Hot Spots of Terrorism and Other Crimes in the United States, 1970 to 2008

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START
The National Consortium for the Study of Terrorism and Responses to Terrorism
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About This Report

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EXECUTIVE SUMMARY

While efforts are increasingly aimed at understanding and identifying "hot spots" of ordinary crime, little is known about the geographic concentration of terrorist attacks. What areas are most prone to terrorism? Does the geographic concentration of attacks change over time? Do specific ideologies motivate and concentrate terrorist attacks? Moreover, what factors increase the risk that an attack will occur in a particular area? Using recently released data from the Global Terrorism Database, we address these gaps in our knowledge by examining county-level trends in terrorist attacks in the United States from 1970 through 2008. This research was motivated by issues related to three research areas:

- *1. Geographic Concentration of Terrorist Attacks*

We ask whether certain U.S. counties act as hot spots for terrorist attacks. More than 2,600 terrorist events occurred in the United States between 1970 and 2008. Following past criminological practice, we define hot spots of terrorist attacks as areas experiencing more than the average number of events. While there is evidence of the geographic concentration of terrorist attacks in particular counties (hot spots of terrorist attacks), the data also show that terrorism is widely dispersed, occurring in every state in the country. In total, 65 counties (out of a total of 3,143 U.S. counties) were identified as hot spots of terrorist attacks. While many of these were large, urban city centers (Manhattan, Los Angeles, Miami Dade, San Francisco, Washington DC), terrorist events also cluster in small, more rural counties as well (e.g., Maricopa County, AZ; Middlesex County, MA; Dakota County, NE; Harris County, TX). While the overall percentage of terrorist attacks that result in fatalities is low, the geographic distribution of these events remained similar with large urban centers predominating and yet a good deal of activity in smaller areas as well.

When broken down by decade, stability is clearly demonstrated with Manhattan and Los Angeles remaining hot spots of activity across each decade. However, other areas are better characterized as temporary hot spots. For instance, in recent years Maricopa County, AZ, has emerged as a hot spot of terrorist attacks. Conversely, King County, WA, experienced high rates of terrorism in the 1970s and 1980s only.

We also ask whether certain counties are prone to a particular type of terrorist attacks (e.g., extreme left-wing, extreme right-wing, ethno-nationalist/separatist, etc.). Ideological motivation could be coded for 1,674 terrorist attacks (64% of all terrorist events from 1970 to 2008) occurring in 475 U.S. counties. Looking at five ideological categories, 88 counties experienced extreme right-wing terrorism (44 counties were identified as hot spots), 120 counties experienced extreme left-wing terrorism (24 counties were identified as hot spots), 26 experienced religiously motivated terrorist acts (3 counties were identified as hot spots), 56 experienced ethno-nationalist/separatist terrorism (6 counties were identified as hot spots), and 185 experienced single issue events (43 counties were identified as hot spots).

When assessing time trends in terrorist attacks we found that the majority of extreme left-wing terrorism was concentrated in the 1970s and ethno-national/separatist terrorism was concentrated in the 1970s and 1980s. Religiously motivated attacks occurred predominately in the 1980s, extreme right-wing terrorism was concentrated in the 1990s, and single issue attacks were dispersed across the last three decades (1980s, 1990s, and 2000s).

- *2. Terrorism and Ordinary Crime*

Our second question asked to what extent ordinary crime correlates with terrorist attacks in the United States. At the county level we find significant correlations between terrorist attacks and total index crimes (based on the Uniform Crime Report (UCR) Crime Index[1]) and homicides (examined for all counties, those with more than 50,000 people, and those with more than 100,000 people). Although the relationship was statistically significant, it was far from a perfect correlation. While terrorism occurs in high-crime areas more than we would expect by chance, it is not limited to high-crime areas.

- *3. Predicting Geographic Concentrations of Terrorist attacks*

With our final question we ask whether traditional predictors of ordinary crime also predict terrorist attacks. We draw heavily upon traditional ecological theories of ordinary crime, specifically social disorganization theory.

In particular, we examine population density, concentrated disadvantage, residential mobility, the percentage of the population that is foreign-born, language diversity, and racial and ethnic composition. In a multivariate analysis with these variables, we found that index crime, residential stability, and language diversity all remain significant predictors of the location of terrorist attacks. Population density, the percentage of the population that is foreign-born, and the percentage of the population that is non-Hispanic white were not significant in the full models.

Key Conclusions

Like ordinary crime, terrorism hot spots are predominately located in large, metropolitan areas. While some locales remain targets of terrorist attacks, to a large extent hot spots of terrorist attacks demonstrate a significant amount of variability over time. Moreover, we find significant variability in the ideologies motivating terrorist attacks across decades.

Terrorism and ordinary crime occur in many of the same areas. We find that while some traditional predictors of ordinary crime also predict terrorist attacks, many robust correlates of ordinary crime do not. These data were limited in some respects; much more work in this area is needed to fully understand the linkages between terrorism and ordinary crime.

[1] The UCR Index crimes include homicide, rape, robbery, aggravated assault, burglary, arson, auto theft and larceny.

INTRODUCTION

The importance of understanding terrorism in the United States assumed heightened prominence in the wake of 9-11. Yet, surprisingly little is known about general patterns of terrorist attacks in the United States, including where attacks are most likely to occur, whether "hot spots" of terrorist attacks remain the same over time, and whether attacks related to different ideologies cluster in specific geographic areas. Additionally, there is a dearth of research aimed at understanding whether certain geographic areas possess characteristics that elevate their chances for experiencing terrorist attacks.

Using data from the Global Terrorism Database (GTD) we address some of the gaps in the extant knowledge about the possible geographic concentration of terrorism by examining county-level trends of terrorist attacks in the U.S. from 1970 through 2008. We begin by evaluating patterns of all U.S. terrorist attacks as well as terrorist acts motivated by specific ideologies. That is, do certain counties act as hot spots for terrorist attacks, and are certain areas prone to particular types of terrorist attacks? Then, we compare the county-level distribution of terrorist attacks with county-level distributions of ordinary crime to assess the extent to which terrorism "maps" on to traditional criminal activity. Finally, we examine whether traditional predictors of ordinary crime (e.g., concentrated disadvantage, residential instability, demographic composition) also predict terrorism in communities.

Identifying Clusters of Extremist Violence

A growing body of research finds that certain areas are "hot spots" of criminal activity (Sherman, Gartin and Buerger 1989). That is, ordinary crime is not randomly dispersed across areas, but is instead systematically concentrated in a few areas. In fact, research has shown that the clustering of ordinary crime in geographic areas is stronger than the clustering of ordinary crime among individuals. As a result, the prediction of where ordinary crime occurs may be easier than the prediction of who commits ordinary crime. Specifically, Sherman demonstrated that ordinary crime is "six times more predictable by the address of the occurrence than by the identity of the offender" (Sherman 1995:36-37). Moreover, while geographic areas do change (e.g., changes in population composition, land use) research has demonstrated that ordinary crime hot spots are relatively stable over extended periods of time (Weisburd et al. 2004).

While efforts aimed at understanding and reacting to ordinary crime hot spots continue to grow, an understanding of whether hot spots of terrorism exist – and if so, what factors contribute to an area being a hot spot of terrorism – is negligible. Because of this important oversight in research, a good deal of attention has recently centered on examining trends in terrorist attacks in general and on the identification of terrorist hot spots specifically.

Similar to the spatial analysis of ordinary crime, there are compelling reasons to expect that patterns of terrorist attacks will be geographically clustered. In fact, recent research outside of criminology has shown that diverse social phenomena are highly concentrated, from e-mail communication (Barabasi, 2005; Vasquez, 2005) to word usage in text (Madsen, Kauchak, and Elkan, 2005) to violent conflict (Bohorquez et al., 2009; Zhu, Han, and Wang, 2010; Braithwaite and Johnson, forthcoming). For example, in a study of insurgent attacks in Iraq following the U.S.-led invasion in 2003, Townsley, Johnson, and Ratcliffe (2008) found that improvised explosive device (IED) attacks in Iraq were heavily concentrated geographically and that distances between attacks were set to maximize efficiency without increasing the

risk of capture. Similarly, Johnson and Braithwaite (2009) examined the presence of chains of IED and non-IED attacks in Iraq among insurgents and found evidence that both were highly concentrated in geographical space. A study by LaFree et al. (2011) on attack patterns in Spain by the terrorist organization ETA found that attacks were heavily concentrated in the four main Spanish provinces claimed as a homeland by the organization, and about forty percent of all attacks in a given province were immediately followed by another attack in the same province. This heavy concentration of terrorist attacks by ETA is confirmed in research by Behlendorf, LaFree, and Legault (forthcoming), which found very high geographic concentrations for attacks not only by ETA in Spain, but also by the FMLN in El Salvador.

