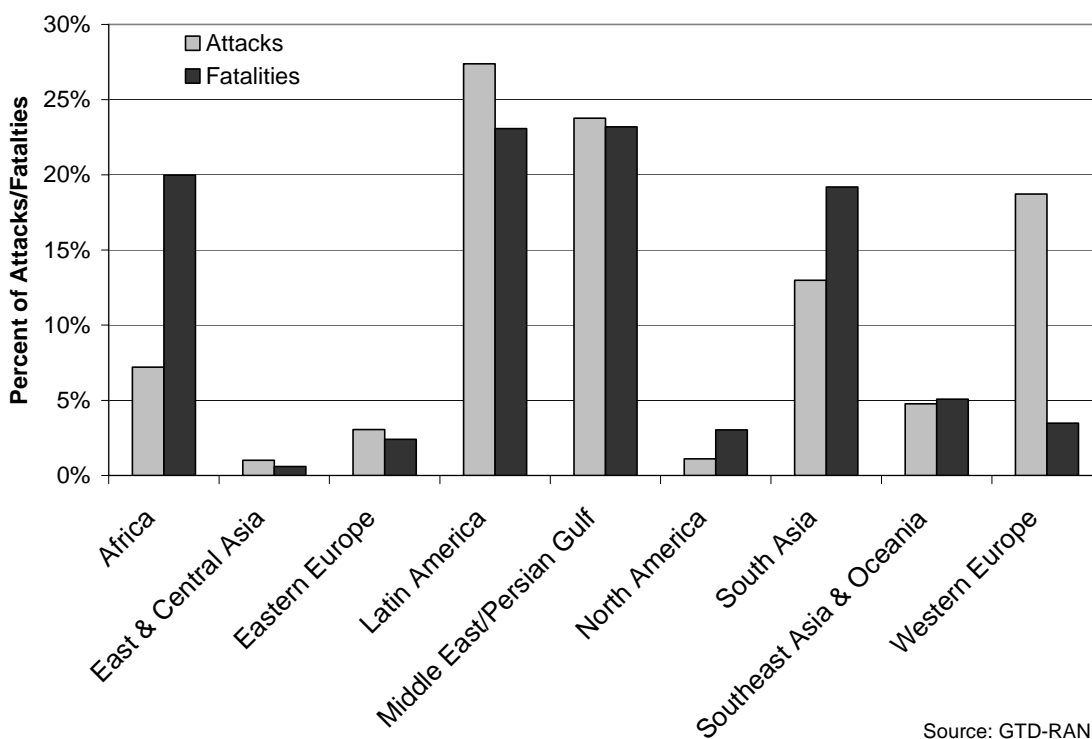
Figure 1. Global Terrorism Attacks, 1970-2006

To better understand the distribution of terrorism events and their lethality, we next calculated the distribution of incidents and fatalities according to their region.⁴ Figure 2 shows that more than half of the global terrorism occurred in Latin America (27.4%) and

also increased dramatically during this period, especially media penetration of the industrializing world, which might account for at least part of the increase in rates since 1970.

⁴ For a listing of countries in each region, go to <http://tkb.org/Home.jsp>.

the Middle East (23.8%).⁵ Western Europe (18.7%) and South Asia (13.0%) follow accounting for another 30% of all terrorist attacks. None of the remaining regions account for more than 10% of all attacks and North America and East and Central Asia each account for only 1% of all global terrorist attacks.



Source: GTD-RAND

Figure 2. Global Terrorist Attacks by Region, 1970-2006

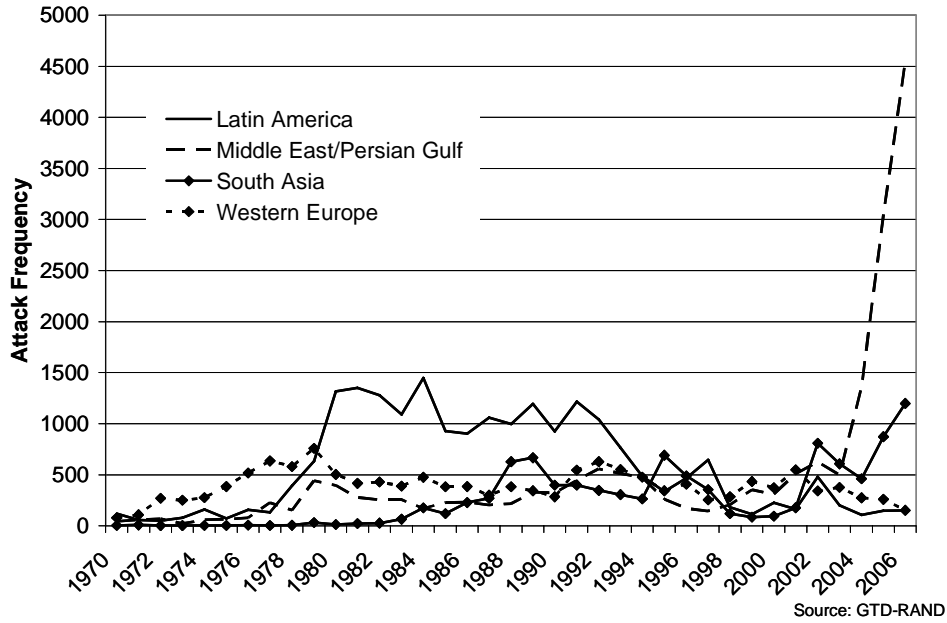
Figure 2 also shows that the distribution of fatalities by region differs greatly from that of total incidents. While Latin America (23.1%) and the Middle East (23.2%) still account for the largest proportion of terrorist violence when measuring fatalities, Africa has a higher proportion of fatalities than South Asia (20.0% and 19.2%, respectively). Both regions have an unusually high number of fatalities per attack compared to the other

⁵ The RAND 1993 attacks are included in this and other non-trend figures, while the GTD cases are missing.

