

An Overview of Geographical Perspectives and Approaches in Terrorism Research

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Abstract

Geographical perspectives and approaches are implemented in some areas of conflict research, but can benefit many more. While the body of geographically-oriented terrorism literature has been growing since the 2001, a geo-spatial focus has traditionally been absent from most research on terrorism research and remains largely unfamiliar to many terrorism researchers. This article explores geographical literature on terrorism and its contributions to the understanding of terrorism as an empirical phenomenon. The article suggests three particular contributions from geographical perspectives:

- 1) the geography of terrorism is linked to specific places and contexts throughout the world where governance failures lead to grievance and opportunity;*
- 2) the terrorist attack cycle occurs along specific spatial trajectories that can be identified and possibly policed; and*
- 3) terrorist attacks have significant negative impacts but are spatially limited and not as severe as presumed by much of the conventional literature.*

These aspects vary, depending on whether the violence is waged by territorial or non-territorial groups. Included in the article is a list of data sources that may serve as a partial guide for future geographic research.

Introduction

The formal study of terrorism originated decades ago and was based on the belief that there is an urgent need to understand and counter this form of political violence. Research was then confined to only a handful of scholars and its set ways of approaching the topic were limited and leading to surprisingly few insights.[1] The attacks against America on September 11th, 2001 greatly expanded this community of terrorism scholars and motivated efforts for new and innovative research approaches from many disciplines, heralding in what some have called a “second wave of terrorism research.”[2] Among these recent publications there are also those that explore terrorism through the lens of geography. There is a considerable body of such geographically-oriented terrorism literature spanning a wide variety of sub-literatures and research agendas that yet remains to be fully recognized.

The purpose of this article is to investigate various geographical approaches, answering such questions as: How and why did geographical research on terrorism come about? What are some of the general topics that have been explored in the literature, and have geographical perspectives contributed any unique empirical insights to these topics? Terrorism here is defined as violence perpetrated by sub-state actors against non-combatants for political gain. It is recognized that violent groups engage in a wide variety of tactics. A group is labeled a terrorist organization when they begin to employ terrorist tactics.

After first describing and explaining the growth of the geographical terrorism literature, the article goes on to conceptualize terrorism perpetrated by both territorial groups in politically unstable countries and non-territorial groups in more stable countries. Such a broad conceptualization enables the unification of a divided terrorism literature and highlights the importance of being critical to, and carefully delimiting, one's use of terrorism-related data. The article then explores the geographical literature [3] for insights on how terrorism in these two contexts may differ from each other in relation to the spatiality of a) their locations, b) group dynamics, and c) consequences. It is hoped that by exploring these geographical aspects, this article will also help spread awareness of the geographical literature and its contributions, and thus show the usefulness of utilizing geographical perspectives in the study of terrorism.

A Primer on Geography and the Geographical Approach to Terrorism

Geography is a science at the convergence of many disciplines. Almost every research discipline can be approached from a geographic perspective. A few examples are geopolitics, economic geography, and spatial epidemiology. Geography is split into two main study areas – physical and human geographies. In the context of terrorism research much of the effort originates with human geographers, though recent concerns for terrorist motivations involve physical, or at least a combination of physical and human geographies. For example, many are concerned with changing climates, redistribution of resources, and the potential for terrorism in the near future; though these research topics presently make-up only a small proportion of the whole of geographic studies of terrorism. The large majority are from the human geography half. Human geography focuses on a greater understanding of theoretical constructs of space and place, the people, things, and events within and at them, social systems, and connectivities between entities and events. This, in simple terms, is human geography, though it is not all of it.

Approaching a socio-political problem, such as terrorism, through a geographic lens leads to a greater understanding of not only locations of terrorists and their activities, but spatial processes, social network connections, social systemic operations, and changes in space and time. Social, political, and other systems, as well as their agents, operate in specific geographical contexts, whereby they are researched in socio-spatial or geopolitical realms. Influences of place and location on activities become quite clear in these types of research. For instance, traditional

statistical analysis attempts to identify cause-effect relationships but assumes that these hold true across space and time. Considerations of geographic and temporal context allow these relationships to vary. A variable may have a strong effect on another variable in one corner of the world, but this effect might be non-existent elsewhere. Geo-statistical tools have been developed to identify this context-dependent spatial variation in cause-effect relationships.[4]

Geographical perspectives on terrorism do not attempt to rival or substitute other theoretical explanations; they are simply a means by which theories can be tested. For instance, T.R. Gurr's "relative deprivation" theory [5] can be thought of as being more salient with proximity to relatively wealthier populations, which can in turn be tested with spatial analysis to support the initial theory. It is therefore crucial that geographic perspectives be considered. The locations of terrorists, and the groups they identify with, have specific narratives behind their motivations, which are related to cultures, ethnicities, and historical situations of the terrorists and their constituencies. Their choices and strategies may be based on spatial considerations, or attacks may be the result of geographic context. Even the impacts of terrorist attacks may be highly dependent on the geographic context in which these occur. Understanding these geographical aspects has the potential to provide advance knowledge of future operations, supportive populations, and strengths/weaknesses in the terrorist system.

Terrorism Studies Turn Geographic

The use of geographical perspectives in terrorism research is a relatively recent trend. A lack of cross-disciplinary entrepreneurship among the original terrorism scholars may be one of the reasons for this late arrival of geographical terrorism research. There is little evidence that its earliest scholars were interested in bringing geographical perspectives to their studies. With the exception of a few works in the 1980s that attempted to theorize and observe geographical aspects of terrorism [6], most terrorism researchers have traditionally tended to utilize historical case studies, descriptive statistics, or time-series analysis. The first to systematically examine geographical aspects of terrorism were scholars from the discipline of geography. Professionally trained academic geographers have contributed to many topics and branches of the social sciences, though in the past they were rarely [7] interested in the topic of terrorism. This changed with the attacks against America on September 11th, 2001, which ignited nationalist feelings in the US, increased the popularity of terrorism research, and motivated new research funding [8] that would eventually attract greater attention and efforts from geographers.

Initially the geographic terrorism literature was driven mostly by applied geographers, who were motivated by the perceived benefits that their Geographic Information Systems (GIS) expertise could provide to homeland security.[9] A few sub-literatures of this policy-oriented approach include the works of vulnerability scientists who attempt to predict the spatial distribution of future terrorism risks and vulnerabilities [10]; crime and defense analysts who focus on various

forms of geographic profiling to locate and apprehend those who engage in terrorism;[11] and technical practitioners showing how spatial models and GIS can be useful for the immediate prevention, evacuation, and rescue efforts in the case of a terrorist attack,[12] as well as in the physical recovery efforts for modeling and predicting the worst affected areas and returning targeted environments to living/working order.[13]

While there are many geographers concerned with applied research, in recent decades there has been a substantial growth of geographers that instead engage in philosophical and theoretical critiques of the status quo [14]. It is natural that these geographers would also contribute to a more critical and skeptical research response to counter-terrorism [15]. This view resulted in a variety of engagements. It was particularly popular in the early 2000s to use critical geographic perspectives to debate moral issues and deficiencies with governments' approaches to counter-terrorism.[16] This resulted in a vast geographic literature on how government security measures are altering the quality of life in cities and putting residents "under siege"[17] by enacting policies that "shrink" the lives of the broader population either *publicly* by physically modifying the architecture of public spaces and infrastructure[18] or *privately* by extending the spatial extent of governmental privacy-transgressing surveillance practices.[19] Other topics included acknowledging the state's role in causing or exacerbating terrorism;[20] showing how we use spatial metaphors to envisage terrorism in our popular discourse, and how these are often left unexplored, tied to existing negative stereotypes of world regions, and driven by political and ideological motivations;[21] and scholars of international law warning of the legal difficulties involved in apprehending terrorists across national borders.[22] More detailed reviews of such critical literatures can be found elsewhere.[23]

Today, these combined waves of geographical research have resulted in a relatively large body of literature at the intersection of terrorism studies and geography; a significant number of doctorate dissertations written on the topic;[24] and even a sizeable selection of geography courses developed on issues of terrorism at various Universities.[25] It is particularly important to explore the geographical contributions, since aside from a few exceptions,[26] most appear to have gone unnoticed by the broader community of terrorism researchers. Even among the geographical literature's contributing authors there is little mention of the broader geographical turn beyond what is relevant for their specific topical interest. Much geographic research has been focused on offering solutions or critiques to how governments react to terrorism, but there is also a growing body of quantitative and data-driven investigations on terrorist actors and their tactics that should be recognized.

Quantitative Geography and Terrorism Studies

Quantitative geography methods were implemented relatively late in the study of terrorism. This may have to do with the timing of prevailing academic currents. In the 1960s, improved

computer technology facilitated the implementation of quantitative and positivist research in geography and inspired the use of spatial modeling throughout various academic fields.[27] By the time terrorism studies began to solidify as a research field in the 1970s,[28] geography's positivist tendencies were being met with widespread criticisms by behavioral, humanist, and other scholars reacting to, and highly critical of, the earlier positivist and quantitative approaches.[29] Being a relatively young research field, terrorism researchers seemed more concerned with agreeing on a basic conceptual framework than with embarking on geographical inquiry. By the time terrorism studies were conceptually mature and prepared for geographical considerations in the 1980s and 90s the period of quantitative geography had very much passed, and geography as a field had become dominated by postmodern topics.[30] It was not until the early 2000s that terrorism scholars began to adopt geographical perspectives, precisely when improved GIS technology was making geography popular again and terrorism studies seemed mature enough to welcome such approaches, though surely the events of 9/11 played a major role.[31] As geographical perspectives became more common among terrorism researchers, there was less focus on debating counterterrorism policies, and more on empirically describing and explaining terrorist violence or terrorist actors. Figure 1 illustrates this shift in research focus; it shows that while geographers have been responsible for the overwhelming majority of publications in the critical and applied literatures, non-geographers have been the main contributors to the empirically based literature.[32] It is mostly this empirical literature that can contribute to the growth in quality of studies on terrorist violence.

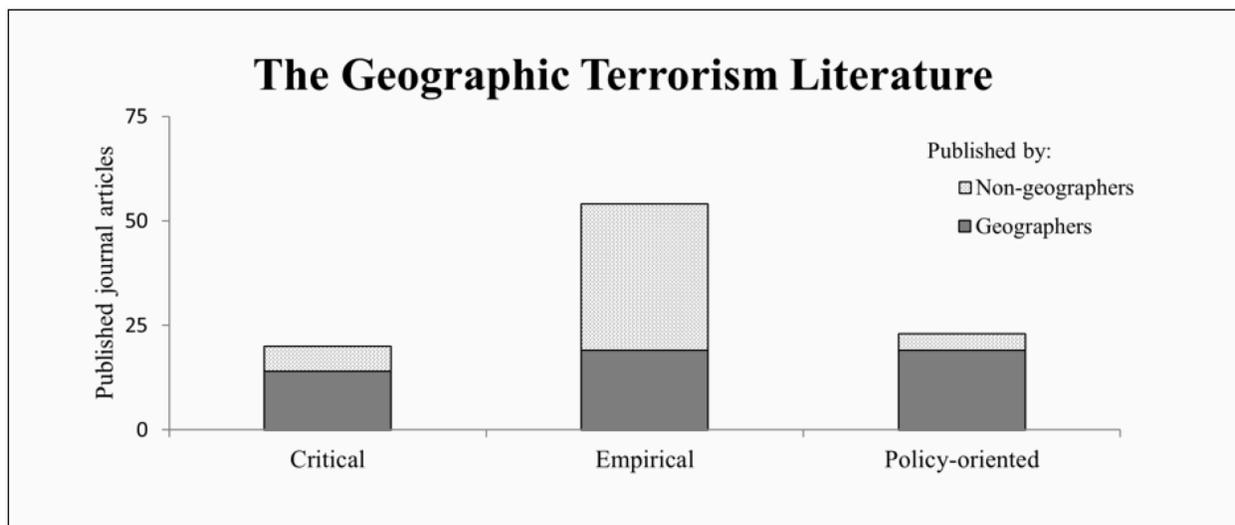


Figure 1. A comparison of the number of journal articles published by geographers and non-geographers in geographical research on terrorism. Source: Authors.

Crucial to much of the empirical research on terrorism's geographical aspects is the availability of spatially explicit data on terrorism. Unfortunately, most terrorist event databases have not recorded precise geographical coordinates. This limits the spatial accuracy of traditional research to national or regional level aggregations. Since the great promise of geographical research hinges on exploring the finer details of sub-national variation, many geographically minded researchers have sought alternative but difficult to access data sources such as police records,[33] or made adjustments to existing databases. It is not the case however, that data at the micro-level are always more appropriate than data at broader scales. Rather, the choice of which scale to use - sub-administrative provinces, equally dispersed grid cells, cities and towns, and even specific street addresses - depends on the specific purpose of the research project.[34] Some have warned about the so-called "local trap"[35] of narrowing one's focus to only proximate and local factors, thus ignoring important causal factors that can only be seen from broader scales.[36] This article nevertheless maintains its call for more micro-data because most terrorism research has been precisely the opposite, focused on broad national scales.