Overall, we assume that the structure of potential targets and victims of terrorist attacks are not randomly distributed throughout space, suggesting that terrorist acts will likewise be non-random (Siebeneck et al., 2009). Concurrently, terrorist operations are resource-dependent, and efforts to extract the largest return on investment suggest that groups will normally seek to minimize the distance traveled between events (Clarke and Newman, 2006). We would expect that these distances will be close enough to maximize efficiency without increasing the risk of capture (Townsley, Johnson, and Ratcliffe, 2008). Certain locations may also provide unique targets for terrorist attacks, due to their population concentration, political value, or symbolic resonance (Savitch, 2007). Moreover, terrorist organizations must rely on specific locations to provide physical resources and safe havens from state authorities. These "defended spaces" (Suttles, 1972) may supply critical support from sympathizers and may share the same ethnic or linguistic association as the specific terrorist group. The concentration of potential targets combined with the resource maximization of terrorist organizations leads us to predict that terrorist attacks in the United States during the past four decades will also be spatially clustered.

Characteristics of Clusters of Violent Extremism

One useful way to examine the distribution of extremist violence is to determine the extent to which the distribution in time and space of terrorism is correlated with ordinary criminal behavior. There is currently a debate about this correspondence in criminology. While LaFree and Dugan (2004) point out that terrorism differs from ordinary crime in several important ways, Clarke and Newman (2006, vii) argue that "terrorism is a form of crime in all essential respects" and predict that terrorist attacks will cluster in time and space in the same way as ordinary crimes. As stated in the previous section, we address this issue by comparing the county-level distribution of ordinary crime with that of terrorism. Specifically, we compare the county-level measures of violent extremism collected for this project with the most widely used data on ordinary crime in the United States—the Uniform Crime Reports (UCR) collected by the Federal Bureau of Investigation. Further, we examine the extent to which traditional community-level predictors of ordinary crime such as socioeconomic status and demographic measures are also robust predictors of extremist violence across U.S. counties.

Social Disorganization Theory

Ecological theories examining connections between community-level measures such as economic disadvantage or residential instability have been common in the social sciences for nearly a century. The classic work of Shaw and McKay and their colleagues at the University of Chicago (1932; Shaw, McKay, and McDonald, 1938) spawned a massive body of research around the theme of social disorganization. Much of this work was animated by growing concern in the first half of the twentieth century with the impact of large-scale immigration on the social fabric of the United States and most particularly its impact on cities. As immigrants from around the world settled disproportionately in a few large urban centers,

they often experienced high rates of poverty, residential instability, and ethnic heterogeneity. These communities were widely held to be fertile ground for ordinary crime and other social problems.

After decades of research on ordinary crimes within communities it is clear that place matters. This body of research identifies a number of robust structural factors or community-level predictors of crime. Although many are not directly related to crime, a number of characteristics have been found to be related to the ability to acquire and mobilize resources. Previous research finds support for the strong predictive value of socioeconomic status and residential instability on crime (e.g., Krivo and Peterson, 1996; McNulty, 1999; Sampson et al., 1997); however, the evidence concerning ethnic heterogeneity (e.g., concentrated immigration) runs counter to theoretical expectations (Sampson et al., 2005). Recent research suggests that ethnic heterogeneity (operationalized as the percentage of the population that is foreign-born or percentage of the population who migrated to the U.S. in the last 10 years in a defined geographic area) is not related to increased crime (Martinez, Stowell, and Lee, 2010; Ousey and Kubrin, 2009; Reid et al., 2005; Sampson et al., 2005). Rather, concentrated immigration has been shown to be negatively related to crime (Sampson, 2008; Stowell et al., 2009; Wadsworth, 2010). Stated simply, ethnic heterogeneity appears to suppress crime (Sampson 2005).

Socioeconomic Status. Although Shaw and McKay (1932) originally linked crime to poverty in general, more recent advancements of this theory aimed at understanding patterns of crime in modern times have highlighted the role of *concentrated disadvantage* in explaining variation in crime levels across communities (Sampson and Wilson, 1995; Krivo and Peterson, 1996). The concentration of disadvantage (e.g., poverty, joblessness, female-headed households, heightened employment in menial occupations) results in areas and residents in these areas being socially isolated from mainstream America and generally lacking an ability to mobilize resources to ward off crime. The relationship between higher disadvantage and higher crime has received consistent empirical support (see e.g., Krivo and Peterson, 1996; Kubrin and Weitzer, 2003; Morenoff, Sampson and Raudenbush, 2001).

There is reason to believe that socioeconomic status, and specifically concentrated disadvantage, may not exhibit a similar relationship when examining terrorist attacks. Theoretically, concentrated disadvantage has been used to explain high rates of violent offending among predominantly African American populations. Empirically, previous research examining various types of terrorism finds that the individuals who comprise terrorist groups are often more educated and skilled than their counterparts (Bakker, 2006; Kepel, 2005; Krueger and Maleckova, 2003; Pape, 2005; Russell and Miller, 1977; Sageman, 2004) and therefore may be unlikely to reside in areas characterized by extreme disadvantage.

Residential Instability. A substantial body of research has also demonstrated a strong link between residential instability and higher crime rates. Similar to the relationship described above between concentrated disadvantage and crime, a heightened level of mobility in a neighborhood destabilizes the community by weakening social ties, impeding communication, and undermining the ability of residents of communities to establish and uphold norms in their neighborhoods (Bellair, 1997; Sampson and Groves, 1989; Sampson, Raudenbush and Earls, 1997). As a result, crime increases in highly transient neighborhoods.

At present we know of no prior research that specifically examines the connection between residential instability and terrorism. However, to the extent that weak social ties with neighbors, limited

communication and feelings of isolation or alienation are higher in communities with greater residential instability we might expect a positive connection to terrorism.

Ethnic Heterogeneity. The expectation that the level of ethnic heterogeneity in a community would be related to crime has historical roots in the dramatically changing the urban landscape of the early 20th century. With massive numbers of immigrants of various European origins flocking to cities, urban communities were rapidly transformed into centers of diversity, the result of which was not immediately positive. An inherent byproduct of immigration is that not only do individuals migrate to new areas, but these individuals bring with them sets of rules, norms, and mores unique to their homelands. These values are often different from and sometimes in opposition to the dominant values in the host society as well as the values of other immigrants. As a result, the communities in which concentrations of immigrants initially settle are characterized by volatility as groups of individuals – each acting in accordance with its own set of rules – come in contact with one another.

With the United States once again experiencing a surge in the number of individuals migrating to the country, emphasis has again been placed on understanding the link between ethnic heterogeneity and crime. Researchers have operationalized ethnic heterogeneity as the percentage of immigrants (percentage of the population that is foreign-born) residing in specified geographic areas. Contrary to theoretical expectations, this body of work has demonstrated that concentrations of immigrants in geographic areas (cities, census tracts, neighborhoods) are not associated with crime (see e.g., Martinez, Stowell, and Lee, 2010; Ousey and Kubrin, 2009; Reid et al., 2005; Sampson et al., 2005) and may instead function to suppress crime (Sampson, 2008; Stowell et al., 2009; Wadsworth, 2010). This unexpected finding may be due to the use of the percentage of the population that is foreign-born as the measure of ethnic heterogeneity. This measure presumably taps into the spatial concentration of immigrants. Graif and Sampson (2010) have argued that a more valid measure of the heterogeneity construct is the diversity of language use by the immigrant population in the community. That is, a community could have a high concentration of foreign-born people, yet if they are all from the same country then the community would not be ethnically heterogeneous. A more accurate characterization of the social disorganization theory concept of ethnic heterogeneity is a measure of the diversity of the composition of the population residing in the same geographic locale. Looking at variation in homicide rates across Chicago city census tracts, Graif and Sampson find that their measure of ethnic heterogeneity (i.e., language diversity) is negatively related to homicide even in models controlling for the percentage of the population that is foreign-born.

Though Graif and Sampson (2010) find that population diversity is negatively related to homicide, there is debate in the literature about the potential impact of diversity in a community. Some argue that diversity adversely affects community relations. For instance, Putnam (2007) has argued that at least in the short term neighborhood ethnic diversity reduces social solidarity and social capital thereby reducing social trust and increasing feelings of isolation. In support of his argument, Putnam finds that in the United States, higher levels of ethnic diversity in a neighborhood are related to lower levels of trust. Shihadeh and Barranco (2010) also find negative consequences of diversity and particularly linguistic isolation. Specifically, they found that counties characterized by a greater proportion of linguistically isolated households (i.e., English non-fluency) experienced more homicide. On the other hand, some have argued (see, e.g., Lazear, 1999; Fischer, 1975) that diversity is advantageous for immigrants and communities more generally. The idea is that greater diversity encourages the learning of the dominant group's language/culture, promoting assimilation whereas less diverse areas (with perhaps strong ethnic

enclaves) encourage the maintenance of traditional language and culture, hindering communication with the dominant group and potentially promoting the maintenance of alternate norms.