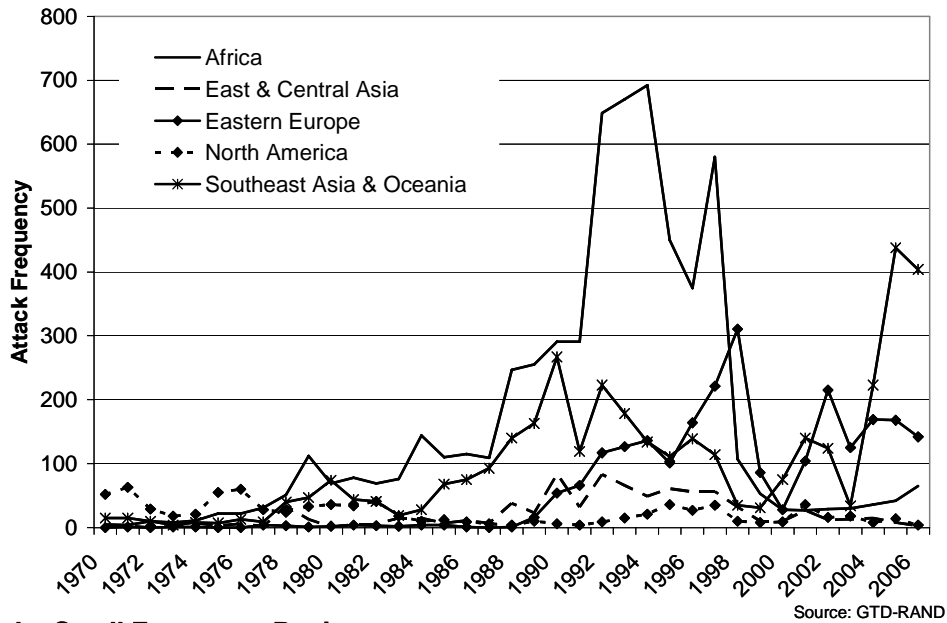
regions with Africa averaging 4.9 fatalities per attack and South Asia averaging 2.7, suggesting that attacks in these regions were deadlier than those in other regions. We also see that North America experienced an unusually high number of fatalities per attack at 4.8, which is likely driven by four attacks with unusually high fatalities, including the September 11th attacks in New York and Washington D.C., the 1995 Oklahoma City bombing, and the 1985 Air India bombing in Canada. On the other hand, Western Europe averaged only 0.35 fatalities for each attack with 81% of all attacks resulting in no fatalities.

We turn now to the distribution of terrorist attacks for each region over time. In Figure 3 we disaggregate the trend line of Figure 1 to show which regions are driving each portion of the trend from 1970 through 2006. Figure 3a shows the trends for the four most active regions and Figure 3b shows the trends for the five least active regions. Turning first to Figure 3a, it is clear that attacks in the most active regions vary greatly over time. For the years 1970 to 1979, terrorism is mostly a Western European problem. But after peaking in 1979 with 758 attacks, Western Europe drops to an average of 390 attacks a year. Annual attacks in Latin America, on the other hand, continue to rise after 1979 and peak in 1984 with over 1,400 incidents. After 1984, Latin America averages about 580 incidents a year but with large fluctuations. It is not until 1994 that Latin America begins to drop below other regions as Africa (Figure 3b), and then South Asia in 1995 and the Middle East in 1998 all become more active. From 2002 onward South Asia and the Middle East have the highest number of terrorist attacks each year. This is unsurprising because these regions include Afghanistan and Iraq, which account for a

high level of terrorist activity after the United States and others deployed troops to each country. Also, this region includes the al Aqsa Intifada in Israel.