Due to the difficulties involved and efforts required in geo-referencing data, i.e. assigning locational information, most subnational studies mentioned in this article have been limited to case studies on specific countries or cities. Most instances where large global-level comparative studies have been conducted on geo-referenced terrorism data have required the technical finesse of adept computer scientists, which has meant less focus on actual knowledge production.[37] To aid future research with obtaining geo-referenced terrorism data for their projects, the authors of this article attempted to take stock of the available terrorism *data sources* and their potential for geo-referencing (26 in total) and have provided a listing of these in Appendix I. For each dataset, note is made on their geographical extent, time coverage, and possibility for geo-referencing if not already available. Currently no freely available terrorism dataset can be geo-referenced to the level of street-addresses, but one dataset is available with prepackaged city-level coordinates attached to each terrorist event. This is the *Worldwide Incidents Tracking System* (WITS), which also happens to be one of the more extensive and popular datasets. However, the WITS dataset is presently offline, with no indication of whether and when it may be available again. The most widely used dataset, the *Global Terrorism Database* (GTD), was initially intended for geo-referencing to enable the detection of country and point level distributions and spatially patterned modes of attack,[38] but such spatial information has only recently been included in the online dataset version, and is currently only included for a small subset of the data. The GTD and many other datasets nevertheless contain information about the city name of each event, and these city-names may in turn be geo-referenced with the locational coordinates found online in many freely available city gazetteers, such as GeoNames.[39] Note that even if successfully geo-referenced, all of these data sources are still prone to errors that must be addressed: many use overly broad inclusion criteria and may not represent a clean sample of terrorist-only events. Most are based on open-source newspaper material and therefore exhibit journalistic biases of both under- and

over-reporting on different aspects.[40] Beyond the freely available datasets, there also exists potential in some of the more restricted datasets that emphasise the spatial and GIS compatible nature of their data, such as *Jane's Terrorism Events Spatial Layer*, and the *Violent Extremism Knowledge Base* (VKB). While the list of datasets provided with this article is not comprehensive, the authors have attempted to include many of the geographically based terrorism attack datasets available in the open source. To further remedy the overall lack of awareness and marginal status of geographical perspectives and data the article now turns to exploring some of its contributions with the help of an organizational framework.

Terrorism and Territoriality: A Tactic Used in Many Settings

A useful way to make sense of geographical perspectives and contributions in the study of terrorism is to focus on the multiple settings in which it is used. Doing so sheds light on terrorism's territoriality, conceived here as the desire and achievement for ownership of territory by terrorist actors vis-a-vis the state. It is argued that such an approach has the advantage of potentially bridging a divided research engagement throughout the broader terrorism literature. This division is two-fold: one school of thought states that terrorism is a problem faced primarily by stable democracies and is therefore, as Alex P. Schmid has argued, the "peacetime equivalent of war crimes,"[41] while another school of thought considers terrorism to be the widespread targeting of civilians during internal conflict and civil war. Investigating the territorial links of these two conceptualizations will be the main focus of this section and should help in moving past the conceptual disagreements of what is and should be studied in terrorism research.

Perhaps the most obvious link to territoriality is that terrorism has territorial intentions: if terrorism is political, and policies are typically written for specific use within territories, then it follows that terrorism can be seen as at least partially in terms of a desire to achieve control of territory, geography, and the contested people within political or social boundaries.[42] Indeed, many types of political violence have such desires for territorial control. Some scholars adopting geographical perspectives have therefore suggested that what defines and differentiates terrorism's territorial desires is more precisely its *failure* to fulfill them and that this happens mostly in strong and stable countries. This idea constitutes the first view of terrorism and coincides with many common observations made about terrorism. It was first explicitly stated by A. Merari in 1993 and was later popularized by I. Sánchez-Cuenca and L. de la Calle in 2009. [43] The argument is that terrorism occurs when violent groups do not own or control territory, which tends to be the case when the state is strong and successfully prevents oppositional groups from gaining control over territory. This forces the opposing parties to act within the government's territory and control, causing them to plan and execute their attacks in a secretive manner using light weapons that are not easily detectable, like explosive devices, under which circumstances we tend to describe what happened as terrorism.[44] In such cases terrorists tend

to attack civilians in order to influence or induce the government to enact certain policy changes. [45] This view explains why many scholars have consistently found that most terrorism occurs in democratic societies [46]. This is in line with how scholars originally conceived of terrorism, namely as a form of clandestine anti-state revolutionary violence that was affecting some democracies in Western Europe in the 1970s.[47] Overall, these propositions are supported by various quantitative studies where terrorism is found to be statistically correlated with government strength [48] whereas the onset of civil war (usually dominated by guerrilla warfare tactics) is correlated with government weakness.[49] I. Sánchez-Cuenca and L. de la Calle have created a dataset on rebellious groups and included a variable for whether or not each group controlled territory. Across several quantitative studies they consistently found that non-territorial groups were more likely to engage in clandestine and indiscriminate terrorist tactics. [50]

The second view on terrorism's territoriality is one which views terrorism as related to conflict-ridden, weak, and failed states and regions,[51] - a linkage that is also found in some quantitative studies.[52] With the government's failure to control all of its territory, many authors therefore conceive of terrorism as connected to those that are strong enough to liberate or "acquire space"[53] and aim for partial autonomy or secession. It is noted that doing so creates new spaces of self-governance, provides security of sorts, and allows groups to use them as recruiting and training grounds.[54] In stark opposition to how the first perspective sees terrorism as non-territorial, this view focuses on terrorism as territoriality grounded and connected to land-ownership. Many of these countries and separatist areas are characterized by civil war, weak government control and territory-owning groups. Frequently used examples or case studies of such terrorism are the Basque Country, Northern Ireland,[55] Sri Lanka, Colombia, Indonesia, the Philippines, Afghanistan, Pakistan, Iraq, and Israel/Palestine.

These two perspectives on terrorism appear to contradict each other; however, a closer investigation shows that what is assumed to be unique in one perspective is actually a shared characteristic of both. Both views can be counted as valid approaches to the study of terrorism, each focusing on a specific type that takes place in a unique territorial context. Proponents of the first view have questioned how the second view links state weakness and conflict with terrorism: after all, clandestine and indiscriminate terrorist attacks are not necessarily taking place in areas where the government is absent and where one can enjoy full territorial control. Some analysts note that weak states should foster territorially bounded guerrillas with a preference for military type attacks rather than terrorism.[56] Yet, on closer inspection it has been noted that when the targets of guerrilla groups are far from home in areas they do not own, control, or have a major presence in, their tactics indeed tend to be indiscriminate and terrorist-like; i.e. that guerrillas sometimes also engage in terrorism.[57] Additionally, having bases in such weak states or areas has been statistically associated as increasing the likelihood of engaging in both domestic and transnational terrorism.[58] Just as civil wars are consistently and statistically associated with

large, mountainous, and tropical areas—features believed to limit the state’s ability to control territory - some geographical research has found that such factors can also facilitate terrorism. [59] However, the finding that rugged terrain facilitates terrorism may apply mostly to politically weak countries affected by conflict and less so in other settings. Geographical research focusing on a mixed analysis of both stable and unstable countries, or only on the targets of transnational terrorism found no such evidence linking terrorism to rugged terrain.[60]

The main claim of the second perspective is that terrorists have a tendency for seeking out areas where the government is weak. This appears to contradict how the first perspective sees terrorists as located in areas characterized by government strength, stability, peace, and inability to permanently control any territory. Yet, there is usually a drive to escape towards the weaker peripheries of government control. Faced with a strong government, non-territorial terrorist organizations take on nomadic lifestyles and often seek to escape towards “old, smaller industrial cities or working class suburbs that lie in the shadow of” bigger central cities; in neighborhoods that provide protection and anonymity through “places where people can get lost;”[61] in slums; [62] and sometimes in geographically remote areas such as sparsely populated jungles, mountains, islands, or deserts.[63] What makes them different from territorial based terrorists is that to the extent that they are able to escape the reach of government control they only achieve partial autonomy and may still be dependent on favorable “socio-geographies” of sympathetic populations to provide hiding or at least to accept their presence.[64]

The lesson from these geographical and related studies is that it is not sufficient to focus on solely weak and conflict-ridden states, or on strong and stable states, in order to study terrorism. Terrorism can be said to come in two varieties: territorial terrorism is present when the perpetrating group controls territory and non-territorial when it does not. This helps explain why, contrary to the view that terrorism is a weapon of the weak, an expanding literature has been investigating the use of civilian targeting by relatively stronger groups in civil wars and views such violence to be intersecting with the concept of terrorism.[65] M.G. Findley and J.K. Young brought a geographical perspective to this literature and found that roughly half of all terrorist acts indeed occur during and inside civil war-affected zones[66]. By implication, their study shows how the other half of acts of terrorism occurs in stable areas with strong governance. Despite the different contexts, both territorial and non-territorial based terrorism is characterized by the same type of clandestine attack tactics and choice of light weaponry that is commonly associated with terrorism.[67] It matters both what kind of violence it is *and* who uses it.[68] This recognition of two types of terrorism and their different yet similar territorialities may have many important implications for judging and defining the empirical limits of terrorism studies so as to possibly unite the divided views of literature contributors.

The Geography of Terrorism

A particularly common theme in the geographic literature has been to map, analyze, and explain the locations and spatial distributions of terrorism across the earth's surface. Where does it occur and why? In the conventional terrorism literature, these aspects are only assumed or claimed without empirical support, or barely explored with simplistic country maps or summary statistics for world regions. Therefore, considerable disagreement abounds as to what exactly its geography is. Following the attacks of September 11th the main focus has been on *transnational* terrorism,[69] which in popular discourse is conceived of as a global threat with instant reach – a threat too ominous and complex to identify on a map. In this view, the transnational terrorist threat is perceived to be completely “de-territorialised,” potentially present anywhere, and structured in networks whose reach is unlimited.[70] Donald Black presented a theoretical argument for how the globalisation of communication, transportation, and weapon technology in the late 20th has not only extended the reach of violence but has also enabled socially different populations in distant locations to be viewed as the cause of local grievances and therefore the targets of terrorist violence.[71] Heralded by the unexpected and complex spatiality of the September 11th attacks,[72] it has been suggested that traditional nationalist/separatist terrorism campaigns have “tangible” geographies and stand in contrast to the present wave of religious transnational terrorism where “no such geographic clarity” exists.[73]

Other scholars have been more optimistic about identifying the geography of transnational terrorism and often locate it along lines, intersections, fault lines, or front lines where social differences and oppositional elements meet and are the most proximate and easily accessible for targeting. Authors of several studies have argued and found that transnational terrorism is most intense on the semi-periphery of the global economic core states, i.e. at the intersection between rich and poor countries where proximity and relative economic deprivation is most pronounced. [74] De Blij invoked such an argument when he mapped patterns of transnational terrorism in Africa and argued that they followed the front lines where Christian and Muslim zones met.[75] Neumeyer and Plumber found weak statistical support for the argument that attacks across the Islam-West divide motivate others to engage in similar attacks, but not that they necessarily followed any particular front lines.[76] Others have suggested more specific places and regions where transnational terrorism has been more common. During the 1990s, a commonly held belief in Western imaginations was that the regions of Southwest Asia and Middle East were the main terrorist hotspots of the world.[77] Yet, empirical studies have shown that terrorism in the 1990s was more evenly distributed across the world's regions, and that only in the post-9/11 era did the Middle East and South Asia become the leading regions in the world afflicted by transnational terrorism.[78] Blomberg and Hess showed that while country-maps of absolute incidents may suggest most transnational terrorism to be occurring in rich and democratic countries in the Americas and Europe, focusing instead on frequency of incidents relative to total population changes the map considerably towards highlighting the Middle East and authoritarian countries as particular hotspots for transnational terrorism.[79] Goldman similarly suggests that

transnational terrorism is a local phenomenon, and has been increasingly so since the 1990s, using many different proxies for the geographical spread of terrorism. He argues that Al-Qaeda's "global tendencies should not be perceived as an indicator of the globalization of terror attacks." [80] All of these findings point to the often local and consistent [81] geographical shapes of a seemingly chaotic transnational terrorism phenomenon.