Despite the long-standing interest of researchers in potential connections between population heterogeneity and crime, far fewer researchers have examined if these variables are related to involvement in extremist crime or terrorism in the United States. If Clarke and Newman's (2006: vii; see also LaFree and Dugan, 2004; Rosenfeld, 2004) recent argument that "terrorism is a form of crime in all essential respects" is correct, then the theoretical underpinnings used to explain involvement in crime should apply to involvement in terrorist acts as well. Perhaps of greatest interest here is an understanding of the relationship between ethnic heterogeneity and terrorist attacks. If terrorism functions similar to ordinary crime, then diversity should not be related to terrorist attacks. Yet, there is reason to believe that this may not be the case. Along the lines of Putnam's (2007) argument, at least in the short term ethnic diversity may result in isolation or alienation and feelings of marginalization from the host community. For example, feelings of alienation in a diaspora community are often discussed along with the idea of a perceived schism between the West and traditional or "ethnic" values (see for example, Thachuk, Bowman, and Richardson, 2008). Feelings of alienation and marginalization could also potentially leave communities more vulnerable to recruitment by violent extremists promoting this schism, anti-American sentiment, or resistance to the government. While our research does not provide direct information on where those who resort to terrorism live, it does suggest that ethnic heterogeneity is significantly associated with the counties where terrorists attack.

DATA AND METHODOLOGY

Data

The data for this project come from a variety of sources including the Global Terrorism Database (GTD), the 2000 U.S. Census, and the Uniform Crime Reports (UCR).

The Global Terrorism Database (GTD) has been maintained since 2005 by the National Consortium for the Study of Terrorism and Responses to Terrorism (START; LaFree & Dugan, 2009). It currently includes data on the characteristics of over 98,000 terrorist attacks that occurred worldwide since 1970. The construction of the GTD began in 2002 with the computerization of data originally collected by the Pinkerton Global Intelligence Service (PGIS), a private company that recorded terrorism incidents from 1970 to 1997 from wire services (including Reuters and the Foreign Broadcast Information Service [FBIS]), U.S. State Department reports, other U.S. and foreign government reporting, U.S. and foreign newspapers (including the *New York Times*, British *Financial Times*, *Christian Science Monitor*, *Washington Post*, *Washington Times*, and *Wall Street Journal*), and information provided by PGIS offices around the world.

The GTD currently provides the most comprehensive unclassified data source for measuring terrorist attacks, including structured data on more than 120 variables for over 98,000 terrorist attacks committed by more than 2,000 terrorist organizations around the world since 1970.[2]

[2] During the past six years, the GTD has become a public resource, playing an important role for those who need access to objective, unbiased information about the dynamics of terrorism. Dozens of policy professionals and researchers have downloaded the data base or requested hard copies and the GTD

Terrorism

The definition of terrorism used by the GTD is: *the threatened or actual use of illegal force by non-state actors, in order to attain a political, economic, religious or social goal, through fear, coercion or intimidation*.[3] It is important to note that the classification of an event as terrorism depends as much on threats as the actual use of violence. For example, instances in which individuals seize an aircraft and threaten to blow it up unless their demands are met are defined as terrorist events. Note also that by specifying the threatened or actual use of force the definition of terrorism used by the GTD excludes hoaxes. The requirement that these events be limited to the actions of "non-state actors" means that considerable violence and terrorism that is directly attributable to states or their militaries is also excluded. And the requirement that the act have a direct political, economic, religious or social goal means that ordinary criminal violence is excluded. Thus, the GTD excludes state terrorism and many types of crime and genocide, topics that are important and complex enough to warrant their own separate analysis.

The frequency of terrorist acts is recorded for each U.S. county for each year from 1970 through 2008. Counties with no recorded terrorist attacks are coded "zero." The vast majority of U.S. counties have not experienced any terrorist attacks since 1970. Terrorist acts are also categorized by the ideological motivation of the act and coded as "extreme right-wing"; extreme left-wing; religious; ethno-nationalist/separatist; or single issue. The dominant ideology variable captures the group's central ideological motivation (e.g., while the Aryan Nations maintained a strong religious conviction to the Christian Identity movement, their raison d'être was to promote a racially homogenous white society).

Detailed information on each category of ideological motivation can be found in the Profiles of Perpetrators of Terrorism-United States report compiled by the National Consortium for the Study of Terrorism and Responses to Terrorism (Miller, Smarick, and Simone, 2011). Briefly, the report describes each category as follows:

> *Extreme Right-Wing*: groups that subscribe to aspects of the following ideals: they are fiercely nationalistic (as opposed to universal and international in orientation), anti-global, suspicious of centralized federal authority, reverent of individual liberty (especially their right to own guns, be free of taxes), believe in conspiracy theories that involve grave threat to national sovereignty and/or

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website (www.start.umd.edu/gtd) averages 1.5 million unique page hits per month. In June 2011 START released GTD data through 2010 with the expectation of annual spring releases of updated, new event data going forward.

[3] This was the original PGIS definition of terrorism applied from 1970 to 1997. When data collection was taken over by START in 2005, researchers required that two of the following three criteria also had to be met for inclusion in the data base: (1) the violent act was aimed at attaining a political, economic, religious, or social goal; (2) the violent act included evidence of an intention to coerce, intimidate, or convey some other message to a larger audience (or audiences) other than the immediate victims; and (3) the violent act was outside the precepts of International Humanitarian Law. These criteria were constructed to allow analysts and scholars flexibility in applying various definitions of terrorism to meet different operational needs. The data presented in this report include all cases that meet any two of these three criteria.

personal liberty and a belief that one's personal and/or national "way of life" is under attack and is either already lost or that the threat is imminent (sometimes such beliefs are amorphous and vague, but for some the threat is from a specific ethnic, racial, or religious group), and a belief in the need to be prepared for an attack either by participating in paramilitary preparations and training or survivalism. (2011: 26)

Extreme Left-Wing: groups that want to bring about change through violent revolution rather than through established political processes. This category also includes secular left-wing groups that rely heavily on terrorism to overthrow the capitalist system and either establish "a dictatorship of the proletariat" (Marxist-Leninists) or, much more rarely, a decentralized, non-hierarchical political system (anarchists). (2011: 24)

Religious: groups that seek to smite the purported enemies of God and other evildoers, impose strict religious tenets or laws on society (fundamentalists), forcibly insert religion into the political sphere (e.g., those who seek to politicize religion, such as Christian Reconstructionists and Islamists), and/or bring about Armageddon (apocalyptic millenarian cults; 2010: 17) For example, Jewish Direct Action, Mormon extremist, Jamaat-al-Fuqra, and Covenant, Sword and the Arm of the Lord (CSA) are included in this category (2011: 18).

Ethno-Nationalist/Separatist: regionally concentrated groups with a history of organized political autonomy with their own state, traditional ruler, or regional government, who have supported political movements for autonomy at some time since 1945 (2011: 18).

Single Issue: groups or individuals that obsessively focus on very specific or narrowly-defined causes (e.g., anti-abortion, anti-Catholic, anti-nuclear, anti-Castro). This category includes groups from all sides of the political spectrum (2010: 28).

Ordinary Crime

We use county-level data on "index" crimes (i.e., murder, rape, robbery, aggravated assault, burglary, auto theft, and arson) reported to the police from the Uniform Crime Reports (UCR) as our indicator of ordinary crime. Ordinary crime rates were computed by dividing the total number of ordinary crimes reported by the population size in the county per 100,000 people (# ordinary crimes/ (county population/100,000)). Additionally, because homicides are the most reliable measure of officially reported crimes, we use the county-level homicide rate as an indicator of ordinary crime as a robustness check of the findings for the entire UCR crime index.

Independent Variables

County-level indicators of social disorganization (i.e., socioeconomic status, residential instability, ethnic heterogeneity) and demographic characteristics found to be important predictors of ordinary crime are taken from the 2000 U.S. Census.

Socioeconomic Status. Consistent with recent research, our indicator of socioeconomic status captures the extent of concentrated disadvantage in counties. To construct this measure a factor analysis of the following variables was conducted: percentage of families below the poverty line, percentage of unemployed individuals in the civilian labor force, percentage of female-headed households with children under the age of 18, percentage of individuals in low-wage employment positions, and the percentage of

individuals receiving public assistance. Factor analysis indicated that all items loaded strongly on one component (alpha = .68). Regression scores were saved and used in the analyses below.