a. Large Frequency Regions

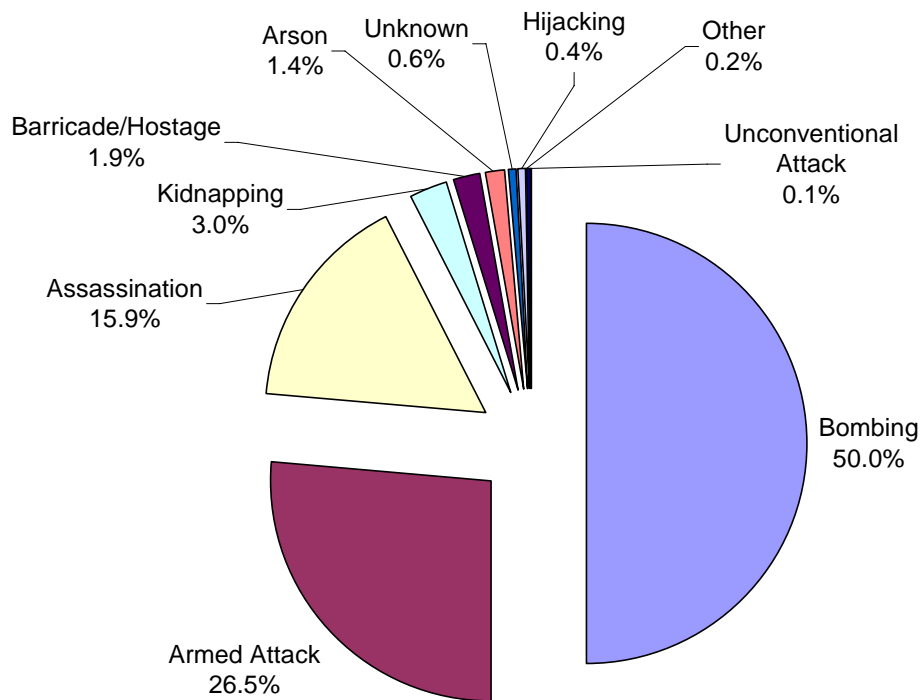


b. Small Frequency Regions

Figure 3 a & b. Terrorism Attacks by Region over Time, 1970-2006

Figure 3b shows that the other regions also have diverse trends. Clearly terrorism in Africa is largely driven by activity between 1984 and 1998 when there were well over 100 attacks per year. A closer examination of these attacks shows that a high proportion of attacks occurred in South Africa (28%) and Algeria (24%), two countries known for massive terrorism campaigns during that period. The other regions in Figure 3b show steady increasing trends over this period. Southeast Asia and Oceania have two peaks, the first in 1990 with 267 attacks and the second in 2005 with 438 attacks. This more recent surge of attacks is driven primarily by violence in Thailand.

We now turn to distributions of different types of terrorist activity. Figure 4 presents the distribution of terrorist tactics over time. Most apparent from this figure is that half of all terrorism attacks are bombings and more than a quarter are armed attacks. The next most common tactic is assassination followed by kidnapping, barricade/hostage situations and then arson. Very few terrorists use hijacking or unconventional attacks.



Source: GTD-RAND

Figure 4. Distribution of Terrorism Tactics, 1970-2006

We now examine the distribution of the four most common terrorist tactics by region. The relative proportions of each tactic for each region are presented in Figure 5. Perhaps the most striking comparison is between bombings and armed attacks. We learned in Figure 4 that overall terrorists used bombings nearly twice as often as armed attacks. However, this trend cannot be generalized regionally. For instance, terrorist attacks in Africa and Southeast Asia involve armed attacks just as often as bombs. Yet, in North America and Western Europe armed attacks are relatively rare compared to bombings. In fact, terrorists in these countries are just as likely to assassinate as to implement an armed attack. Next we see that kidnappings are most commonly used in the Middle East, Africa, Eastern Europe, and South Asia. Again, terrorists in North America and Western

Europe rarely used kidnappings compared to other tactics. Finally, assassinations appear to be most common in South Asia, Africa, and Latin America.