Despite the common preoccupation with the complexity and the fault lines of *transnational* terrorism, there is reason to believe that the defining geography of terrorism is rather to be located in the hotspots and regions of *domestic* terrorism. Not only does domestic terrorism far outnumber the transnational variant, D. Kilcullen has suggested that transnational terrorism is only an amalgamation of unrelated attacks orchestrated by domestic terrorist groups that cooperate with transnational groups only as far as it benefits their own local goals. [82] If we limit our view of terrorism to these local and domestic variants, we may begin to more precisely visualize and identify its locations and spaces. Unfortunately, very little geographical research has been done to substantiate these locational aspects of domestic terrorism, or to compare them with those of transnational terrorism. As a brief exercise, the authors of this article geo-referenced the GTD terrorism dataset to demonstrate that these aspects of terrorism can indeed be visualized and compared. The time frame was set from September 11th 2001 to the end of 2011 (31,591 events). In order to distinguish between domestic and transnational terrorism, the authors coded the country-origin of the nationality of each known perpetrating group in the dataset. Where the group country origin differed from the attacked country, the event was coded as being transnational, otherwise it was set to domestic. The many events where the group perpetrator was unknown (with 18,573 events more than half) were excluded. City statistics and summary variables were then calculated to represent each city for the time-period examined. This city-level terrorism dataset was then geo-referenced using the National Geospatial-Intelligence Agency's Geonet Names Server (<http://earth-info.nga.mil/gns/html/index.html>). Roughly 50 percent of all the cities in the domestic data, and 40 percent of the transnational data were excluded in the analysis, as there were no matching locations in the GeoNames database. Note that the final maps included in this article visualize the locations of terrorism as defined in the GTD data only; the data were accepted at face value without any data delimitation and may therefore include some dubious cases of terrorism such as attacks on military forces. There are many possible errors in the resultant maps, including those arising from the coding-process and creation of the group-nationality dataset, as well as a variety of possible geo-referencing errors. It is nevertheless maintained that such crude estimations were necessary due to time-constraints and since the purposes of the resulting maps were mostly for illustrating the feasibility and potential of geo-referencing rather than rigorous analysis.

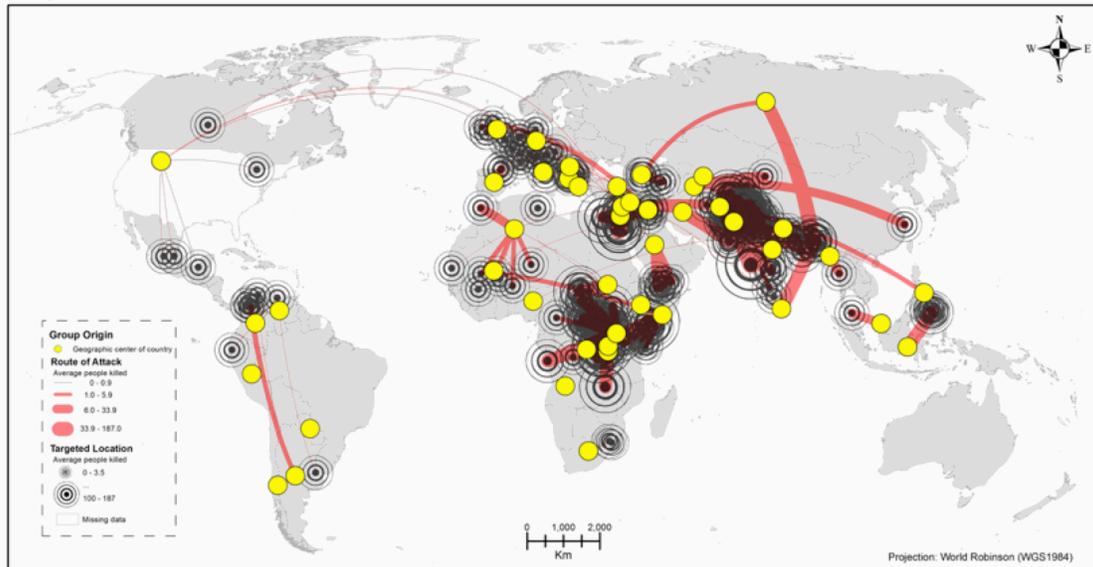
The outcome of the exercise can be seen in Figure 2 and suggests innovative approaches to visualizing transnational terrorism's fluid nature. Tentatively, the maps support the notion that the targets of transnational terrorism overlap to a large extent with those of domestic terrorism,

rather than occupying distinct geographies as expected by some. While transnational terrorism differs somewhat in terms of its origins and far-reaching travel-lines, many of these cases appear to be limited to regional country-neighborhoods. Note that the former shows average people killed (since transnational events are believed to be more focused on high media visibility), while the latter shows the total count of incidents. Terrorism appears to be originating in specific areas throughout the world, in both developing and developed countries, and in weak and strong states. Regional hotspots include (parts of) South and Central Asia, the Middle East and Caucasus, Europe, Central Africa, northwestern South America, and Southeast Asia.

The Geography of Terrorism

Global patterns of attack, 2001-2011

a) Transnational attacks:



b) Domestic attacks:

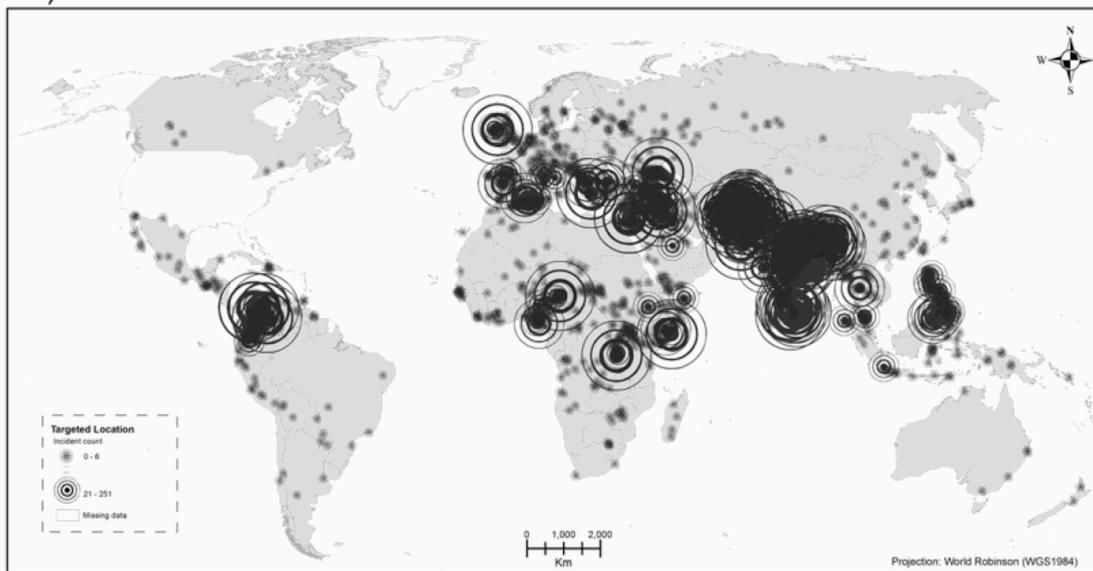


Figure 2. A comparison of (a) the origins, flows, and targets of transnational terrorism, $n=1,158$ events across 497 origin-target trajectories, with (b) the locations of domestic terrorism, $n=10,369$ events across 7,427 place-names, data source: Global Terrorism Database.

Identifying the geography of terrorism in more specific terms than this is beyond the scope of this article. Rather, it seems more useful to explore the reasons why such spatial patterns appear in the first place: to enable the investigation of what it is about those places that drives people to resort to terrorism.[83] Domestic terrorism may result from some of the same root causes that drive other violent strife. However, given that terrorism has been found to be a largely ineffective tactic for achieving political demands,[84] it would appear unlikely that it is used for self-aggrandizement. What makes terrorism unique from other violent tactics is that it may be driven solely or mostly by grievances. Mustafa argued that the spatial patterns of government injustice may become engraved onto certain territories, shaping opinions and discourses of injustice, which we may in turn “map...on to the geography of terrorism.”[85] In this way, landscapes of government injustice, repression, and neglect are believed to fuel popular support, sympathy, motivation, and increased likelihood of terrorist attacks.[86] Even in resource-rich provinces, the geography of government corruption is argued to lead to underdevelopment and grievances that in turn give rise to terrorism’s geography.[87] Though some conventional studies have found terrorism to be unrelated to economic conditions,[88] studies that have spatially disaggregated economic activity to the level of separatist regions,[89] provinces,[90] and minority group territories[91] do find economic characteristics to be important indicators of grievances based on economic inequalities and discrimination that may lead to reactions in the form of terrorism. The focus on grievances is supported by how A.B. S. Bravo and C.M.M. Dias found exactly such a dominance of grievance-related causes in their quantitative study on terrorism across two Eurasian regions.[92] Attention to government policies may therefore be one way to illuminate and model terrorist grievances.

While territorially based terrorists may draw their grievances from poor local conditions and discrimination against the rural areas where they originated, the type of grievances that cause terrorism when actors do not control territory may be unique to the world’s *urban* areas. Scholars focusing on this urban aspect of terrorism argue that cities’ increasingly dense and built-up infrastructure makes it difficult to stage large-scale rebellions or control territory in urban environments and thus forces any violent disagreement to take the form of clandestine terrorism. [93] They find that such violent disagreement is a particularly pertinent feature of newly and rapidly developing cities since they attract people of many different cultures and backgrounds into close vicinity without always being able to provide the necessary support systems, resulting in grievances between competing social groups that become manifest in demands and struggles against state authorities.[94] Whereas grievances may be the primary cause of non-territorial terrorism, economic and greed-related motives may play a slightly larger role in cases of territorial terrorism. In such settings, characterized by groups operating in conflict settings, terrorism appears sometimes to be used strategically to ensure security, autonomy, and compliance within the territories, resources, and activities they control in order to ensure financial resources, power, and the survival of their organization and purpose.[95] For instance,

in Afghanistan illicit drug production has been found to finance and motivate the resort to terrorist attacks on civilians at the provincial level as an attempt to silence any political opposition.[96]

In this section, attention has been given to how a sizeable literature attempts to identify and describe the geographical layout of terrorist attacks, and how their findings suggest increased focus on domestic terrorism by charting the predominantly local and shrinking geography of terrorism in the world, and thus, countering popular perceptions and fears of transnational terrorism. Other parts of the literatures have attempted to *explain* the geography of terrorism, i.e. what causes its locations and how it does so. Their geographical approaches have utilised spatial disaggregation and attention to sub-national correlations, and this section showed how they helped identify context-specific causes that are characteristic of non-territorial and territorial terrorism. This has been beneficial over conventional research methods since the local-level presence of causes and outcome of terrorism must somehow connect and link together spatially for causal arguments and theories of terrorism's root causes to be more accurately verified.

How Terrorist Groups Function and Operate

Other geographical research focuses more on those who engage in terrorism. Acts of terrorism can be performed by “lone wolves” or orchestrated by network-like structures in the case of non-territorial terrorism, and by centralized land-based organizations in countries where terrorists are able to control a territorial homeland. Whereas conventional terrorism literature on terrorist organizations, members, and activities has focused mostly on sociological and psychological inquiries, the geographical terrorism literature has uncovered additional details on the micro-dynamics and internal workings of how organizations plan and conduct terrorist attacks that have been previously unknown in the literature. Concerted terrorist attacks usually follow and presuppose networks of contact and interaction between willing perpetrators that have been driven together by their environment, context, and own choices. Understanding the development of these relations and network structures in such a manner as to give rise to terrorist attacks thus becomes a crucial mode of inquiry. Network analysis entails studying connections, structures, interactions, and flows among and between entities. It is common in many disciplines and fields. Terrorist network studies from a strictly sociological perspective are common,[97] but relatively few researchers place the network in a geographical context, even though social activity and geographic location are often interdependent. New approaches to terrorism research are being developed that focuses on social networks of non-territorial terrorists rendered to geographic space. I. C. Moon and K.M. Carley created a visualized social network on a representative global map and a simulation model of geographical aspects of social networks including interaction, proximity and relocation.[98] R.M. Medina and G.F. Hepner published a study that for the first time studied terrorism through the “socio-spatial network” framework describing networks that

operate in a conceptual hybrid space where multiple spaces are considered in operations and activities.[99] They found a relationship between geographic proximity and social closeness for terrorists within the Islamist global network, which is a crucial finding where some question the importance of geography in today's information age.[100]

Assuming that a group of individuals know each other through the previously mentioned networks, how do they go about planning and preparing for an attack? This was one of the questions asked by B.L. Smith et al. who investigated the known patterns of preparatory activities among captured domestic terrorist perpetrators within the U.S.[101] Their report found that most of them had lived and engaged in the majority of their preparatory activities within a 30 mile radius from their intended target. Limited spatio-temporal analysis suggested a pattern of surveillance close to the target early in the planning phase, after which the rest of the preparatory behavior would move far away from the target, only to move gradually closer again as the attack date approached. These findings highlight the importance of having bases of operation. Proximity to such safe havens is considered to increase the risk of future attacks, as first suggested by R.V. Clarke and G. R. Newman in 2006.[102] D.K. Rossmo and K. Harries used detailed police data reports and found that in Turkey, terrorists acting on behalf of rural guerrillas tended to establish cells within 4 miles of each other and the closest one only half a mile from the targeted area.[103] They propose a specific geographical model that can be used by intelligence offices to predict future attacks or nearby cells. Very similar spatial relationships were found by C. Berrebi and D. Lakdawalla for terrorist cells in Israel.[104] These findings highlight the local nature of planning and execution of terrorist attacks.