Residential Instability. Two variables are used to measure the level of residential instability in a county: percentage of 5-year-old or older residents who resided in the same household for 5 or more years prior to the survey and the percentage of owner-occupied housing units in the county. These two items are strongly correlated (r = .507; p = .000). Factor analysis indicated that the two items loaded strongly on one component (alpha = .68). Regression scores were saved and used in the analyses below.

Ethnic Heterogeneity. Following Graif and Sampson (2010), we propose that a more valid measure of the heterogeneity construct is the diversity of language use in a community. For instance, a large portion of the population of a county may be foreign-born, but if all the foreign-born in the county are from Mexico then the county is very ethnically homogeneous. However, if foreign-born in the county are from various countries, then that county is ethnically heterogeneous.

Our measure of language diversity refers to the language spoken at home and captures nearly 40 different languages including: English, Spanish or Spanish Creole, French, (including Patios and Cajun), French Creole, Italian, Portuguese or Portuguese Creole, German, Yiddish, other West Germanic languages, Scandinavian, Greek, Russian, Polish, Serbo-Croatian, other Slavic languages, Armenian, Persian, Gujarathi, Hindi, Urdu, other Indic languages, Indo-European languages, Chinese, Japanese, Korean, Mon-Khmer and Cambodian, Miao and Hmong, Thai, Laotian, Vietnamese, other Asian languages, Tagalog, other Asian Pacific Island languages, Navajo, other native North American languages, Hungarian, Arabic, Hebrew, and African languages. Language diversity is calculated using the Herfindahl formula:

$$L_t = 1 - (\sum \pi_r^2)_t$$

where t is the county, r is a particular language group in that county, π_r is the proportion of the population speaking that language in the county. Language diversity ranges from 0 to 1, where 0 indicates that the same language is spoken at home by all residents in the county. As the language diversity measure increases it indicates an increase in the proportion of the county's population that speaks different languages. In these data, language heterogeneity ranges from a high of .724 to a low of .008.

In addition, we use the traditional measures of ethnic heterogeneity – percentage of the population that is foreign-born and percentage of the recent population that is foreign-born – in our analytic models. The recent foreign-born variable captures the percentage of the population that has migrated to the United States since 1990. In addition to a general percentage of foreign-born item, we also examine the extent to which citizenship plays a role in these analyses. That is, among the foreign-born population, we examine whether the percentage of citizens (or conversely non-citizens) in a county is related to terrorist attacks.

Demographic Variables. The racial and ethnic composition of each county was measured using variables capturing the proportion of the population that is Black, non-Hispanic White, and Hispanic in a county.

Methodology

Research Question 1: Geographic Concentration of Terrorist Attacks

a: Do certain counties act as hot spots for terrorism?

b: Are certain counties prone to a particular type of terrorism (extreme left-wing, extreme right-wing, ethno-nationalist/separatist, religious, single issue)?

To examine patterns of terrorism across U.S. counties from 1970 to 2008, yearly data on the frequency of events in each county were used to create proportional symbol maps using ESRI ArcGIS v9.3 software. Although an agreed upon objective measure of hot spots does not exist, following Eck (2005) we see hot spots as areas with a greater than average number of terrorist events. However, due to the substantial variation in terrorist attacks across counties (with most never experiencing a terrorist attack and few experiencing a relatively high number of terrorist attacks) modification of this definition was needed. In addition to identifying counties with a larger than average number of terrorist events, we also identify the handful of counties that account for a large portion of terrorist attacks (the hottest of the hot spots).

Because terrorist attacks refer to an array of events with varying ideological motivations, we examine whether certain U.S. counties are prone to certain kinds of terrorism. For five different ideological motivation types, we examine whether certain counties are hot spots of each type of terrorism. Also, because we expect terrorist attacks to change over time, we examine terrorist attacks by ideology across four decades (1970s, 1980s, 1990s, and 2000s).

Research Question 2: Terrorism and Ordinary Crime

To what extent does ordinary crime correlate with terrorist attacks?

To examine the extent to which recent terrorist attacks in a U.S. county are correlated with ordinary crime, we examined bivariate correlations. Specifically, we correlated the frequency of terrorism in each county and in each year with the homicide rate and the total rate of index crimes occurring in the same county in the same year, during the period of 2000 to 2008.

Research Question 3: Predicting Geographic Concentrations of Terrorist Attacks

Do traditional predictors of crime (e.g., concentrated disadvantage, residential instability, demographic composition) also predict geographic concentrations of terrorist attacks?

Due to data availability limitations, the prediction analyses are conducted on data beginning in 2000. Poisson-based regression models were used here because of the count nature of the dependent variable and the high frequency of zeros (no terrorist attacks in a county) in the data (Osgood 2000). Because of the relatively low occurrence of terrorism in the United States during the period of 2000 to 2008, we sum all events during this time into a single indicator measuring the total number of terrorist attacks in each U.S. County from 2000 through to 2008. The county-level independent variables were all measured in 2000.

RESULTS

Before proceeding to the findings for the research questions posed here, we first present basic descriptive information regarding levels of terrorist attacks in the U.S. from 1970 to 2008. It is clear from the pattern shown in Figure 1 that the amount of terrorist attacks in general has decreased significantly since the highs of the 1970s. Whereas nearly 1,500 events took place in the 1970s (*n* = 1,496), just over 200 occurred from 2000 to 2008 (*n* = 211). The number of fatal attacks has also decreased over this same period of time from a high of 26 in the 1970 calendar year to a low of 15 for the entire 2000 to 2008 time period (see Figure 2). Finally, the percentage of attacks that were fatal over this time period is presented in Figure 3. While the percentage of attacks that were fatal was greatest in the 1973 calendar year (1973 = 41%), a significant proportion of attacks in recent years have been fatal (2001 = 24%; 2007 = 25%).