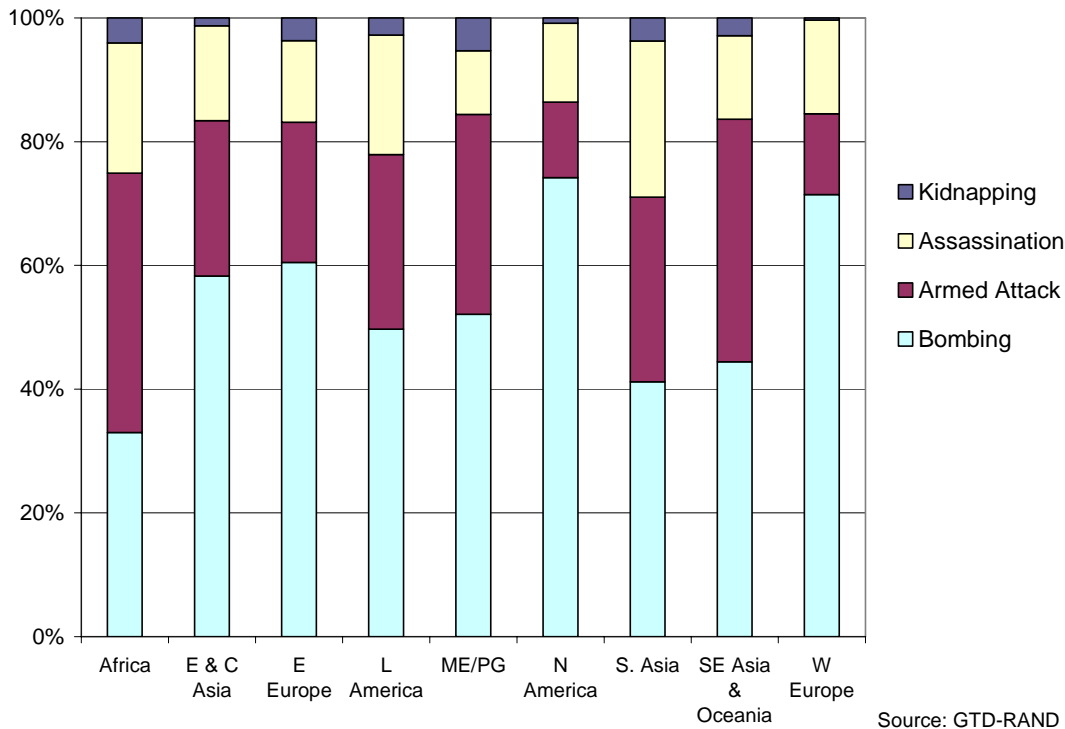


Figure 5. Distribution of 4 Most Common Tactics by Region, 1970-2006

Because a major advantage of merging the GTD with the RAND data is that it allows us for the first time to examine how terrorism has changed from 1970 to the present, we next present changes in the trends for these four tactics in Figure 6. Not surprisingly, trends in Figure 6 resemble those seen above for Figure 1. Also, not surprisingly, bombing is the most common tactic throughout the entire period with an exception from 1994 to 1997 when armed attacks were most common. A closer look at the data shows that armed attacks were prominent in Algeria, Pakistan, and Colombia during this four-year period respectively representing 9%, 8%, and 7% of all global armed attacks. We notice also that armed attacks became increasingly more common over time until they dropped in 1998, but then dramatically increased again in 2004, when 66% of the armed

attacks were perpetrated in Iraq, once again suggesting that recent terrorism is primarily a characteristic of that war.

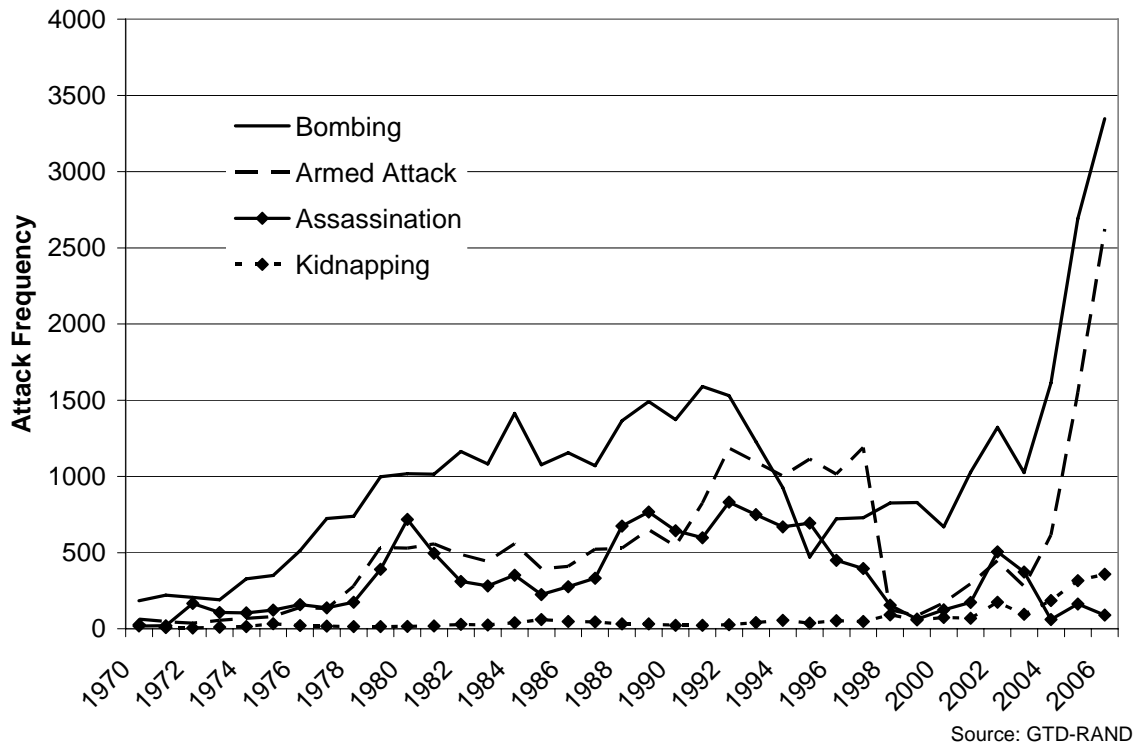


Figure 6. Global Frequency of Tactics, 1970-2006

We now examine the distribution of terrorist targets worldwide in Figure 7. We can see that there is considerable variation in terrorist targeting with the most common target representing nearly 20% of the total. The top three targets are (1) private citizens and property, (2) government, and (3) businesses. Together, these three targets account for just over half of the total. Following these three in order are police, other, transportation, diplomatic, and utilities. Types of targets that are attacked less than 4% of the time include religious figures or institutions, the military, journalists and other media, and educational institutions.