Perhaps the most popular topic for spatial analysis in the group dynamics literature has been to investigate the spatial logics of terrorist attack strategies and how they evolve over time. The focus on attack strategy refers to the choices and intentions of terrorist groups, not the contextual factors and root causes that motivated these actors in the first place (see section titled "The Geography of Terrorism"). In the conventional literature, terrorist attacks are often thought to target an enemy group or sub-category thereof but as being otherwise randomly executed and "unpredictable." [105] Contrary to such a notion, the geographical literature has shown that terrorist attacks are carried out according to certain spatial logics. Increasingly, many observers are noting, for instance, how cities of high population and administrative worth to the government appear to have become among the main targets of modern-day terrorism for a variety of strategic and cost-effectiveness reasons.[106] This relationship has been verified by statistical [107] and GIS based studies, [108] some of which indicate that that sixty percent of all terrorism is targeted at cities and resulting in ninety percent of all injuries.[109] Other times, locations are selected for their symbolic meaning and value.[110] For instance, cities with global or regional status are found to be particularly meaningful targets for signaling government vulnerability and humiliation.[111] With a focus on the specific goals of terrorist groups, we may therefore see religious groups targeting civilian sites of perceived amoral activities; [112] right-

wing groups targeting political, government, and military locations;[113] oppressed groups targeting sites of exclusion and wealth such as nightclubs, cafes, and shopping malls (e.g. in Palestine and Ireland);[114] to exploited groups targeting the means of exploitation, such as the oil tankers that are perceived as exploiting local resource wealth in Nigeria. The basic logic of both strategic and symbolic targeting is not one of random hit-and-run, but rather one of staging repeated attacks against the same location, a pattern known as *reinforcement*. [115] In several sub-national GIS studies, previously attacked locations are particularly prone to experience future attacks.[116] By geo-visualizing terrorist attacks in New York, Jerusalem, London, and Istanbul, Savitch similarly observed how terrorism tends to gravitate toward a critical downtown area or center using concentrated and repetitive attacks.[117] The aim of this tactic may be to intimidate, psychologically alienate, weaken the confidence, and drive out people from certain public places, as Mustafa has suggested.[118]

The logic of terrorist targeting then is spatially dependent and results in self-reinforcing hotspots across a given landscape. Yet these patterns are never quite stable over time, giving rise to other spatial patterns. Earlier in the article, it was noted how the literature has emphasized that terrorism can exist in both territorial and non-territorial settings. One major difference between these two types of terrorism can be seen in the dynamics of their targeting strategies. Thus, we may observe two main targeting strategy dynamics.[119] First, terrorism at the hands of territory minded actors tends to result in patterns of gradual *spatial diffusion* to close and nearby areas of convenience (i.e., contiguously/contagiously).[120] Contagious diffusion of terrorist attacks tends to occur when the government is weak and the terrorists are tied to territory and are on the defensive. In such situations their strategy often aims to ensure control of their own territory, strengthen their support base, and mobilize the population in their close vicinity.[121] For instance, LaFree et al. were able to detect such a pattern in *Euskadi Ta Askatasuna* (ETA) related attacks in Spain during the early phase when attacks centered in and around the Basque Country, [122] often in spatio-temporal bursts of localized violence, as found by Behlendorf, LaFree, and Legault.[123] Conflict and insecurity may help spread terrorism across borders as geo-statistical methods have shown the existence of a regional spillover effect, where regions of transnational terrorist attacks increase the likelihood of attacks spreading to neighbouring countries.[124] Second, in peaceful settings dominated by a strong government, non-territorial groups tend to resort to terrorism in a more spread-out manner characterized by multiple hotspots. Since they do not control any territory, the tactic is more focused on targeting key enemy locations throughout their vast operating ranges. As new hotspots begin to appear far away from each other, we are observing a pattern known as *hierarchical diffusion*,[125] where new targets are selected based on a hierarchy of preferred target characteristics, as discussed previously. Figure 3 illustrates these two patterns with an overview of terrorism in the United Kingdom. Perhaps resulting from many different groups involved or different levels of territorial control, the map highlights a contagious pattern in Northern Ireland and a hierarchical pattern in Great Britain. These patterns

appear as expected, given the higher level of instability and territorially-minded groups in Northern Ireland. To examine the reasons for these differences more in-depth and across different cases can be a useful avenue for future research.

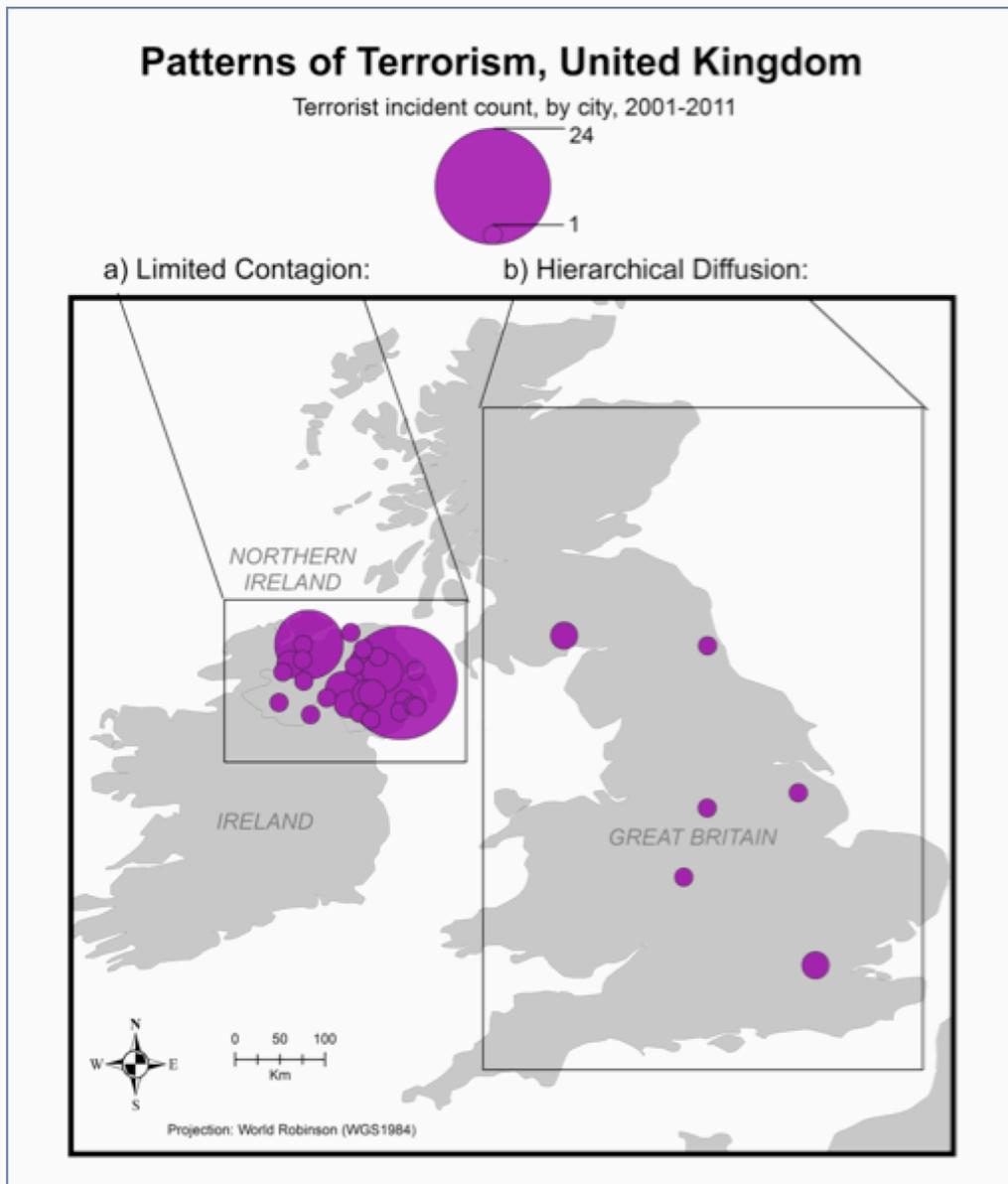


Figure 3. Two aspects of spatial patterns to terrorist attacks, $n=248$ events across 78 place-names. Data source: Global Terrorism Database.

Although the conventional literature has provided many insider examples based on fieldwork with terrorist groups and members, the geographical literature mentioned in this section has been unique in suggesting the spatial dimensions of terrorist activities. Some of these activities, like

networking, planning, and attack execution have been studied mostly with a focus on non-territorial terrorism contexts; how these practices differ when looking at territorial terrorists remains an interesting topic for future research. The research on targeting strategies, however, has given some detailed insights into the differences between territorial and non-territorial terrorism. When considering the possibility of multiple terrorist groups with different territorial capacities and goals, the resulting attack pattern is likely to be quite complex and makes it necessary to have data that consistently identifies the group responsible for the attacks in order to compare each group's territorial nature with the resultant attack patterns.[126] Doing so may help bolster the finding reported here that territorial and non-territorial contexts influences groups to target different places through different patterns. However, the instances in which this finding does not hold should be explored further, illuminating such intervening factors as organizational infighting taking precedence over territorial aspirations.[127] Partially predictable patterns of terrorist activities have been used by some researchers to model and infer group responsibility with regard to specific attacks.[128]

Terrorism's Impact on Society

Despite our best efforts to understand and prevent terrorism, this asymmetric form of conflict-waging is not likely to disappear entirely as a viable form of politics of contention conducted by various societal actors. Realizing this, a third group of geographically minded scholars have rather focused their efforts on helping people, institutions, and society to cope with, prepare for, and mitigate the negative effects of terrorist attacks. Such efforts require an understanding of terrorism's associated processes of societal change and effect, parts of which the conventional literature has already explored. But without knowing their spatial manifestations and scopes of influence, our understanding can only remain limited. The contribution of the geographical literature has been to further our understanding of how the consequences of terrorist attacks play out across space, how they change the spatial workings of society, and thus what it means for a world that may have to live with terrorism.

One of the most widely-held assumptions about terrorism is that it achieves change in the personal and psychological realms of individuals in terms of fear and terror. Yet new publications are beginning to put this into question.[129] While terrorism's effects on national levels of threat perceptions have been well studied in the past, only recently have its sub-national local effects been explored. Studies on risk perception have traditionally looked at demographics and psychological factors to explain why some people are more or less worried about, and impacted by, terrorism. Recently however, trauma research has begun to incorporate spatial queries using both quantitative and qualitative methods. It was generally found that terrorism risk perceptions are limited to those people within close proximity to real or perceived targets of terrorist attacks. [130] Since in the case of real attacks "the events themselves [would] saturate...life most

intensely in their immediate proximity, through personal stories, physical reminders, and direct experiences,”[131] the usual explanatory factors for risk perceptions, such as demographics, are found to function merely as *moderators* of the more primal distance effect.[132] Thus, the terrorizing effects of terrorism are confined to the immediate vicinity of (perceived) targets. Health efforts to calm anxious populations may be better off focusing on those specific locations rather than on specific demographic groups as most people appear to be unaffected.

Concurrently other studies have highlighted people’s resilience against terrorism; that is, their ability to partially move beyond the fear-inducing effects of terrorism and restore the normalcy of everyday life.[133] This message is conveyed through studies suggesting that terrorism’s effect on people’s residential preferences and housing lets are only minor and mostly short-term. [134] It was also suggested that although terrorism decreases tourism, tourists simply relocate to less troubled vacation spots nearby.[135] Yet, it should not be doubted that terrorism significantly affects people in other ways, such as altering their daily routines, general welfare, and even safety, and geographical perspectives have helped to highlight how. When terrorists belong to a minority group, the resentment it produces is likely to result in discrimination and harassment of the implicated group, such as in public places like bus stops and shopping malls. Qualitative GIS visualization techniques have been used to show how this causes minorities to limit their time spent outside and change their routines to avoid certain areas of the city.[136] As such, the negative social effects may function mostly as a backfire effect against the terrorists’ own alleged constituents rather than at their intended targets.