Figure 1. Number of Terrorist Attacks in the United States, 1970 - 2008

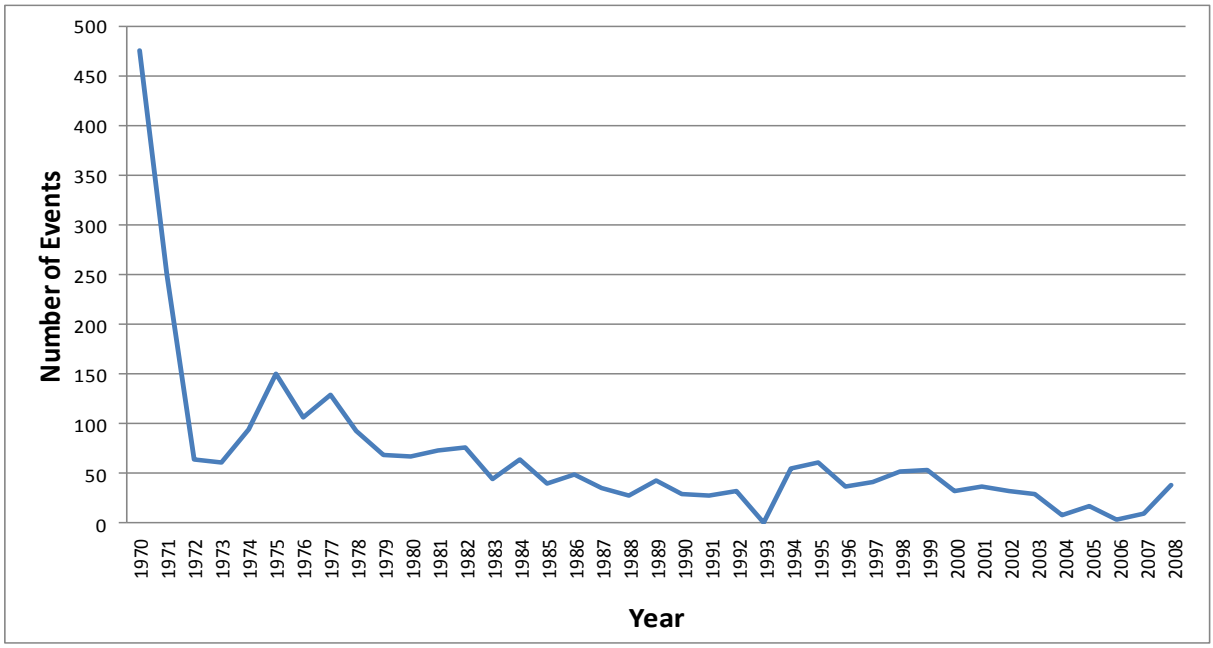


Figure 2. Number of Fatal Terrorist Attacks in the United States, 1970 – 2008

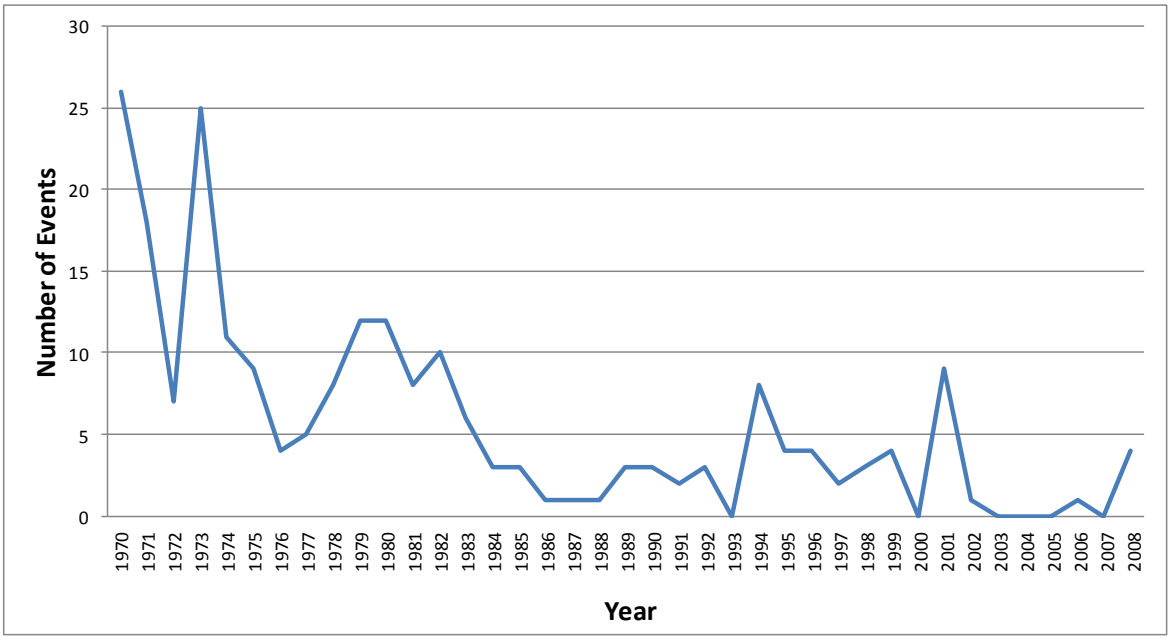
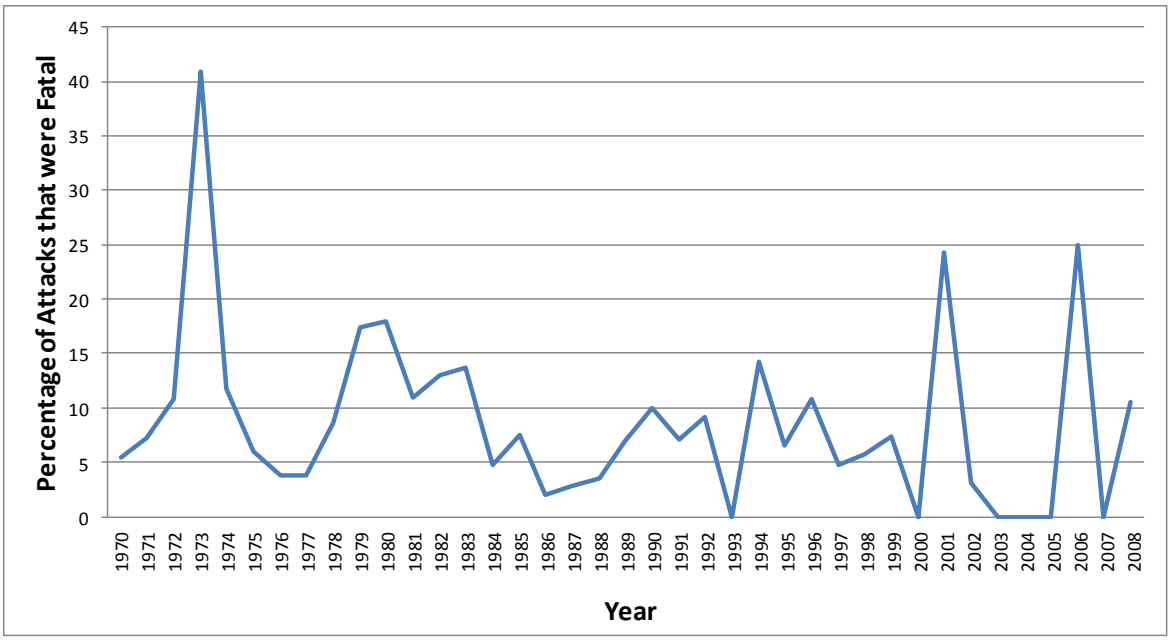


Figure 3. Percentage of Terrorist Attacks in the United States that Resulted in Fatalities, 1970 - 2008



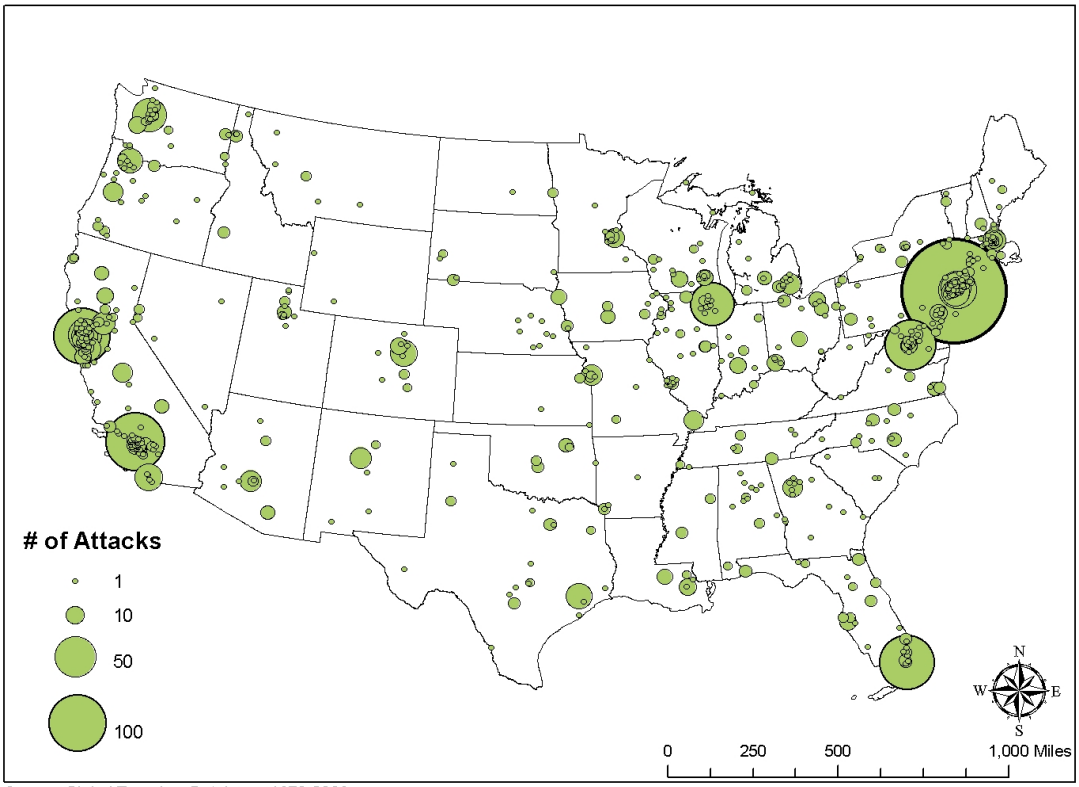
Research Question 1: Geographic Concentration of Terrorist Attacks

Hot Spots of All Terrorist Attacks and Fatal Terrorist Attacks

Proportional symbol maps were created to visually display the concentration of terrorist attacks across U.S. counties. The findings spanning the entire time period, from 1970 through to 2008, are presented in Figure 4. The size of the dots is proportional to the number of events taking place in an area (larger dots representing a high frequency of events). For ease of presentation, we exclude Alaska and Hawaii from

the heat maps; which taken together had 4 attacks from 1970 to 2008. Two patterns are clear from Figure 4: 1) a small number of areas account for a large portion of U.S. terrorist attacks, and 2) the impact of terrorist attacks is felt across the entire U.S. as terrorist attacks have occurred in each of the 50 states.

Figure 4. Geographic Concentration of Terrorist Attacks in the U.S., 1970 – 2008



Source: Global Terrorism Database, 1970-2008.
Note: 16 attacks are not shown due to missing geographic information.