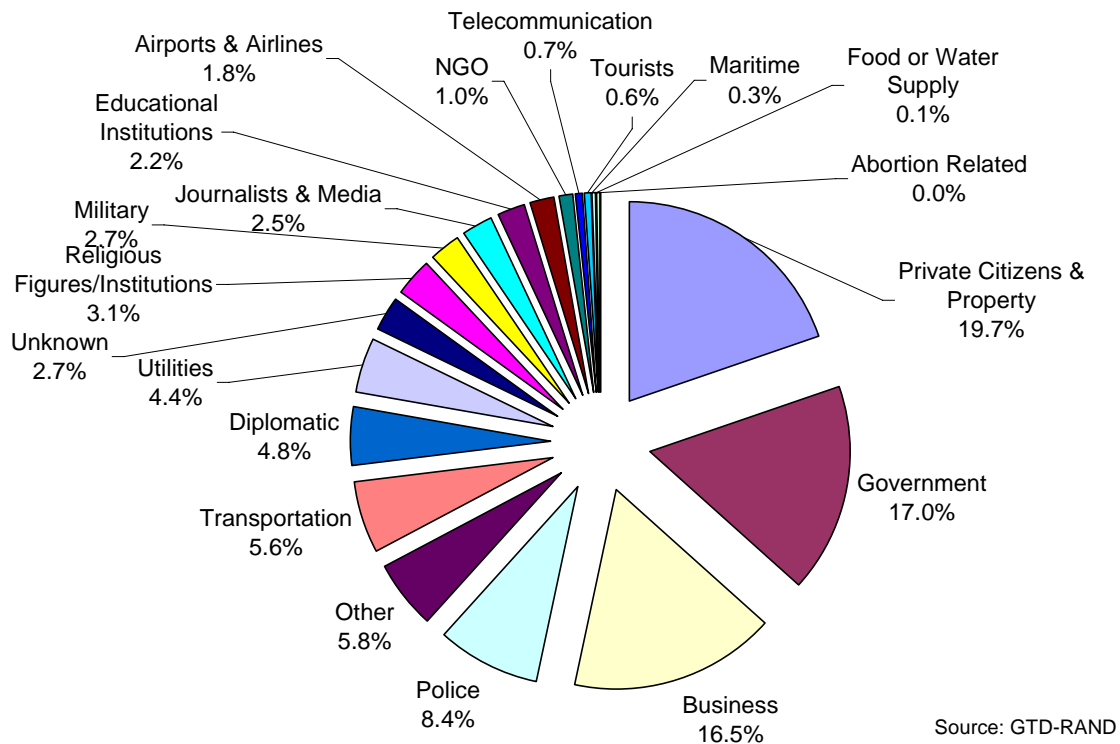


Figure 7. Distribution of Terrorist Targets Globally, 1970-2006

In Figure 8 we examine the relative frequencies of terrorism targets for each region. We limit the comparisons here to the four most common targets and the three additional target types that were among the top four in at least one of the regions. According to Figure 8, private citizens are only the modal target for Africa, the Middle East, and South Asia. Many of these attacks on private citizens are events in public spaces, such as market places and sidewalk cafés. The most common target in the remaining regions, with the exception of Latin America, North America, and Western Europe, is government. Businesses are most commonly targeted in those regions, followed closely by government in Latin America, private citizens in Western Europe, and diplomats in North America. Diplomats are also common targets in Eastern and Central Asia, ranking third behind government and business. Transportation was ranked among the top four targets in five of the regions, and utilities were among the primary targets only in Latin

America. Note that once again, terrorism in the Middle East differs from the other regions. Instead of primarily targeting government and business, terrorist in this area target private citizens and the police.

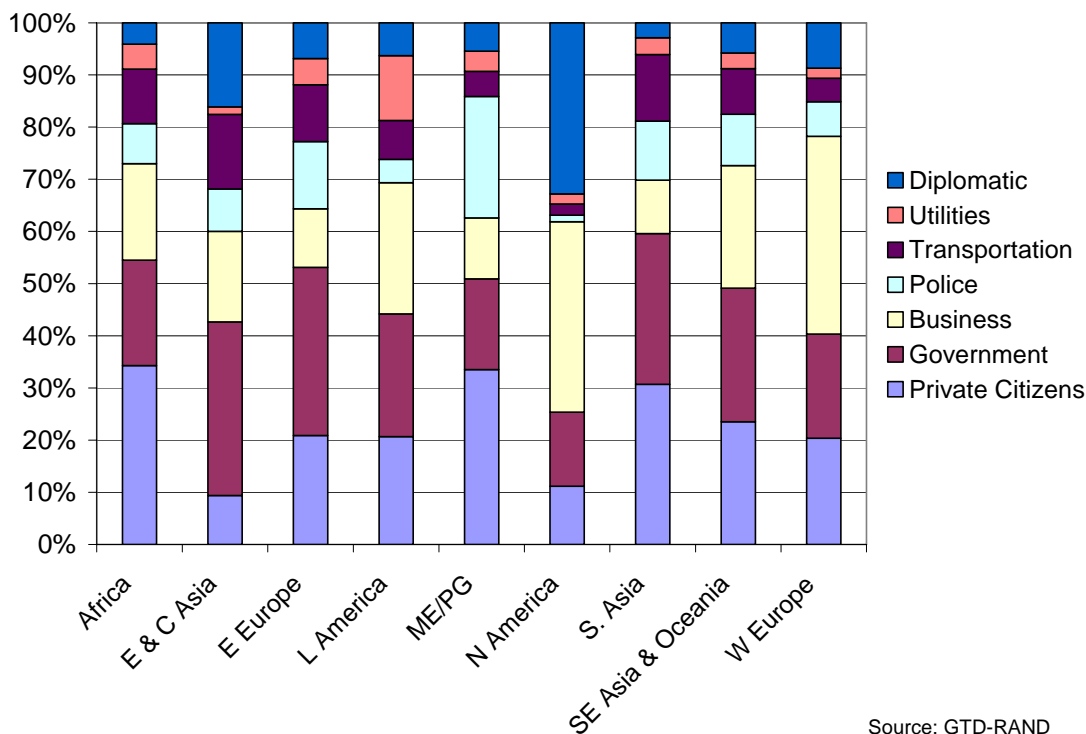


Figure 8. Targets of Terrorism, 1970-2006

Figure 9 presents trends for the top four tactics over time. Here we see that private citizens, government, and business track each other closely until around 2001 when attacks against private citizens go up while attacks against businesses remain relatively stable at around 200 a year. Shortly after this divergence in 2004, attacks against police rise dramatically to become the most common target in 2006 with more than 2,100 attacks. Not surprisingly, more than 70% of all attacks against police in these years took place in Iraq.