Economic activity is another factor greatly affected by terrorism. Yet this impact may be considerably more local and less ominous than previously thought. H. Gong and K. Keenan demonstrated that the September 11th attacks, and worries that followed, entered into the locational considerations of financial firms in downtown New York as many were relocating to the suburbs. Yet this was mostly temporary and followed by a move back to the downtown area a few years later. In the process, these firms adopted new modes of decentralization and dispersal, initiating a break from the previously centralizing tendencies of globalization.[137] Although such shifts toward non-permanent, spread out, and duplicate offices of operation initially hurt business economics, management studies have also argued that doing so can provide the best resistance against the shocks of terrorist attacks.[138] In addition to changing the mindsets and behaviors of *existing* businesses, R. T. Greenbaum, L. Dugan, and G. LaFree showed in their disaggregated study of Italy that terrorism also scares away *new* business formations and expansions, but that this may be mostly limited to reducing employment and hurting the economy at the local level.[139] J. de Sousa, D. Mirza, and T. Verdier found that part of the economic damage actually is self-inflicted by the heightened security response of governments and the economic obstacle this poses to businesses, and that it is this security-business trade-off that tends to spread from the targeted country to its neighbors in a ripple wave of fear and security reactions.[140] Other research suggests that terrorism’s disruptive effects on local

economies are greater in regions that are already underdeveloped and poor, as N. Ocal and J. Yildirim found in their subnational study of Turkey.[141] While it appears that terrorism in the long run shrinks urban extents and urban land-use,[142] this may just as well be a result of counter-terrorism responses as argued in the critical literature. These findings suggest that while it seems clear that terrorism at least harms local economic activity, prior economic development seems to provide a partially protective shield against terrorism and that affected areas grow increasingly resilient against these damaging effects.[143]

Perhaps the direst consequence of terrorism is that it can influence a population's political sympathies by "thrusting" political debates into apolitical spaces, thus creating politicized places, which initiates changes in the local political climate.[144] In cases where (reported) levels of terrorism are relatively low, as in China, it has been observed that spatial proximity to the attacks correlates with tolerance and understanding of terrorist grievances and less support for harsh counter-terrorism policies.[145] This fits with C. Berrebi and E.F. Klor's finding that terrorism may solidify left-leaning voting behavior as long as it stays below a certain threshold.[146] However, once levels of terrorism escalate in frequency and intensity, local populations are driven towards the political right. Berrebi and Klor studied terrorism's impact on local voter behavior in Israel and found that if the violence is sufficiently frequent voters shift towards the right in the hope that the right bloc will militarily root out the terrorists.[147] Similarly, in Turkey, A. Kibris found that attacks against security forces weakens the vote for the affected district's ruling party and generally strengthens the vote for right-wing parties.[148] This has implications for national-level political dynamics during terrorist campaigns. Since terrorism tends to be spatially concentrated in certain parts of a country, the population will tend to be divided between those who are *threatened* and those who are *safe*. If, as suggested above, proximity to terrorism matters, we should therefore expect to see a polarization of political sympathies on the national scale, where the safe population turns leftist and the threatened population turns rightist.[149] This political polarization might be what explains how terrorism is sometimes used in peaceful settings with the intention for escalation into more widespread civil war, overthrow of the government, and large-scale social change.[150] Other politically detrimental effects of terrorism include how, as shown by GIS studies, patterns of past political violence and local climates of unrest may lower the threshold for resorting to terrorism and even inspire or motivate others to attack the same locations, thus influencing the locations of future terrorist tactics.[151] This is beginning to be accounted for in statistical studies, where the motivating effect of previous terrorist attacks on terrorist patterns at a given point in time can be separated and excluded from the effect exhibited by structural characteristics of the targeted areas and thus help in identifying and measuring the root causes of terrorism.[152]

Only three of terrorism's many societal impacts have been mentioned here. The most dramatic impacts were noted for conflicts where the terrorists are territorially grounded. The political effects may prove to pose the greatest despair. By polarizing political climates in fragile

societies, and incurring invasive government security measures, terrorism shrinks the spatiality of everyday lives, mobility, opportunity, and cosmopolitan aspirations that we commonly associate with globalization and prosperity. Yet, in these same countries the marginal *economic* and *social* effects suggest some hope for surviving terrorism, especially where violence is more widespread yet better adapted and accustomed to. People, economic development, and globalization itself may be inherently adaptable and resilient against terrorism, suggesting a continuation of globalizing tendencies, resiliency, and hope.[153] The various effects of territorial terrorism, then, somewhat keep each other in a balance that prevents its negative consequences from taking over. Ironically, people from highly developed and stable countries tend to be more concerned about non-territorial terrorism, which appears to be the overall least dramatic and worrisome in terms of impacting societies. In either case, if there is one impact that both types of terrorism consistently have on societies, it is that they highlight the persistence of resiliency and cohesion in the targeted communities.

Conclusion and Prospects for the Future

This paper has traced the origins and recent appearance of geographical research on terrorism, and has shown how spatial perspectives contribute to our understanding of terrorism. Through the organizational framework of territoriality, three main topics were explored and their contributions highlighted. First, the specific geographies and root causes of terrorism were explored, suggesting that understanding the roots of terrorism requires a geographic attention to local-level failures of governance that may give rise to grievances and opportunities in terrorist “black spots” in both the developing and developed world.[154] Second, although insider studies of terrorist groups have been conducted in the past, empirical studies from a spatial perspective can help construct a detailed spatial narrative of the attack cycle and therefore also ways to police and prevent specific attacks. Third and last, spatial perspectives can help in understanding that while terrorism has many negative impacts on society, these are spatially limited, and its other effects seem much less malevolent, so as to give hope for positive resilience since the negative impacts are spatially and temporally limited, identifiable, and potentially possible to mitigate. For each aspect, great differences were found between territorial and non-territorial related terrorism, suggesting that future research should accept and be explicit about their focus on both these types of terrorism. Geographical research has been crucial for informing this framework.

In the beginning of this article it was noted that geographical perspectives in terrorism research remains highly unrecognized. Despite this, it appears that increasingly many scholars are beginning to notice, spread awareness, and encourage the future potential for using geographical perspectives and methods. Gary LaFree recently suggested that the future of terrorism research holds great prospects for “geospatial analysis” where descriptive point maps and advanced

computer analysis of spatial data could be useful avenues for future research. Emphasizing the crucial role of terrorist event databases to spatial analysis, he hinted that there should be a greater focus on “their spatial characteristics” as opposed to the more traditional focus on “their temporal characteristics.”[155] One group of researchers held a special seminar discussing the need for spatial data and analysis of terrorism.[156] The focus on geo-referenced datasets and GIS has indeed been at the core of many of the original methods and insights found in the geographical terrorism literature. Such data and methods have enabled greater attention to local factors and experiences. This, in turn, has led to more informed understandings of the terrorist system.[157]

By showing contributions from spatial perspectives and approaches to the study of terrorism, this article hopes to make terrorism scholars and others more aware of this considerable, and yet widely unknown, body of literature. Just like time and history, space and geography are quintessential aspects of our social world that cannot be ignored.[158] Given that conventional terrorism studies has been criticized and described by some critics as stagnant, and conducted largely from the perspectives of time and structure, we may better understand why space has recently been incorporated as a consideration in the study of terrorism. “War,” comedian Paul Rodriguez said, “is God's way of teaching us geography.”[159][160] While this was meant to be joke, the truth is that conflict drives research on people, places, and interactions. Scholars are likely to continue embracing geographical perspectives and providing original contributions in the study of terrorism. It would be greatly beneficial if these geographical contributions and perspectives are met, welcomed, and engaged with by the broader community of terrorist researchers.

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AUTHORS	TITLE	FOCUS	WHERE	WHEN	TYPE	AVAILABILITY	GEOREFERENCING	NOTE
MOST SUITABLE FOR GEOREFERENCING								
National Counterterrorism Center (NCTC)	Worldwide Incidents Tracking System (WITS)	Attacks	World	2004-Present	Database	Free download	Yes: Lat/long variable	Website currently down
START	Global terrorism database (GTD)	Attacks	World	1970-Present	Database	Free download	City variable	
Eugene, Jim Oskar	Terrorism in Western Europe: Evans Data (TWEED)	Attacks	Western Europe	1950-2004	Database	Free download	City variable	
De la Calle, Luis, and Ignacio Sánchez-Cuena	Domestic Terrorism Victims (DTV)	Attacks	Western World	1965-2005	Database	Free download	City variable	
Sánchez-Cuena, Ignacio	Revolutionary Dreams and Terrorist Violence in the Developed World: Explaining Country Variation	Attacks	Western World	1970-2000	Database	Free download	City variable	Only "revolutionary" terrorism
REQUIRE MINOR PROCESSING								
Rand Corporation	RAND Database Of Worldwide Terrorism Incidents (RDWTI)	Attacks	World	1972-2009	Database	Search only	City variable	
Chicago Project on Security and Terrorism (CPOST)	Suicide Attack Database	Attacks, suicide	Middle East/World	1981-Present	Database	Search only	City variable	
Aviation Safety Network	Aviation safety incidents 1943 to 2010	Attacks, aviation	World	1931-Present	Database	Search only	City variable	
Mohabadi, Hamid, and Ann Munsib	A global chronology of incidents of chemical, biological, radioactive and nuclear attacks 1950-2005	Attacks, WMD	World	1950-2005	Table (article)	Viewable	(Needs converting into database)	
Center for Systemic Peace	High Casualty Terrorist Bombing (HCTB)	Attacks	World	1992-Present	Table (report)	Viewable	(Needs converting into database)	Only "high casualty"
Center for Defense and International Security Studies (CDISS)	Database of Terrorist Incidents, 1940 - 1999	Attacks	World	1940-1999	Table (web)	Viewable	(Needs converting into database)	Only "significant" attacks
RAND	Al Qa'ida attacks chronology	Attacks	*Al Qa'ida	1994-2007	Table (report)	Viewable	(Needs converting into database)	Only Al-Qa'ida related attacks
REQUIRE MAJOR PROCESSING								
South Asia Terrorism Project (SATP)	Datashets for select countries	Attacks	South Asia	1990s-Present	Table (web)	Viewable	(Needs converting into database)	Different data for each country
Agenzia Informazioni e Sicurezza Interna (AISI)	GNOSIS chronology of terrorism	Attacks	Italy/World	2004-Present	Table (web)	Viewable	(Needs converting into database)	Only "significant" attacks
International Institute for Counter-Terrorism	The ICI Research Database	Attacks ++	World	? Present	Text (report)	Viewable	(Needs converting into database)	
US State Department	Patterns of Global Terrorism	Attacks	World	1960s-Present	Text (web)	Viewable	(Needs converting into database)	Only "significant" attacks
SPECIAL ACCESS								
Ross, Jeffrey Lin	Attributes of domestic political terrorism in Canada, 1960-1985	Attacks	Canada	1960-1985	Database	Contact author	?	
De la Calle, Luis, and Ignacio Sánchez-Cuena	The production of terrorist violence: Analyzing target selection within the IRA and ETA	Attacks	Italy and Northern Ireland	1968-2003	Database	Contact authors	?	
Ackerman, Gary, Charles Blair, and Maranda Somelis	Radiological and Nuclear Non-State Adversaries Database (RANNSAD)	Attacks, WMD	United States	2008-2014	Database	Contact authors	?	
Spautj, Ramon	Understanding lone wolf terrorism: Global patterns, motivations, and prevention	«Lone wolf» attacks	Western World	?	Database	Contact author	?	
Nichols and Fleming	ITERATE 6	Attacks	World	1960-2007	Database	Cost 100+ USD	City variable	Only international attacks
ISIS Jane's Defense & Security Intelligence & Analysis	Jane's Terrorism Events Spatial Layer	Attacks ++	World	?	Database	Cost unknown?	Yes, unknown what type	
IntelCenter	IntelCenter Database (ICD)	Attacks ++	World	?	Database	Cost 200 USD/month	City variable	
Allen Vanguard Co.	TRITON Database	?	World	?	Database	?	?	
Institute for the Study of Violent Groups	Violent Extremism Knowledge Base (VEKB)	Attacks, other, groups	World	?	Database	Restricted to cooperating agencies and institutes	Yes, unknown what type	
CNS at the Monterey Institute for International Studies	Monterey WMD Terrorism Database	Attacks, WMD	World	1900-Present	Database	Restricted to government employees	?	

Appendix I. Selected terrorism datasets suitable for geo-referencing. Source: K. Bahgat and R.M. Medina.

Notes

[1] Magnus Ranstorp, "Introduction: Mapping Terrorism Research – Challenges and Priorities," in *Mapping Terrorism Research: State of the Art, Gaps, and Future Direction*, ed. Magnus Ranstorp. New York: Routledge, 2009,: 3.

[2] Robert Pape, "Introduction: What is New About Research on Terrorism," *Security Studies* 18 (2009): 647.

[3] Only the most relevant journal articles, books, working papers, and organizational project reports relating to terrorism as a social phenomenon is included; the article is generally not concerned with other forms of publication or research pertaining to government counter-terrorism practices and issues.

[4] There are several other reasons why it is important to consider geography, like using geographic proximity to help determine the degree of independence between variables. More on the practical uses of geography can be seen in: Clionadh Raleigh, Frank Witmer and John O'Loughlin, "A Review and Assessment of Spatial Analysis and Conflict: The Geography of War," in R. Dene1 (ed.) *The International Studies Encyclopedia* X Oxford: Wiley-Blackwell, 2010, <http://www.colorado.edu/ibs/pec/johno/pub/compendium.pdf> (accessed December 18, 2012), 23.

[5] T. R. Gurr, *Why Men Rebel*. Princeton: Princeton University Press, 1970.

[6] These early attempts are described in: Alex Braithwaite, and Quan Li, "Transnational Terrorism Hot Spots: Identification and Impact Evaluation," *Conflict Management and Peace Science* 24, no. 4 (2007): 281-96.

[7] Examples of geographers researching terrorism prior to 9/11 include: James Derrick Sidaway, "Geopolitics, Geography, and 'Terrorism' in the Middle East," *Environment and Planning D: Society and Space* 12, no.3 (1993): 357-72.

[8] Douglas Richardson, "Building a Research Agenda on the Geographical Dimensions of Terrorism: An on-Going Process," *Transactions in GIS* 6, no. 3 (2002): 225-29, 225.