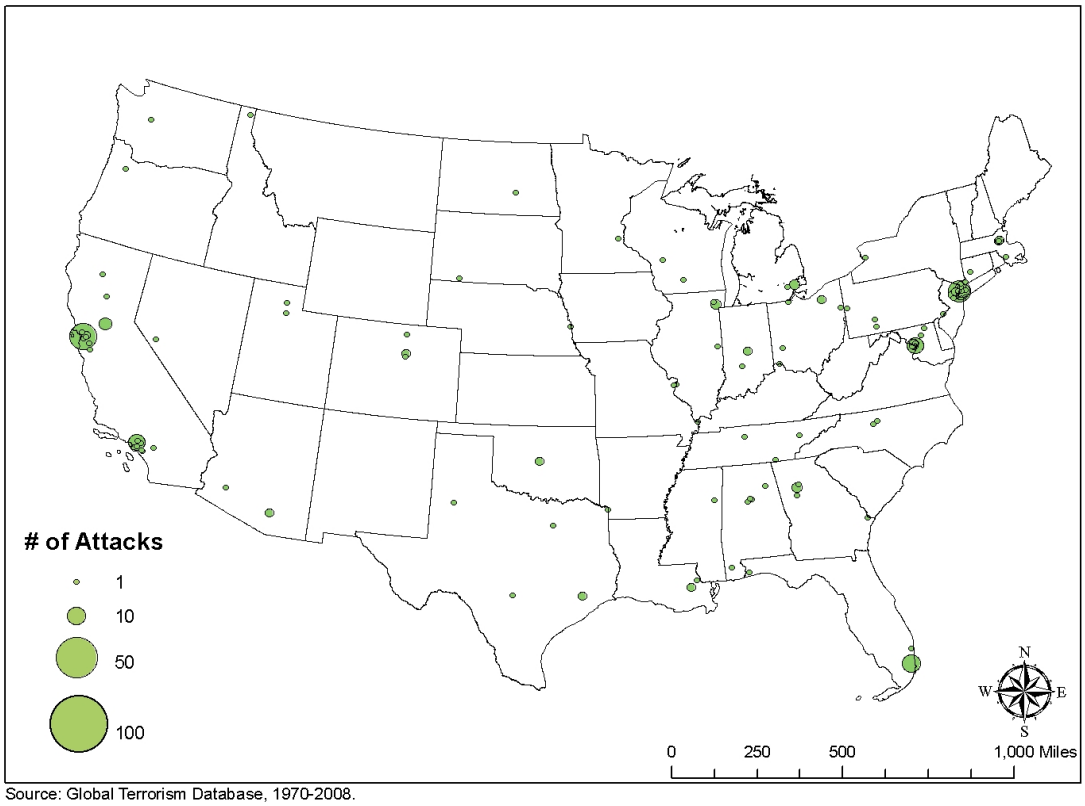
Using the definition of a hot spot as a county experiencing a greater than average number of terrorist attacks (mean = 6 attacks across the entire time period of 1970 to 2008), 65 counties were identified as hot spots (see Appendix for a complete listing of counties and number of events). In most instances, these hot spots do not appear to be isolated counties, but instead make up regions of concentrated attacks (i.e., the New York City area, the Los Angeles area, the San Francisco area, etc.). Despite the clustering of attacks in certain regions, it is also clear that hot spots are dispersed throughout the country and include places as geographically diverse as Maricopa County, AZ; Middlesex County, MA; Dakota County, NE; and Harris County, TX.

Nearly 30% of all attacks took place in just 5 counties. The largest number of events occurred in Manhattan County, NY (n = 343; 13.1%), followed by Los Angeles County, CA (n = 156; 6.0%), Miami-Dade County, FL (n = 103; 3.9%), San Francisco County, CA (n = 99; 3.8%), and Washington DC (79; 3.0%).

In Figure 5 we include a heat map for just those events that produced fatalities. In general, we find the same general pattern for fatal attacks as total attacks. That is, a small portion of counties account for a large portion of the attacks. Thus, San Francisco County had the largest number of fatal attacks (n = 22; 9.9%), followed by Manhattan County (n = 15; 6.8%), Los Angeles County(n = 12; 5.4%), Miami-Dade

County(n = 10; 4.5%) and Washington DC (n = 8; 3.6%). But at the same time, fatal terrorist attacks are widely distributed across the United States.

Figure 5. Geographic Concentration of Fatal Terrorist Attacks in the U.S., 1970 - 2008



Source: Global Terrorism Database, 1970-2008.

While Manhattan and Los Angeles remain hot spots of terrorist attacks in each decade from the 1970s to 2000s, there is some variation in the locations of the top hot spots when the data are broken down by decade. For instance, while San Francisco and Cook County, IL, were counties with hot spots of terrorist attacks in the 1970s, by the 1980s terrorist events were occurring more often in Washington DC and Miami-Dade, FL. Recently, San Diego County, CA, and Maricopa County, AZ, have become hot spots of terrorist attacks.

Hot Spots of Terrorist Attacks by Ideological Motivation

We were also interested in what patterns of terrorist attacks looked like once events were distinguished by ideological motivation. For example, are there hot spots of extreme right-wing terrorist events? Patterns of terrorist attacks motivated by specific ideologies were examined in two ways. First, we examined whether type of terrorist attacks clustered in place (county) and time (decade). A strategy for identifying hot spots parallel to the one detailed above was used for the following analyses. Second, we assessed the extent to which terrorist attacks motivated by specific ideologies were correlated with time (decade).

Recall that our operational definition of hot spots here is a purely statistical one based on the identification of locations that experience a total number of events that is above the mean. Due to the relatively low occurrence of events when disaggregated by ideological motivation this results in a relatively low threshold

for hot spots related to specific ideologies. For example, of the total 88 counties experiencing an extreme right-wing terrorist attack, we classified those experiencing more than 2 attacks as hot spots. Altogether, 2% or 13 counties witnessed an above average level of extreme right-wing terrorist attacks. Results are shown in Table 1.

Table 1. Hot Spots of Terrorist Attacks by Ideological Motivation, 1970 - 2008

	Extreme Right-Wing	Extreme Left-Wing	Religious	Ethno-National / Separatist	Single Issue
Coconino, AZ					4
Maricopa, AZ					7
Alameda, CA		23			6
Butte, CA					5
Humboldt, CA					4
Los Angeles, CA	10	19	5	60	21
Marin, CA		11			
Orange, CA	3				5
Sacramento, CA		6			
San Bernardino, CA					6
San Diego, CA	3				9
San Francisco, CA		75			
San Mateo, CA		22			
Santa Clara, CA		15			5
Santa Cruz, CA		5			
Sonoma, CA					5
Denver, CO		8			4
District of Columbia		20		10	16
Broward, FL					5
Escambia, FL					4
Miami-Dade, FL	3	5			55
Fulton, GA		5			5
Kootenai, ID	6				
Alexander, IL				9	
Cook, IL	4	9		38	5
Winnebago, IL					5
Monroe, IN					5
Middlesex, MA		11			
Wayne, MI		7			
Hennepin, MN					6
Ramsey, MN					7
Dakota, NE					7

Table 1. Hot Spots of Terrorist Attacks by Ideological Motivation, 1970 – 2008 (continued)

	Extreme Right-Wing	Extreme Left-Wing	Religious	Ethno-National / Separatist	Single Issue
Hudson, NJ					6
Union, NJ					4
Bernalillo, NM					6
The Bronx, NY		16			
Kings, NY		8			
Nassau, NY		6			
Manhattan, NY	4	41	5	183	31
Queens, NY		14		20	6
Suffolk, NY					4
Westchester, NY		6			
Cuyahoga, OH	3				
Franklin, OH					5
Hamilton, OH					7
Lucas, OH					4
Cleveland, OK	3				
Tulsa, OK					4
Lane, OR					6
Multnomah, OR		8			6
Wasco, OR			4		
Dallas, TX					4
Harris, TX	3				8
Lubbock, TX	3				
Salt Lake, UT					6
Norfolk, VA					4
King, WA	10	20			7
Snohomish, WA					7
Spokane, WA	3				
Thurston, WA					7
Dane, WI					4
Milwaukee, WI		8			
Total	**58**	**364**	**14**	**320**	**337**

A total of 120 counties experienced an extreme left-wing terrorist attack from 1970 to 2008. Based on the assumption that hot spots are those that experienced more than 4 such attacks over this time period, we found that nearly a quarter (24%) of these counties qualified as hot spots. We list these counties in Table 1, column 2.

Incidents of religiously motivated terrorist attacks were much less prevalent than all other ideologically motivated terrorist attacks. In total, only 26 counties experienced a religiously motivated terrorist attacked from 1970 to 2008. Hot spots of religiously motivated attacks were defined as counties experiencing more than 2 attacks during this time period. According to Table 1, a total of 3 counties (12%) fit this criterion.