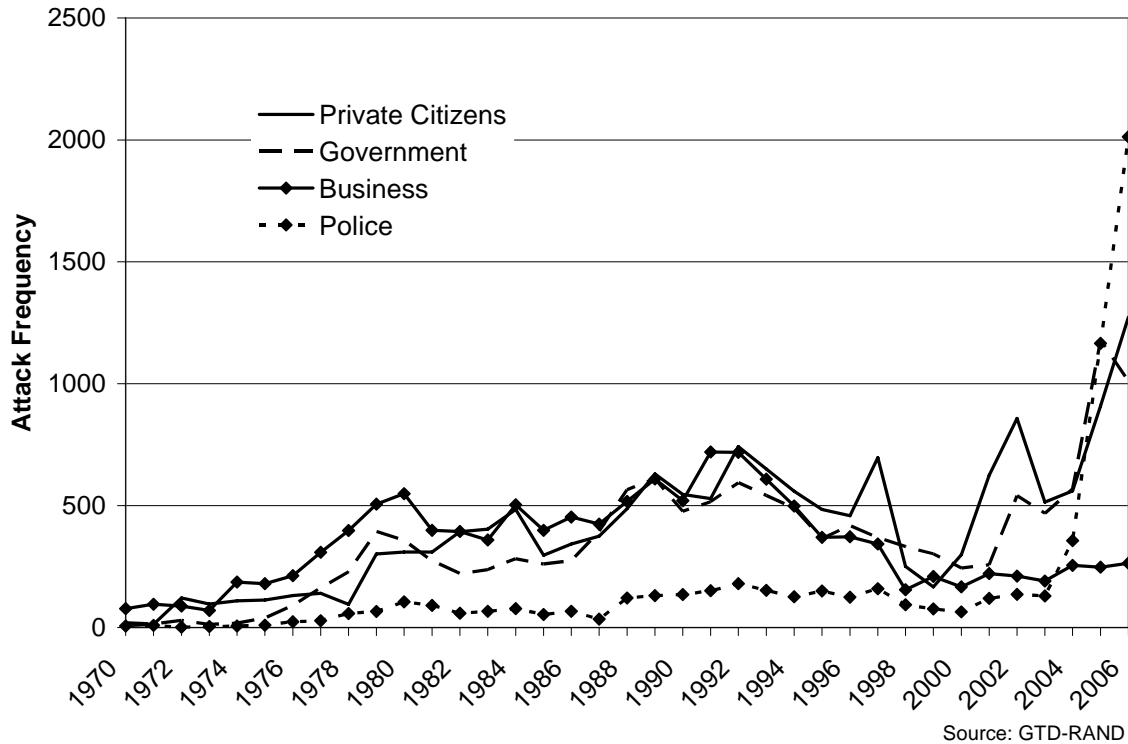
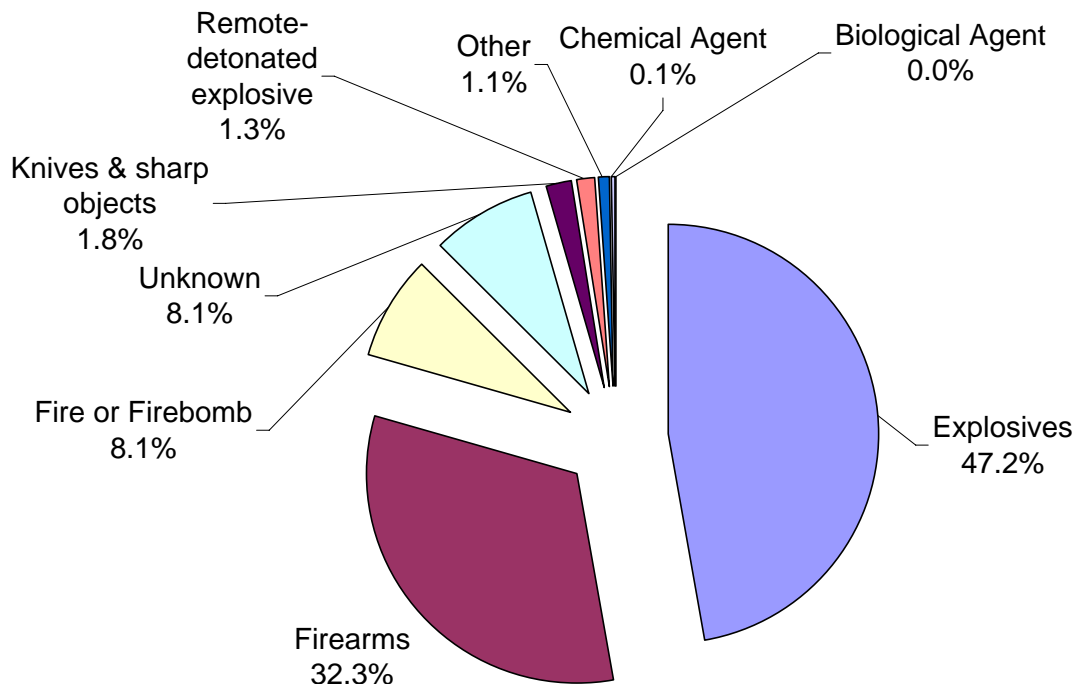


Figure 9. Top Four Terrorist Targets, 1970-2006

We next examine the distribution of weapons used by terrorists as displayed in Figure 10. Here we see that more than 87% of all terrorists have used explosives, firearms, or fire as their primary weapon. In another 8% of attacks there is no weapon described in the open sources used for the data collection. Less than 5% of the cases used knives and sharp objects, remote detonated explosives, chemical, or biological agents.