[9] Also noted by: Colin Flint, and Steven M. Radil, "Terrorism and Counter-Terrorism: Situating Al-Qaeda and the Global War on Terror within Geopolitical Trends and Structures," *Eurasian Geography and Economics* 50, no. 2 (2009): 150-71. The first policy-oriented technical publications came within months: Jerry Dobson, "How Will GIS Help Fight the War on Terrorism," *Geoworld* 14, no. 11 (2001). By 2003 the first popular publication was Susan L. Cutter, Douglas B. Richardson, and Thomas J. Wilbanks (eds.) *The Geographical Dimensions of Terrorism*. New York: Routledge, 2003). For recent publications and overviews of the policy-literature see: Daniel Z. Sui (ed.) *Geospatial Technologies and Homeland Security: Research Frontiers and Future Challenges* (Netherlands: Springer Netherlands, 2008); Salih Hakan Can, I R. Leipnik, and Scott M. Mire, "Use of Geographic Information Systems in Counter-Terrorism," in Robert D Hanser, Scott Mire, Attapol Kuanliang, Sunghoon Roh and Kevin Unter (eds.) *Readings in International Criminal Justice Issues* (Serials Publications, 2011); M. Kevany, "GIS In The World Trade Center Response: 10 Years After," *International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences XXXVIII-4/C21: 28th Urban Data Management Symposium* (2011), <http://www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XXXVIII-4-C21/137/2011/isprsarchives-XXXVIII-4-C21-137-2011.pdf> (accessed January 12, 2012).

[10] Danielle Rusnak, Leslie W. Kennedy, Ibrahim S. Eldivan, and Joel M. Caplan, "Analyzing Terrorism Using Spatial Analysis Techniques: A Case Study of Turkish Cities," in Cynthia Lum and Leslie W. Kennedy (eds.), *Evidence-Based Counterterrorism Policy*. New York: Springer, 2012; and Kristine Egan, *Terrorscape: Geography of Urban Terror Risk*. El Paso, TX, USA: LFB Scholarly Publishing LLC., 2009. S. A. Patterson, and G. E. Apostolakis, "Identification of critical locations across multiple infrastructures for terrorist actions," *Reliability Engineering & System Safety* 92, no. 9 (2007); Donald Brown, Jason Dalton, and Heidi Hoyle, "Spatial Forecast Methods for Terrorist Events in Urban Environments," *Intelligence and Security Informatics Part II: Second Symposium on Intelligence and Security Informatics*, (Tucson, AZ, USA: ISI Proceedings, June 10-11, 2004). G. S. Schmidt, J. Goffeney, and R. Willis, "Impact of Uncertainty on Terror Forecasting," *Naval Research Laboratory Review: Simulation, Computing, and Modeling* (2007).

[11] Craig Bennel and Shevaun Corey, "Geographic Profiling of Terrorist Attacks," in R. N. Kocsis (ed.) *Criminal Profiling: International Theory, Research, and Practice*. Totowa, NJ: Humana Press Inc., 2007; Richard A. Beck, "Remote Sensing and GIS as Counterterrorism Tools in the Afghanistan War: A Case Study of the Zhawar Kili Region," *The Professional Geographer* 55, no. 2 (2003): 170-179. J. Shroder J, "Remote Sensing and GIS as Counterterrorism Tools in the Afghanistan War: Reality, Plus the Results of Media Hyperbole," *The Professional Geographer* 57, no. 4 (2005): 592-597, 592. T. W. Gillespie, and J. A. Agnew, "Finding Osama bin Laden: An Application of Biogeographic Theories and Satellite Imagery," *MIT International Review - February 2009 Online Exclusive* (2009): <http://web.mit.edu/mitir/2009/online/finding-bin-laden.pdf> (accessed November 2, 2011).

[12] J. E. Van Horn, and N. A. Mosurinjohn, "Urban 3D GIS Modeling of Terrorism Sniper Hazards," *Social Science Computer Review* 28, no. 4 (2010): 482-496; M-P Kwan, and J. Lee, "Emergency Response After 9/11: The Potential of Real-Time 3D GIS for Quick Emergency Response in Micro-Spatial Environments," *Computers, Environment and Urban Systems* 29 (2005): 93-113.

[13] J. L. Regens, and J. T. Gunter, "Predicting the Magnitude and Spatial Distribution of Potentially Exposed Populations During IND or RDD Terrorism Incidents," *Human and Ecological Risk Assessment: An International Journal* 16, no. 2 (2010): 236-250; T. Kobayashi, R. M. Medina, and T. J. Cova, "Visualizing Diurnal Population Change in Urban Areas for Emergency Management," *The Professional Geographer* 63, no. 1 (2011): 113-130; Peter Gordon, James E. Moore II, Harry W. Richardson, and Qisheng Pan, "*The Economic Impacts of Terrorist Attacks on the Twin Ports of Los Angeles-Long Beach*," Non-published Research Reports *Paper* 23 (2005); Shaoming Cheng, Roger R. Stough, and Adriana

Kocornik-Mina, "Estimating the Economic Consequences of Terrorist Disruptions in the National Capital Region: An Application of Input-Output Analysis," *Journal of Homeland Security and Emergency Management* 3, no. 3 (2006).

[14] Phil Hubbard, Rob Kitchin, Brendan Bartley, and Duncan Fuller, *Thinking Geographically: Space, Theory and Contemporary Human Geography*. New York: Continuum, 2002: 33.

[15] One geographical journal immediately released an issue of critical musings and ideas following the attacks: Colin Flint, "Initial Thoughts Towards Political Geographies in the Wake of September 11, 2001: An Introduction," *The Arab World Geographer* 4, no. 2. It did not take too long before full length articles of critical analysis were published and became widely read, such as: Colin Flint, "Terrorism and Counterterrorism: Geographic Research Questions and Agendas," *The Professional Geographer* 55, no. 2 (2003): 162-69; Daanish Mustafa, "The Terrible Geographicalness of Terrorism: Reflections of a Hazards Geographer," *Antipode* 37, no. 1: 72-92.

[16] Robert W. Williams, "Terrorism, anti-terrorism and the normative boundaries of the US polity: The spatiality of politics after 11 September 2001," *Space and Polity* 7, no 3 (2003).

[17] Quote from the title of Stephen Graham, *Cities Under Siege: The New Military Urbanism*. New York: Verso, 2011.

[18] H. V. Savitch, *Cities in a Time of Terror: Space, Territory, and Local Resilience*. Armonk, N.Y.: M. E. Sharpe, Inc., 2007), 135-138; Jon Coaffe, "Rings of Steel, Rings of Concrete and Rings of Confidence: Designing out Terrorism in Central London pre and post September 11th," *International Journal of Urban and Regional Research* 28, no. 1 (2011); Jon Coaffee, David Murakami Wood, and Peter Rogers, *The Everyday resilience of the city: how cities respond to terrorism and disaster*. New York: Palgrave Macmillan, 2008; Jon Coaffe, "Protecting the Urban: The Dangers of Planning for Terrorism," *Theory, Culture & Society* 26, no. 7-8 (2009); Jon Coaffee, *Terrorism, Risk and the Global City: Towards Urban Resilience*. Farnham: Ashgate Publishing Company, 2009.

[19] Louise Amoore and Marieke De Goede, "Transactions after 9/11: The Banal Face of the Preemptive Strike," *Transactions of the Institute of British Geographers* 33, no. 2 (2008): 173-85.

[20] Anna Simons, and David Tucker, "The Misleading Problem of Failed States: A 'Socio-Geography' of Terrorism in the Post-9/11 Era," *Third World Quarterly* 28, no. 2 (2007): 387-401.

[21] Greg Bankoff, "Regions of Risk: Western Discourses on Terrorism and the Significance of Islam," *Studies in Conflict & Terrorism* 26, no. 6 (2003): 413-28; Jeremy Keenan, "Turning the Sahel on Its Head: The 'Truth' Behind the Headlines," *Review of African Political Economy* 33, no. 110 (2006): 761-9; Mat Coleman, "The Naming of 'Terrorism' and Evil 'Outlaws': Geopolitical Place-Making after 11 September," *Geopolitics* 8, no. 3 (2003): 87-104; and James Derrick Sidaway, "Geopolitics, Geography, and 'Terrorism' in the Middle East," *Environment and Planning D: Society and Space* 12, no. 3 (1993): 357-72.

[22] N. J. Sciuillo, "On the Language of (Counter)Terrorism and the Legal Geography of Terror," *Willamette Law Review* (January 2012). Also available at: <http://works.bepress.com/nickjsciullo/10>; E. A. Wilson, "War on Terrorism and the Water's Edge: Sovereignty, Territorial Jurisdiction, and the Reach of the U.S. Constitution in the Guantanamo Detainee Litigation," *Journal of Constitutional Law* 8, no. 2: 165-207 (2006).

[23] These reviews, however, are limited to short dictionary or encyclopedia entries. See: Derek Gregory, Ron Johnston, and Geraldine Pratt (eds.) *Dictionary of Human Geography* 5 ed. Hoboken, NJ.: Wiley-Blackwell, 2009; Daanish Mustafa, "Terrorism," in Rob Kitchin and Nigel Thrift (eds.), *International Encyclopedia of Human Geography*. Oxford: Elsevier, 2009.

[24] For instance, see Steve Radil, "Global Patterns of Terrorism, 1998-2005: A Geographic Overview and Root Cause Analysis," *Dissertation* (University of Colorado at Colorado Springs, 2006).

[25] Examples of places offering courses on the geography of terrorism include Park University in Missouri, Texas A&M University, University of Utah, George Mason University, and Pennsylvania University. For detailed coverage of what goes on in one of these classes, see the recent online article by Jessica Folkema, "Interim: The Geography of Terrorism," Calvin College, <http://www.calvin.edu/news/archive/interim-the-geography-of-terrorism> (accessed June 12, 2011).

[26] As part of his introduction to a journal special issue on new frontiers in terrorism research, Todd Sandler mentioned, but only briefly, that some new methodologies are beginning to account for "spatial dependence." Todd Sandler, "New Frontiers of Terrorism Research: An Introduction," *Journal of Peace Research* 48, no. 3 (2011). One entry attempted to make spatial observations on empirical aspects of terrorist violence, but did not review or refer to any of the literature. See Samuel Nunn, "Terrorism, Geography Of," in Barney Warf (ed.), *Encyclopedia of Geography*. Thousand Oaks, CA: Sage Publications, 2010.

[27] T. A. Nelson, "Trends in spatial statistics," *The Professional Geographer* 64, no. 1 (2012): 1-12.

[28] Robert Pape, "Introduction: What is New About Research on Terrorism," *Security Studies* 18 (2009): 647.

[29] Phil Hubbard, Rob Kitchin, Brendan Bartley, and Duncan Fuller, *Thinking Geographically: Space, Theory and Contemporary Human Geography*. New York: Continuum, 2002: 28.

[30] Amidst a tide of humanist, structuralist, and feminist writings, an “outgrowth” of positivist geography called behavioral geography did continue to hold some sway but was focused mostly on how humans psychologically cognate and interpret space: Phil Hubbard, Rob Kitchin, Brendan Bartley, and Duncan Fuller, *Thinking Geographically: Space, Theory and Contemporary Human Geography*. New York: Continuum, 2002: 35.

[31] An interesting and instructive comparison can be made with the broader field of conflict studies, where geographical concerns appeared much earlier and have developed much farther. Conflict studies is a relatively old field and conflict scholars’ interest in geography appeared quite early as it was fuelled by the wave of the spatio-quantitative revolution in the 1960s; see: Kristian Skrede Gleditsch and Nils B. Weidmann, “Richardson in the Information Age: Geographic Information Systems and Spatial Data in International Studies,” *Annual Review of Political Science* 15(2012): 461-81. Since the conflict field had already existed for a while and many of its basic concepts had already been explored, this meant that geographical considerations would provide a logical and added layer of conceptual finesse. Much later, the same wave of geographic popularity that first drove geographical terrorism research in the early 2000s resulted in additional spatial advances and engagements in many corners of conflict studies as well; for instance in the study of conventional wars, civil wars, lynchings, racist-motivated riots, communal violence, and massacres. See: Harvey Starr, 'Territory, Proximity, and Spatiality: The Geography of International Conflict', *International Studies Review* 7, no. 3 (2005): 387-406; Halvard Buhaug and Paivi Lujala, 'Accounting for Scale: Measuring Geography in Quantitative Studies of Civil War', *Political Geography* 24(2005): 399-418; Stewart E. Tolnay, Glenn Deane, and E. M. Beck, 'Vicarious Violence: Spatial Effects on Southern Lynchings, 1890-1919', *American Journal of Sociology* 102, no. 3 (1996): 788-815; Robert Braun, 'The Diffusion of Racist Violence in the Netherlands: Discourse and Distance', *Journal of Peace Research* 48, no. 6 (2011): 753-66; K. Jaishankar, 'Patterns of Communal Violence Victimization in South India: A Geographic Information Systems (GIS) Analysis', in *International Handbook of Victimology*, eds. Shlomo Giora Shoham, Paul Knepper, and Martin Kett. Boca Raton, FL, 2010; Michael K. Steinberg et al., 'Mapping Massacres: GIS and State Terror in Guatemala', *Geoforum* 37, no. 1 (2006): 62-8.