While ethno-national/separatist motivations were linked to a number of terrorist attacks, few areas were identified as hot spots, perhaps suggestive of a greater dispersal of this sort of terrorist activity compared to that motivated by other ideologies. Specifically, a total of 56 counties experienced an ethno-

national/separatist attack from 1970 to 2008; however, as shown in Table 1, only six counties (11%) experienced an above average number of attacks.

Finally, of the 185 counties that experienced single issue terrorist attacks, we classified 43 as hot spot counties (23%). Hot spots of single issue terrorist attacks included counties where more than 4 single issue incidents occurred during the 1970 to 2008 period. These hot spot counties are shown in Table 1.

Interestingly, while a few counties experience multiple types of terrorist attacks (e.g., Los Angeles, CA; the District of Columbia; Miami-Dade, FL; Cook, IL; Manhattan and Queens, NY; King, WA), most counties experience terrorist attacks motivated by a single ideological type (e.g., Lubbock County, TX, only experienced extreme right-wing terrorism while the Bronx, NY, only experienced extreme left-wing terrorism).

We also examined the extent to which the clustering of terrorism motivated by specific ideologies changed over time by conducting the hot spot analysis for each decade separately. The 1970s were dominated by extreme left-wing terrorist attacks, although all other types of terrorist attacks except for religiously motivated attacks occurred in this decade as well.

In Table 2 we show the changing concentration of far right-wing terrorism by decade. According to Table 2, far right-wing attacks were most concentrated in the 1970s followed by the 1990s. There were few attacks in the 1980s and no attacks from 2001 to 2008.

Table 3 provides the same temporal breakdown for far left-wing terrorism. According to Table 3, far left-wing terrorism in the United States is almost entirely limited to the 1970s with a few events in the 1980s and no events after that.

Table 4 shows the geographic concentration of religious terrorism by decade. Eleven of the total 14 religiously motivated terrorist attacks occurred in just three counties (Los Angeles County, CA, Manhattan County, NY, and Wasco County, OR). Nine of the 11 recorded attacks happened in the 1980s and the other two (respective attacks on the World Trade Center on 9/11) in the 2000s.

Table 5 shows the geographic concentration of ethno-nationalist/separatist attacks by decade. As with far left-wing terrorism, these attacks are heavily concentrated in the 1970s with a few also occurring in the 1980s and only two attacks from 1990 on.

Table 6 shows the concentration of single issue terrorism for the four decades spanned by the data. Recall, single issue events include such attacks as anti-abortion, anti-Catholic, or anti-nuclear. Interestingly, among the types of terrorism examined here, single issue terrorism is probably the most temporally diverse, with substantial numbers of attacks occurring in all four decades.

Table 2. Hot Spots of Extreme Right-Wing Terrorism by Decade

	1970s	1980s	1990s	2000s
Fresno, CA			2	
Los Angeles, CA	2	4	4	
San Diego, CA	3			
Miami-Dade, FL			3	
Kootenai, ID		6		
Cook, IL			3	
Polk, IA			3	
Clay, MS	2			
St. Louis, MO			2	
Manhattan, NY	3			
Tompkins, NY	2			
Mecklenburg, NC	2			
Cleveland, OK	3			
Gregg, TX	2			
Harris, TX	3			
Lubbock, TX			3	
King, WA	7	3		
TOTAL	29	13	20	0

Table 3. Hot Spots of Extreme Left-Wing Terrorism by Decade

	1970s	1980s	1990s	2000s
Alameda, CA	23			
Los Angeles, CA	19			
Marin, CA	11			
Sacramento, CA	6			
San Francisco, CA	75			
San Mateo, CA	22			
Santa Clara, CA	15			
Santa Cruz, CA	5			
Denver, CO	8			
District of Columbia	16	4		
Miami-Dade, FL	5			
Fulton, GA	5			
Cook, IL	9			
Middlesex, MA	11			
Wayne, MI	7			
Nassau, NY		4		
Manhattan, NY	37	3		
Queens, NY	10	4		
Westchester, NY		4		
Multnomah, OR	8			
King, WA	20			
Milwaukee, WI	8			
TOTAL	320	19	0	0

Table 4. Hot Spots of Religious Terrorism by Decade

	1970s	1980s	1990s	2000s
Los Angeles, CA		5		
Manhattan, NY				2
Wasco, OR		4		
TOTAL	0	9	0	2

Table 5. Hot Spots of Ethno-Nationalist/Separatist Terrorism by Decade

	1970s	1980s	1990s	2000s
Alameda, CA	8			
Los Angeles, CA	44	16		
Alexander, IL	9			
Cook, IL	36			
Bronx, NY	8			
Manhattan, NY	143	38	2	
Queens, NY	19			
TOTAL	267	54	2	0

Table 6. Hot Spots of Single Issue Terrorism by Decade

	1970s	1980s	1990s	2000s
Coconino, AZ		4		
Maricopa, AZ				6
Alameda, CA				3
Butte, CA				4
Los Angeles, CA	10			6
San Bernardino, CA	6			
San Diego, CA				4
Santa Clara, CA		4		
Shasta, CA			3	
Denver, CO				3
District of Columbia	9	6		
Escambia, FL		4		
Miami-Dade, FL	25	28		
Fulton, GA			4	
Winnebago, IL		5		
Monroe, IN				5
Hennepin, MN			3	
Dakota, NE	7			
Hudson, NJ	4			
Union, NJ	4			
Bernalillo, NM				4
New York, NY	25	6		
Onondaga, NY			3	
Suffolk, NY				4
Cumberland, NC			3	
Franklin, OH			4	
Lucas, OH		4		
Tulsa, OK			4	
Texas, OK			4	
Multnomah, OR			3	
Erie, PA				3
Dallas, TX		4		
Harris, TX		7		
Salt Lake, UT			3	
King, WA				5
Snohomish, WA		4		
Thurston, WA			6	
TOTAL	90	76	40	47

In Table 7, we present correlations between attacks motivated by specific ideologies and the decade in which attacks occurred. These patterns more formally confirm many of the observations we have just made about temporal changes. First, terrorist attacks in the 1970s were most closely associated with extreme left-wing and ethno-national/separatist ideologies. In fact, the 1970s was the only decade where we see a positive relationship between left-wing extremism and frequency of terrorist attacks. While ethno-national/separatist ideology was still a significant motivator of terrorist attacks in the 1980s (though less so), it loses its positive association for the remainder of the time period (1990s and 2000s). During the 1980s we see the emergence of religious and single issue ideologies as important motivational sources of terrorism. By the 1990s, religious extremism is no longer significantly associated with terrorist attacks; instead, terrorist attacks during this decade are associated with extreme right-wing and single issue ideologies. Finally, we see from Table 7 that recent terrorist attacks (occurring since 2000) are only positively associated with single issue ideological motivations.

Table 7. Bivariate Correlation between Terrorist Attacks in each Decade and Ideological Motivation of Terrorist Attacks

Ideological Motivation of Attacks	Terrorist Attacks by Decade			
	1970s	1980s	1990s	2000s
Extreme Right-Wing	-.115***	.028	.169***	-.037
Extreme Left-Wing	.357***	-.189***	-.199***	-.146***
Religious	-.126***	.142***	-.012	.030
Ethno-National/Separatist	.150***	.048*	-.171***	-.164***
Single Issue	-.455***	.100***	.312***	.353***

*p<.05; ***p<.001.

Research Question 2: Terrorist Attacks and Ordinary Crime

In the last decade (2000 to 2008), 119 U.S. counties experienced at least one terrorist attack. We estimated bivariate correlations to examine whether these instances of terrorist attacks were associated with ordinary crime (UCR crime rate in 2000). That is, do terrorist attacks occur in the same places that ordinary crime takes place? The results from this test indicate that there is a significant correlation between terrorist attacks and ordinary crime. Counties that experience a terrorist attack also have a higher ordinary crime rate (r = .251; $p \leq .001$) and a higher homicide rate (r = .085; $p \leq .001$) compared to counties not experiencing a terrorist attack since the year 2000. The positive and significant relationship remains when we controlled for county size. Although the relationship between terrorism and crime is significant, it should also be noted that it is far from a perfect correlation. In fact, the strength of the correlation is moderate. Thus, while high ordinary crime areas are at an increased risk of experiencing terrorism, terrorist attacks do not always take place in high ordinary crime areas.