Source: GTD-RAND

Figure 10. Weapons used in Global Terrorism, 1970-2006

In Figure 11 we next examine the distribution of weapons over the nine regions of the world for the top five weapons. According to Figure 11, explosives continue to be the modal weapon of choice for terrorists regardless of the region in which they operate. Firearms, on the other hand, are the second most common weapon in all but three regions. Terrorists operating in Eastern and Central Asia, North America, and Western Europe are more likely to use fire or firebombs than firearms. Knives and sharp objects show up as relatively common weapons for terrorists in Africa and Eastern and Central Asia. Finally, remote-detonated explosives are relatively common in Eastern Europe and Southeast Asia.

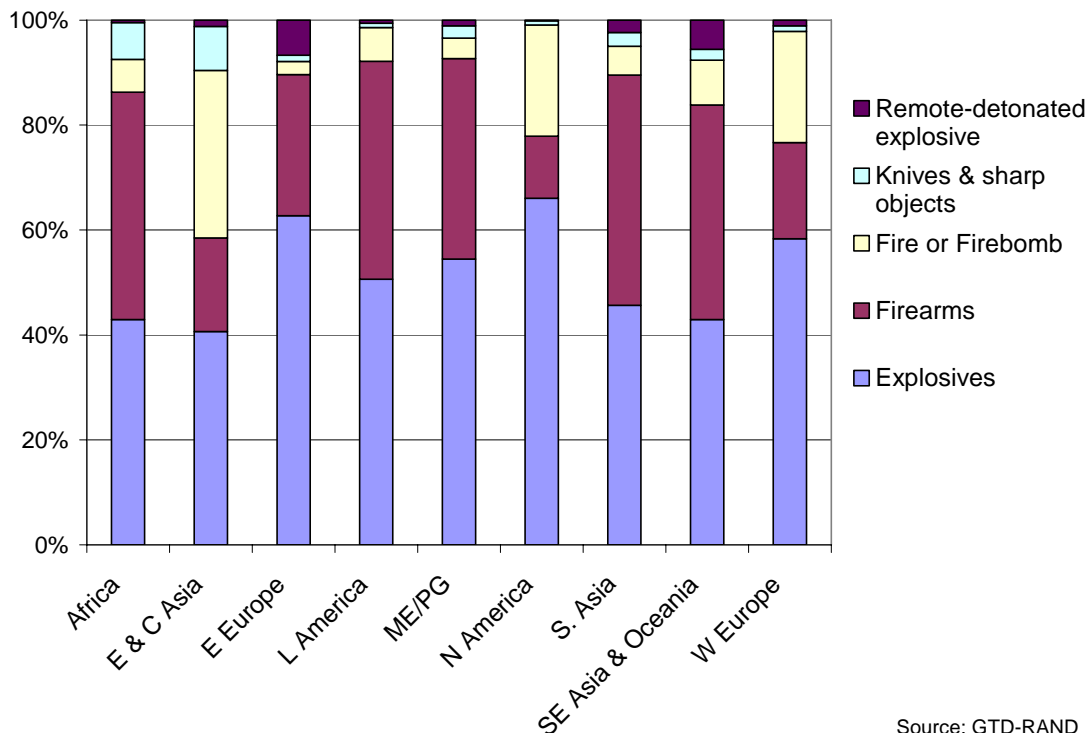


Figure 11. Terrorist Weapon Use across Regions, 1970-2006

In Figure 12 we examine trends in weapon use over time. Once again we see the overall trend from Figure 1 reflected in the specific type of weapon use. Here, explosives and firearms track together very closely ($r=0.93$) with the exception of the years 1981 to 1987 when firearms are used substantially less often than explosives. Other weapons are used considerably less frequently ranging from almost never in the early 1970s to almost 400 attacks in the early 1990s. Interestingly, remote-detonated explosives only began to be implemented in the late 1990s, and in more recent years sometimes rise to more than 200 attacks per year. This is likely due to the advancement of cell phone technology, as cell phones are often used remote detonators.