[32] The figure is based on data representing journal articles collected by the authors during the search for literature while writing this paper. Journal articles were included in the ‘Geographers’ category if at least one of the authors had one of their degrees in geography, was affiliated with a geography department, or showed evidence of prior publications dealing with geography. Articles were excluded from chart if background information on author (s) could not be obtained. In determining whether an article belonged to the critical, empirical, or applied literature, a subjective comparison was made to each literature’s distinctive characteristics, as they are described in this paper. Articles that seemed to overlap several of the categories were assigned to the one that it resembled the most.

[33] For instance, after reviewing existing terrorist/terrorism databases, Rossmo and Harries found their spatial precision to be inadequate for their purposes and had to circumvent the problem by obtaining geo-referenced terrorism data directly from the Turkish National Police. D. Kim Rossmo, and Keith Harries, "The Geospatial Structure of Terrorist Cells," *Justice Quarterly* 28, no. 2 (2011): 221-48, 229.

[34] Halvard Buhaug, and Päivi Lujala, “Accounting for scale: Measuring geography in quantitative studies of civil war,” *Political Geography* 24 (2005), 413-415.

[35] Branden Born, and I Purcell, “Avoiding the Local Trap: Scale and Food Systems in Planning Research,” *Journal of Planning Education and Research* 26, no. 2 (2006).

[36] Examples include the important effects that the policies of national governments or global loaning institutions can have on the rise of terrorism in particular locales, as well as the broad focus necessary to understand and explain the wide reaches of transnational terrorism.

[37] The main interests of these computer scientists have been limited to exploring the potential utility of experimental computer software or cartographic representational methods. Diansheng Guo, Ke Liao, and Michael Morgan, "Visualizing Patterns in a Global Terrorism Incident Database," *Environment and Planning B: Planning and Design* 34, no. 5 (2006): 767-84; Xiaoyu Wang, Erin Miller, Kathleen Smarick, William Ribarsky, and Remco Chang, "Investigative Visual Analysis of Global Terrorism," *Computer Graphics Forum* 27, no. 3 (2008): 919-26; and Josh Jones, Remco Chang, Thomas Butkiewicz, and William Ribarsky, "Visualizing Uncertainty for Geographical Information in the Global Terrorism Database," *Proceedings of SPIE* 6983 (2008).

[38] Gary LaFree, Laura Dugan, Heather V. Fogg, and Jeffrey Scott, “Building a Global Terrorism Database,” United States: National Institute of Justice (2006), 77-78.

[39] Cristophe Boutreux (developer), “GeoNames,” <http://www.geonames.org/>

[40] For a discussion of twenty major datasets, see: Neil G. Bowie and Alex P. Schmid. *Databases on Terrorism*. In: Alex P. Schmid (Ed.). *The Routledge Handbook of Terrorism Research*. London: Routledge, 2011, pp. 294 – 340.

[41] Michael P. Scharf, “Defining Terrorism As The Peacetime Equivalent Of War Crimes: Problems And Prospects,” *Case Western Reserve Journal of International Law* 36, no. 2/3 (2004) [article commented on a proposal by Alex P. Schmid].

[42] Colin Flint, "Dynamic Meta-Geographies of Terrorism: The Spatial Challenges of Religious Terrorism and the ‘War on Terrorism,’” in Colin Flint (ed.), *The Geography of War and Peace* (New York: Oxford University Press, 2005): 203; see also Stuart Elden, *Terror and Territory: The Spatial Extent of Sovereignty*. Minneapolis: University of Minnesota Press, 2009.

[43] Ariel Merari, “Terrorism as a Strategy of Insurgency,” *Terrorism and Political Violence* 5, no. 4 (1993): 213–51. Ignacio Sánchez-Cuenca, and Luis De la Calle, "Domestic Terrorism: The Hidden Side of Political Violence," *Annual Review of Political Science* 12 (2009): 31-49. See

also Justin V. Hastings, *No Man's Land: Globalization, Territory, and Clandestine Groups in Southeast Asia*. Ithaca: Cornell University Press, 2010.

[44] Shane Joshua Barter, "Strong State, Smothered Society: Explaining Terrorist Violence in Thailand's Deep South," *Terrorism and Political Violence* 23, no. 2 (2011): 213-32; Ignacio Sánchez-Cuenca, and Luis De la Calle, "What We Talk About When We Talk About Terrorism," *Politics and Society* 39, no. 3 (2011): 451-72.

[45] Ignacio Sánchez-Cuenca, and Luis De la Calle, "Domestic Terrorism: The Hidden Side of Political Violence," *Annual Review of Political Science* 12 (2009): 38.

[46] For instance, Carter described the terrorism-democracy linkage as "the most common finding in cross-national studies," and as being "widely replicated, across studies of attack frequency, attack lethality, group emergence, as well as the count of groups in a country." David B. Carter, "Terrorist Group and Government Interaction: Progress in Empirical Research," *Perspectives on Terrorism* 6, no. 4-5 (2012): 108. For an example of such a study, see: William Lee Eubank and Leonard Weinberg, "Terrorism and Democracy: Perpetrators and Victims," *Terrorism and Political Violence* 13, no. 1 (2001):155-64.

[47] Robert Pape, "Introduction: What is New About Research on Terrorism," *Security Studies* 18 (2009): 644.

[48] Andreas Freytag, Daniel Meierrieks, Angela Munch, and Friedrich Schneider, "Patterns of Force: System Strength, Terrorism and Civil War," *Economics of Security Working Paper Series no. 28* (Department of International Economics, DIW . Berlin: German Institute for Economic Research, 2010; http://www.diw.de/documents/publikationen/73/diw_01.c.354171.de/diw_econsec0028.pdf (accessed November 8, 2011).

[49] Håvard Hegre, and Nicholas Sambanis, "Sensitivity Analysis of Empirical Results on Civil War Onset," *Journal of Conflict Resolution* 50, no. 4 (2006): 508-35.

[50] Ignacio Sánchez-Cuenca, and Luis De la Calle, "Domestic Terrorism: The Hidden Side of Political Violence," *Annual Review of Political Science* 12 (2009): 31-49; Ignacio Sánchez-Cuenca, and Luis De la Calle, "What We Talk About When We Talk About Terrorism," *Politics and Society* 39, no. 3 (2011); Ignacio Sánchez-Cuenca, and Luis De la Calle, "Rebels without a Territory: An Analysis of Nonterritorial Conflicts in the World, 1970-1997," *Journal of Conflict Resolution* 56, no. 4 (2012).

[51] Francis A. Galcano, "A Geographical Analysis of Un-Governed Spaces," *The Pennsylvania Geographer* 44 (2006); C. C. B. Kittner, "The Role of Safe Havens in Islamist Terrorism," *Terrorism and Political Violence* 19, no. 3 (2007): 307-329; E. Korteweg, "Black Holes: On Terrorist Sanctuaries and Governmental Weakness," *Civil Wars* 10, no. 1 (2008): 60-71; Angel Rabasa, Steven Boraz, Peter Chalk, Kim Cragin, Theodore W. Karasik, Jennifer D. P. Moroney, Kevin A. O'Brien, and John E. Peters, *Ungoverned Territories: Understanding and Reducing Terrorism Risks* (USA: RAND Corporation, 2007).

[52] James A. Piazza, "Draining the Swamp: Democracy Promotion, State Failure, and Terrorism in 19 Middle Eastern Countries," *Studies in Conflict and Terrorism* 30, no. 6 (2007).

[53] John C. Rock, "The Geographic Nature of Terrorism," *The Pennsylvania Geographer* 44 (2006): 2. Also available from [http://www.ontology.buffalo.edu/smith/courses01/papers/Rock\(Geo\).pdf](http://www.ontology.buffalo.edu/smith/courses01/papers/Rock(Geo).pdf) (accessed June 2, 2012)

[54] Zeynep Gambetti, "Politics of Place/Space: The Spatial Dynamics of the Kurdish and Zapatista Movements," *New Perspectives on Turkey* 41 (2009): 43-87.

[55] While a host of geographical studies have looked at violence in Northern Ireland, very few of them have framed the violence as terrorism and are therefore not included in this article. See for instance: Michael Poole, "Has It Made Any Difference?: The Geographical Impact Of The 1994 Cease-Fire In Northern Ireland," *Terrorism and Political Violence* 16, no. 3.

[56] See Edward Newman, "Weak States, State Failure, and Terrorism," *Terrorism and Political Violence* 19, no. 4 (2007): 463-88; Aidan Heir, "The Myth of the Failed State and the War on Terror: A Challenge to the Conventional Wisdom." *The Journal of Intervention and Statebuilding* 1, no. 3 (2007); Anna Simons, and David Tucker, "The Misleading Problem of Failed States: A 'Socio-Geography' of Terrorism in the Post-9/11 Era," *Third World Quarterly* 28, no. 2 (2007): 387-401.

[57] Ignacio Sánchez-Cuenca, and Luis De la Calle, "Domestic Terrorism: The Hidden Side of Political Violence," *Annual Review of Political Science* 12 (2009): 31-49.

[58] This even helps explain some of the terrorism experienced by democracies, since transnational terrorism tends to originate in weak states while targeting stronger democracies. James A. Piazza, "Incubators of Terror: Do Failed and Failing States Promote Transnational Terrorism?" *International Studies Quarterly* 52 (2008); Graham Bird, S. Brock Blomberg, Gregory D. Hess, "International Terrorism: Causes, Consequences and Cures," *The World Economy* 31, no. 2 (2008).

[59] Alberto Abadie, "Poverty, Political Freedom, and the Roots of Terrorism," *The Economics of National Security* 96, no. 2 (2006): 50-56; and Subhayu Bandyopadhyay and Javed Younas, "Poverty, Political Freedom, and the Roots of Terrorism in Developing Countries: An Empirical Assessment," *Economics Letters* 112, no. 2 (2011): 171-5.