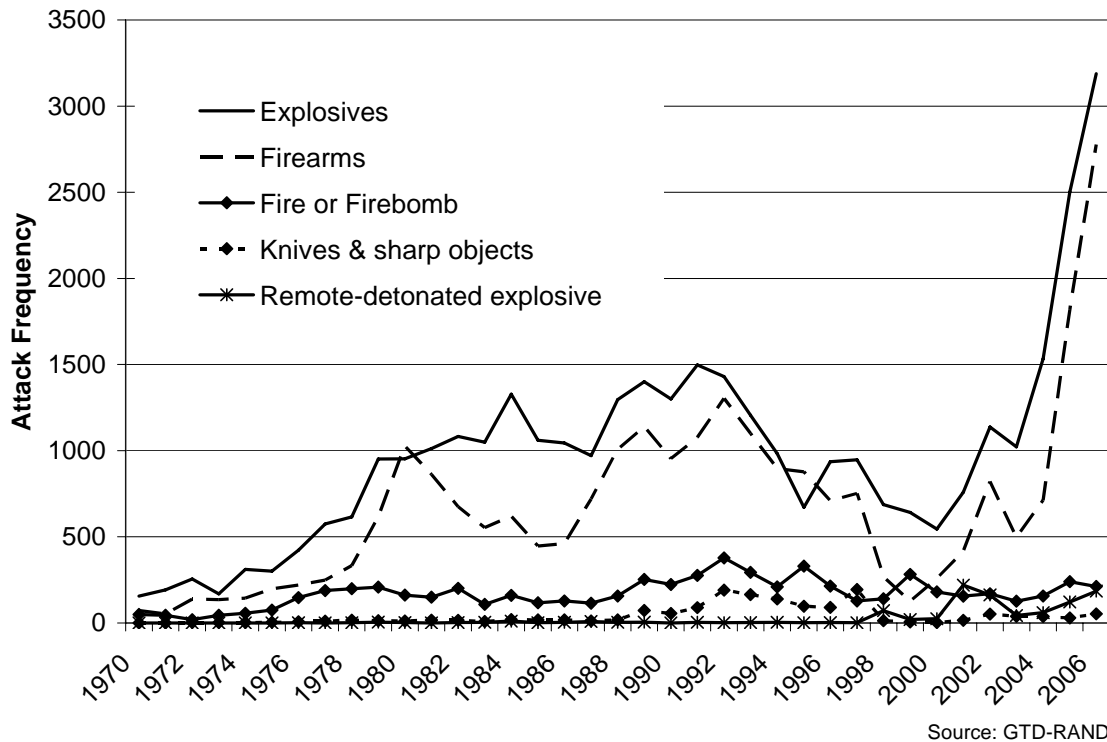


Figure 12. Weapon Use by Terrorists, 1970-2006

Finally, we examine the twenty most active terrorist organization found in the GTD-RAND data listed in Table 3. Unsurprisingly, these organizations are easily recognized. Ranked first, Shining Path, or Sendero Luminoso, of Peru is responsible for nearly 3,000 terrorist attacks during this period (3.6% of all attacks). Second is ETA of Spain. We see that most of these organizations have been the leaders among local movements such as the FMLN in El Salvador, the IRA in Northern Ireland, FARC and ELN in Colombia, and Hamas in Israel and its territories. Yet, missing from this list is the organization that rises to the top of U.S. concerns, al Qaeda. With thirty-two recorded attacks in the GTD-RAND during this 37 year period, al Qaeda is ranked at 134 among terrorist organizations. However, recall that al Qaeda has only become active in recent years. Furthermore, despite relatively few attacks, al Qaeda is responsible for nearly 3,500 deaths.

Table 3. Twenty Most Active Terrorist Organizations, Frequency and Percent of Attacks, 1970-2006

Rank	Terrorist Organization	Frequency	Percent of all Terrorism
1	Shining Path (SL)	2817	3.61
2	Basque Fatherland and Freedom (ETA)	1378	1.77
3	Farabundo Marti National Liberation Front (FMLN)	1249	1.60
4	Irish Republican Army (IRA)	1165	1.49
5	Revolutionary Armed Forces of Colombia (FARC)	1066	1.37
6	National Liberation Army of Colombia (ELN)	784	1.01
7	Hamas (Islamic Resistance Movement)	608	0.78
8	Liberation Tigers of Tamil Eelam (LTTE)	569	0.73
9	Manuel Rodriguez Patriotic Front (FPMR)	568	0.73
10	Kurdish Workers Party (PKK)	535	0.69
11	New People's Army (NPA)	472	0.61
12	Corsican National Liberation Front (FLNC)	455	0.58
13	Taliban	438	0.56
14	Tupac Amaru Revolutionary Movement (MRTA)	412	0.53
15	Communist Party of Nepal-Maoists (CPN-M)	403	0.52
16	M-19 (Movement of April 19)	321	0.41
17	Nicaraguan Democratic Force (FDN)	287	0.37
18	People's Liberation Front (JVP)	274	0.35
19	Movement of the Revolutionary Left (MIR) (Chile)	257	0.33
20	al-Fatah	243	0.31

Discussion and Conclusion

The scope of open source data bases on terrorist events has greatly expanded since the early 1970s. The GTD-RAND merger contributes to this development by providing the

most comprehensive open source collection of terrorist events ever collected. While these data have some obvious limitations, they also provide a wide variety of analysis opportunities. The GTD-RAND data are likely to be particularly useful for assessing the impact of specific policies or events on the future risk of terrorist activity of a particular type. Thus, we can use the data base to examine the impact of specific counter terrorism policies on specific terrorist groups in specific countries over time. The data also have promise for geospatial analysis. The data can also be merged with other data bases to allow analysis of global or regional determinants of terrorist events or to examine the effect of global or regional terrorist events on other variables.

In response to the challenges raised by collecting valid data on terrorist events, researchers have been gradually developing more extensive open source terrorism data bases. At the moment, the GTD-RAND merger project represents the most extensive of these efforts. Our hope is that by making these data available to the research and policy communities we will be able to improve the quality of research being done on terrorism and provide better informed policy alternatives.

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