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- [60] James A. Piazza, "Poverty, Minority Economic Discrimination, and Domestic Terrorism," *Journal of Peace Research* 48, no. 3 (2011): 339-53; and David Wolff, "The Determinants of International Terrorism: Its Perpetrators and Their Targets," *Carroll Round Proceedings* 3 (2012): 77-82.
- [61] H. V. Savitch, *Cities in a Time of Terror: Space, Territory, and Local Resilience* Armonk, N.Y.: M. E. Sharpe, Inc., 2007), 83. Also mentioned by: Harm De Blij, *Why Geography Matters - Three Challenges Facing America: Climate Change, the Rise of America, and Global Terrorism*. New York: Oxford University Press, 2005, 176-177.
- [62] P. H. Liotta, and James F. Miskel, "Environment and Geography as Root Influences for Terrorism," in James J. F. Forest (ed.), *The Making of a Terrorist*. Westport, CT: Praeger Security International, 2005; and Angel Rabasa, Steven Boraz, Peter Chalk, Kim Cragin, Theodore W. Karasik, Jennifer D. P. Moroney, Kevin A. O'Brien, and John E. Peters, *Ungoverned Territories: Understanding and Reducing Terrorism Risks*. St. Monica: RAND Corporation, 2007.
- [63] Harm De Blij, *Why Geography Matters - Three Challenges Facing America: Climate Change, the Rise of America, and Global Terrorism*. New York: Oxford University Press, 2005: 176-77; Justin V. Hastings, "Geography, Globalization, and Terrorism: The Plots of Jemaah Islamiyah," *Security Studies* 17, no. 3 (2008): 505-30.
- [64] Anna Simons, and David Tucker, "The Misleading Problem of Failed States: A 'Socio-Geography' of Terrorism in the Post-9/11 Era," *Third World Quarterly* 28, no. 2 (2007): 387-401; Ignacio Sánchez-Cuenca, and Luis De la Calle, "What We Talk About When We Talk About Terrorism," *Politics and Society* 39, no. 3 (2011).
- [65] For instance, Fortna finds that those rebel groups that engage in terrorism are not necessarily the weaker ones, but rather include several strong ones. Page Fortna, "Do Terrorists Win? Rebels' Use Of Terrorism And Civil War Outcomes," Working Paper Draft (2011): 41. Other authors add that civil war terrorism tends to occur when these rebels are losing power and becoming weaker: Stathis N. Kalyvas, "The Paradox of Terrorism in Civil War," *The Journal of Ethics* 8 (2003): 97-138; Nicholas Sambanis, "Terrorism and Civil War," in: Philip Keefer and Norman Loayza (eds.) *Terrorism, Economic Development, and Political Openness*. Cambridge: University Press, 2008; Reed M. Wood, "Rebel capability and strategic violence against civilians," *Journal of Peace Research* 47, no. 5 (2010).
- [66] Michael G. Findley and Joseph K. Young, "Terrorism and Civil War: A Spatial and Temporal Approach to a Conceptual Problem," *Perspectives on Politics* 10, no. 2 (2012).
- [67] Ignacio Sánchez-Cuenca, and Luis De la Calle, "What We Talk About When We Talk About Terrorism," *Politics and Society* 39, no. 3 (2011): 456.
- [68] This offers a solution to recent debates about whether to define terrorism in the action or the actor sense. For instance, the action-centered approach is defended by Findley and Young in response to Sanchez-Cuenca and De la Calle's call for a more actor-centered approach: Michael G. Findley and Joseph K. Young, "Terrorism and Civil War: A Spatial and Temporal Approach to a Conceptual Problem," *Perspectives on Politics* 10, no. 2 (2012).
- [69] Transnational terrorism is commonly thought of as terrorism that crosses national borders in one of several ways, including but not limited to: groups consisting of members from multiple nationalities and having goals that apply to entire regions or the entire globe; groups operating beyond the borders of their home-country; perpetrators and victims being from different countries regardless of the location of the attack; attacks on embassies; airplane hijackings, and so on. These criteria must be carefully selected when choosing a definition, because transnational terrorism is not a singular phenomenon; it can be divided into various sub-types ranging from regional, internationalized, and global. Cf.: Jaideep Saikia, and Ekaterina Stepanova (eds.), *Terrorism: Patterns of Internationalization* (New Delhi: Sage Publications India Pvt Ltd, 2009).
- [70] As noted by Stuart Elden, "Terror and Territory," *Antipode* 39, no. 5 (2007): 821-45, 828-831.
- [71] Donald Black, "The Geometry of Terrorism," *Sociological Theory* 22, no. 1 (2004): 14-25. Other views that link terrorism with globalization include: Audrey Kurth Cronin, "Behind the Curve: Globalization and International Terrorism," *International Security* 27, no. 3 (2002): 30-58. See also Harm De Blij, *Why Geography Matters - Three Challenges Facing America: Climate Change, the Rise of America, and Global Terrorism*. Oxford: University Press, 2005; Justin V. Hastings, "Geography, Globalization, and Terrorism: The Plots of Jemaah Islamiyah," *Security Studies* 17, no. 3 (2008): 505-30; and Colin Flint, "Dynamic Meta-Geographies of Terrorism: The Spatial Challenges of Religious Terrorism and the 'War on Terrorism,'" in Colin Flint (ed.), *The Geography of War and Peace*. Oxford: University Press, 2005: 97-106.
- [72] Colin Flint, "Dynamic Meta-Geographies of Terrorism: The Spatial Challenges of Religious Terrorism and the 'War on Terrorism,'" in Colin Flint (ed.), *The Geography of War and Peace*. Oxford: University Press, 2005; and Colin Flint, "Terrorism and Counterterrorism: Geographic Research Questions and Agendas," *The Professional Geographer* 55, no. 2 (2003): 162-69.
- [73] Harm De Blij, *Why Geography Matters - Three Challenges Facing America: Climate Change, the Rise of America, and Global Terrorism*. Oxford: University Press, 2005: 176-177, 152. See also: John C. Rock, "The Geographic Nature of Terrorism," *The Pennsylvania Geographer* 44 (2006): 2. Also available from [http://www.ontology.buffalo.edu/smith/courses01/papers/Rock\(Geo\).pdf](http://www.ontology.buffalo.edu/smith/courses01/papers/Rock(Geo).pdf) (accessed June 2, 2012).
- [74] Colin Flint, and Steven M. Radil, "Terrorism and Counter-Terrorism: Situating Al-Qaeda and the Global War on Terror within Geopolitical Trends and Structures," *Eurasian Geography and Economics* 50, no. 2 (2009): 150-71. However, Clem provided some criticisms of their empirical approach: Ralph S. Clem, "The Geopolitics of Terrorism: A Commentary on Flint and Radil's Approach," *Eurasian Geography and Economics* 50, no. 2 (2009): 172-83. Lizardo and Bergesen added a temporal dimension to this argument, where transnational terrorism against
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the core of the world system is most frequent during times of hegemonic decline. Omar A. Lizardo, and Albert J. Bergesen, "Types of Terrorism by World System Location," *Humboldt Journal of Social Relations* 27, no. 2.

[75] Harm De Blij, *Why Geography Matters - Three Challenges Facing America: Climate Change, the Rise of America, and Global Terrorism*. Oxford: University Press, 2005.

[76] Eric Neumeier, and Thomas Plümper, "Galton's Problem and Contagion in International Terrorism Along Civilizational Lines," *Conflict Management and Peace Science* 27, no. 4 (2010): 308 - 325.

[77] As noted by: James Derrick Sidaway, "Geopolitics, Geography, and 'Terrorism' in the Middle East," *Environment and Planning D: Society and Space* 12, no.3 (1993): 357-72.

[78] Walter Enders, and Todd Sandler, "Distribution of Transnational Terrorism among Countries by Income Class and Geography after 9/11," *International Studies Quarterly* 50, no. 2 (2006): 367 - 93.

[79] S. Brock Blomberg and Gregory D. Hess, "From (No) Butter to Guns? Understanding the Economic Role in Transnational Terrorism," in Philip Keefer, and Norman Loayza (eds.), *Terrorism, Economic Development, and Political Openness*. Cambridge: University Press, 2008, 97-98.

[80] Ogen Goldman, "The Globalization of Terror Attacks," *Terrorism and Political Violence* 23, no. 1 (2011): 55.

[81] Gary LaFree, Nancy Morris, and Laura Dugan, "Cross-National Patterns of Terrorism: Comparing Trajectories for Total, Attributed and Fatal Attacks, 1970–2006," *The British Journal of Criminology* 50, no. 4 (2010): 622-49.

[82] David Kilcullen, *The Accidental Guerrilla: Fighting Small Wars in the Midst of a Big One*. Oxford: University Press, 2011.

[83] P. H. Liotta, and James F. Miskel, "Environment and Geography as Root Influences for Terrorism," in James J. F. Forest (ed.), *The Making of a Terrorist*. Westport, CT: Praeger Security International, 2005.

[84] Max Abrams, "The Political Effectiveness of Terrorism Revisited," *Comparative Political Studies* 45, no. 3 (2012).

[85] Daanish Mustafa, "The Terrible Geographicalness of Terrorism: Reflections of a Hazards Geographer," *Antipode* 37, no. 1: 72-92, 82.

[86] H. V. Savitch, *Cities in a Time of Terror: Space, Territory, and Local Resilience*. Armonk, N.Y.: M. E. Sharpe, Inc., 2007, 135-138.

[87] Ilufoye Sarafa Ogundiya, "Beyond the 'Geography of Terrorism and Terror of Geography' Thesis: Corruption and the Development Tragedy in the Niger Delta Region," *Journal of Developing Societies* 27, no. 1 (2011): 57-91.

[88] For a brief review of the economic terrorism literature, see: Ignacio Sánchez-Cuenca, and Luis De la Calle, "Rebels without a Territory: An Analysis of Nonterritorial Conflicts in the World, 1970–1997," *Journal of Conflict Resolution* 56, no. 4 (2012): 597.

[89] Pinar Derin-Güre, "Does Terrorism Have Economic Roots?" Working Paper Series no. 1 (Department of Economics, Boston University, Boston, 2009), <http://ideas.repec.org/p/bos/wpaper/wp2009-001.html> (accessed November 16, 2011).

[90] Kadir Akyuz, and Todd Armstrong, "Understanding the Sociostructural Correlates of Terrorism in Turkey," *International Criminal Justice Review* 21, no. 2 (2011): 134-55.

[91] James A. Piazza, "Poverty, Minority Economic Discrimination, and Domestic Terrorism," *Journal of Peace Research* 48, no. 3 (2011): 339-53.

[92] Ana Belo Santos Bravo, and Carlos Manuel Mendes Dias, "An Empirical Analysis Of Terrorism: Deprivation, Islamism And Geopolitical Factors," *Defense and Peace Economics* 17, no. 4 (2006).

[93] Ignacio Sánchez-Cuenca, and Luis De la Calle, "What We Talk About When We Talk About Terrorism," *Politics and Society* 39, no. 3 (2011): 451-72. This observation was apparently developed in the writings of early scholars of political violence in the 1960s, as described in: Nicholas Sambanis, "Terrorism and Civil War," in: Philip Keefer and Norman Loayza (eds.) *Terrorism, Economic Development, and Political Openness*. Cambridge University Press, 2008: 196.

[94] Savitch and Ardashev found three groups of cities that were experiencing terrorism: those that were attacked from the outside for their global or regional status to gain publicity; those that had populations ready to be mobilized for violence, such as prisoners, unemployed, and people from segregated communities, as well as leaders with access to weaponry; and those that were poorly managed and failed to provide for large parts of their populations, thus creating substantial grievances that motivate some to resort to terrorism. It is the second and third group of cities that are interesting here since they focus on how cities can be the breeding ground and root cause of its own terrorism. However, the first group is of interest later in the article when the focus is on how some cities are the targets but not the cause of terrorism. H. M. Savitch and Grigoriy Ardashev, "Does terror have an urban future," *Urban Studies* 38, no. 13 (2001). If cities cause terrorist-related grievances by bringing together socially diverse peoples, this may explain why a study on Turkey found the number of ethnic groups to be a predictor of terrorism at the provincial

level: Kadir Akyuz, and Todd Armstrong, "Understanding the Sociostructural Correlates of Terrorism in Turkey," *International Criminal Justice Review* 21, no. 2 (2011): 134-55.

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[96] James A. Piazza, "The Opium Trade and Patterns of Terrorism in the Provinces of Afghanistan: An Empirical Analysis," *Terrorism and Political Violence* 24, no. 2 (2012): 213-34.

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[100] Some argue that socio-spatial network analysis may be particularly beneficial when studying terrorist groups that have adapted to nomadic, migratory lifestyles: Olivier Walther and Denis Retail , "Sahara or Sahel? The Fuzzy Geographies of Terrorism in West Africa," Working Paper Series no. 35 (CEPS/INSTEAD, Luxembourg, 2010), <http://www.ceps.lu/pdf/3/art1577.pdf>; accessed October 31, 2011.

[101] Brent L. Smith, Jackson Cothren, Paxton Roberts, and Kelly R. Dampousse, "Geospatial Analysis of Terrorist Activities: The Identification of Spatial and Temporal Patterns of Preparatory Behavior of International and Environmental Terrorists," U.S. Department of Justice (2008), <https://www.ncjrs.gov/pdffiles1/nij/grants/222909.pdf>; accessed January 8, 2012.

[102] Ronald V. Clarke, and Graeme R. Newman, "Outsmarting the Terrorists," Westport, CN: Praeger, 2006: 154. See also: H. V. Savitch, *Cities in a Time of Terror: Space, Territory, and Local Resilience*. Armonk, N.Y.: M. E. Sharpe, Inc., 2007, 135-138.

[103] D. Kim Rossmo, and Keith Harries, "The Geospatial Structure of Terrorist Cells," *Justice Quarterly* 28, no. 2 (2011): 221-48.

[104] Claude Berrebi, and Darius Lakdawalla, "How Does Terrorism Risk Vary across Space and Time? An Analysis Based on the Israeli Experience," *Defence and Peace Economics* 18, no. 2 (2007): 113-33.

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[106] Multiple causal explanations are given in: H. M. Savitch, and Grigoriy Ardashev, "Does terror have an urban future," *Urban Studies* 38, no. 13 (2001); Stephen Graham (ed.) *Cities, War, and Terrorism: Towards an Urban Geopolitics*. Oxford: Blackwell, 2004; Edward L. Glaeser, and Jesse M. Shapiro, "Cities and Warfare: The Impact of Terrorism on Urban Form," National Bureau of Economic Research Working Paper no. 8696 (2001), <http://www.nber.org/papers/w8696.pdf> (accessed on October 10, 2011); Saskia Sassen, "When the City Itself Becomes a Technology of War," *Theory, Culture & Society* 27, no. 6 (2010). Similar to this article's focus on territorial and non-territorial terrorism, it is not only cities in the developed world that become targeted by terrorism, but also cities in the developing world: Jo Beall, "Cities, Terrorism and Development," *Journal of International Development* 18, no. 1 (2006).

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[108] Claude Berrebi, and Darius Lakdawalla, "How Does Terrorism Risk Vary across Space and Time? An Analysis Based on the Israeli Experience," *Defence and Peace Economics* 18, no. 2 (2007): 113-33; Richard M. Medina, Laura K. Siebeneck, and George F. Hepner, "A Geographic Information Systems (GIS) Analysis of Spatiotemporal Patterns of Terrorist Incidents in Iraq 2004-2009," *Studies in Conflict & Terrorism* 34, no. 11 (2011): 862-82. Sadik Toprak, "The New Face of Terrorism in Turkey: Actor Unknown Political Murders," *Journal of Forensic Sciences* 54, no. 6 (2009): 1388-92; and Suleyman Demirci and I-Shian Suen, "Spatial Pattern Analysis of PKK-Kongra GEL Terror Incidents in Turkey: 2003-2004," in *Understanding and Responding to the Terrorism Phenomenon - a Multi-Dimensional Perspective* (Netherlands: IOS Press, 2007); Gary LaFree, Laura Dugan, Min Xie, and Piyusha Singh, "Spatial and Temporal Patterns of Terrorist Attacks by ETA 1970 to 2007," *Journal of Quantitative Criminology* 28, no. 1 (2012): 7-29.

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- [160] The origin of this quote is unclear, but believed by some to be part of a comedy act by Paul Rodriguez in 1987. There seems to be no credible evidence that the quote is from Ambrose Bierce, who is also believed to be the originator of the quote. For further information please see <http://www.ambrosebierce.org/notices.html> (accessed December 19, 2012).
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