Table 8. Bivariate Correlation between Terrorist Attacks and Ordinary Crime

	Prevalence of Terrorist Attacks
Index Crime Rate (all counties)	.251***
Homicide Rate (all counties)	085***
Index Crime Rate (county population > 50,000)	.195***
Homicide Rate (county population > 50,000)	.183***
Index Crime Rate (county population > 100,000)	.161***
Homicide Rate (county population > 100,000)	.183***

***p<.001.

Research Question 3: Predicting Geographic Concentrations of Terrorist Attacks

The final question we addressed in this research was whether traditional aggregate-level predictors of ordinary crime (e.g., concentrated disadvantage, residential instability, demographic composition) also predict terrorist attacks. To examine this question, we looked at the extent to which traditional community-level predictors of ordinary crime are also robust predictors of extremist violence across U.S. counties. We present the bivariate correlations in Table 9. The first column of this table presents the relationships between the independent variables and the prevalence of terrorist attacks while the final two columns present the relationships between the independent variables and two ordinary crime measures: index crime rate and homicide rate.

We can see from the results in Table 9 that to a large extent the independent variables share similar relationships with terrorist attacks and ordinary crime. Specifically, densely populated areas, areas with a higher proportion of foreign-born residents, a higher proportion of recently foreign-born residents, a higher proportion of non-citizen foreign-born residents, and areas characterized by a higher degree of language diversity are more likely to experience terrorist attacks and ordinary crime. Similarly, residentially stable counties and those with a higher proportion of non-Hispanic white residents are less likely to experience both terrorist attacks and ordinary crime. Differences also emerge; while concentrated disadvantage and higher proportions of Black residents are associated with higher ordinary crime rates, these two variables are not significantly associated with terrorist attacks.

Table 9. Bivariate Correlation between Independent Variables, Terrorist Attacks and Ordinary Crime

	Prevalence of Terrorist Attacks	Index Crime Rate	Homicide Crime Rate
Population Density	.275***	.096***	.085***
Concentrated Disadvantage	.004	.162***	.182***
Residential Stability	-.349***	-.511***	-.114***
Percent Foreign-Born	.394***	.314***	.103***
Percent Recent Foreign-Born	.374***	.342***	.117***
Percent Non-Citizen Foreign-Born	.370***	.316***	.113***
Language Diversity	.314***	.272***	.068***
Percent Non-Hispanic/Latino Black	.014	.278***	.337***
Percent Non-Hispanic/Latino White	-.124***	-.345***	-.319***

***p<.001.

Finally, we examined the relationship between the independent variables, the prevalence of terrorist attacks, and ordinary crime in a multivariate framework. Unlike the bivariate analysis conducted above, a multivariate framework allows for the simultaneous observation of relationships between sets of variables and an outcome of interest (i.e., terrorist attacks). This form of analysis is more rigorous than bivariate analyses because it partials out (i.e., controls for) the effects of alternative explanations. Because the prevalence of terrorist attacks is a binary outcome (0 = no terrorist attack; 1 = at least 1 terrorist attack), we estimated logistic regression models. Both the index crime rate and the homicide crime rate outcomes follow a Poisson distribution[4] and therefore we used poisson regression models for the ordinary crime analysis. In all cases, the fact that terrorist and criminal activity cluster in areas is controlled by using a command that relaxes the assumption that observations within each group (here, counties) are independent. Because of multicollinearity between some of the independent variables (e.g., the percentage of the population that is foreign-born, the percentage of the population that is recently foreign-born, the percentage of the population that is non-citizen foreign-born) we only include one of these variables in the multivariate analyses. The decision on which variable to use was determined by assessing

[4] A poisson distribution reflects the fact that many U.S. counties never experience a terrorist attack. Therefore, the data have many counties that report zero attacks. Additionally, while there are a sizeable number of counties that experience one attack, a rapidly declining number experience successively higher numbers of attacks. The high rate of zero cases combined with a rapid decline in the number of attacks can complicate the interpretation of statistical analyses. The poisson regression models used here are better suited than ordinary least squares regression analysis for handling this particular type of distribution.

the extant empirical research. That is, for comparison purposes we include the percentage of the population that is recently foreign-born, the variable most often used in prior empirical studies. We present the results of the multivariate analyses in Table 10.

The likelihood that a terrorist attack will occur in a county is significantly related to the ordinary crime rate, concentrated disadvantage, residential stability, and language diversity controlling for the population density and demographic composition of the county. Specifically, counties with higher ordinary crime rates and higher levels of language diversity have a higher probability of experiencing a terrorist attack, while counties with more concentrated disadvantage and more residential stability have a lower probability of experiencing a terrorist attack. We found no significant relationship between the likelihood of terrorist attacks and the percentage of the population that is recently foreign-born or the racial composition of the population of the county. The substantive story remains virtually the same when controlling for the homicide rate and in the model with no ordinary crime controls. The main exception is the effect of concentrated disadvantage on the probability of a terrorist attack.

In large part, the relationships between independent variables and terrorist attacks function similarly to that found in the literature examining predictors of ordinary crime (also shown here in the final two columns). Clearly, the positive relationship between the proportion of the population that is Black non-Hispanic/Latino and ordinary crime is pronounced and is not replicated when examining terrorism outcomes. Whereas ordinary crime is much more likely to occur in minority Black areas characterized by concentrated disadvantage, terrorist attacks are less likely to occur in these areas (the effects of concentrated disadvantage and percent non-Hispanic/Latino white are highly correlated; taking either one out of the model increases the significance of the other).

Table 10. Multivariate Regression of Independent Variables and Terrorist Attacks (Logistic Regression) and Ordinary Crime (Poisson Regression)

	Prevalence of Terrorist Attacks	Prevalence of Terrorist Attacks	Prevalence of Terrorist Attacks	Index Crime Rate	Homicide Crime Rate
Constant	-6.631***	-6.871***	-6.787***	7.308***	1.809**
Index Crime Rate	—	.000***	—	—	—
Homicide Crime Rate	—	—	.027***	—	—
Population Density	.000	.000	.000	-.000***	.000
Concentrated Disadvantage	-.282	-.353*	-.301	-.010	-.031
Residential Stability	-.771***	-.629***	-.795***	-.261***	-.054
Percent Recent Foreign-Born	5.498	4.131	5.026	.822	4.964*
Language Diversity	4.854***	4.383***	4.856***	.644**	-.102
Percent Non-Hispanic/Latino Black	2.141	.009	1.466	1.364***	2.019***
Percent Non-Hispanic/Latino White	2.676	2.209	2.784	.262	-1.134

*p<.05; **p<.01;***p<.001.

CONCLUSIONS

The goal of this research was to fill a gap in the terrorism literature by documenting descriptive patterns of terrorist attacks in the United States over time and space. While terrorism has recently received much public attention, the patterns documented here show that U.S. terrorist attacks have been relatively infrequent in the last decade. While it is encouraging to find that terrorist attacks are down from the highs experienced in the 1970s and have maintained a low level for some time, we also see a rise in the likelihood of fatalities among recent terrorist acts. Moreover, there is evidence that there have been large increases in the proportion of foiled to completed plots in the last decade (Dahl, 2011). This is important because the GTD does not include foiled plots where no specific action had yet been initiated.

Similar to ordinary crime, certain counties can be characterized as hot spots of terrorist attacks. Moreover, like ordinary crime, terrorism hot spots are dominated by large metropolitan areas such as Los Angeles County, CA, Miami-Dade County, FL, and Manhattan County, NY. The clustering of terrorist attacks in large urban areas was consistently documented across the entire 1970 to 2008 time period. Notably, although large, urban areas are a prime location for terrorism hot spots, the identification of hot spot locations differs substantially across decades. That is, while some locales seem to remain prime targets of terrorist attacks from the 1970s through today (i.e., Los Angeles, Manhattan), for the most part hot spots change across decades. San Francisco County, CA, was a prime target in the 1970s whereas Maricopa County, AZ, has recently become a hot spot for terrorism. This patterning is likely due to changes in ideological motivation over this same time period. Whereas the 1970s were characterized by terrorist attacks motivated by extreme left-wing and ethno-national/separatist ideologies, the 1980s saw the emergence of religiously motivated terrorism; while right-wing terrorism was prevalent during the 1990s, the most recent decade has been dominated by single issue attacks.

A key question then is what distinguishes terrorism hot spots from areas less frequently or never targeted by terrorists? Some researchers (LaFree and Dugan, 2004; Clarke and Neumann, 2006) have suggested that terrorism functions similarly to ordinary crime. The results from our descriptive analysis of terrorism hot spots appear to support this conclusion. Additionally, our research illustrates that those counties that experience terrorist attacks have a higher ordinary crime rate than counties that do not experience terrorist attacks. A long history of research has documented a strong relationship between ecological variables and ordinary crime. Specifically, drawing upon the preeminent theoretical work of Shaw and McKay and contemporary extensions of their ecological theory, we examined whether differences in socio-economic status, residential stability, and population heterogeneity distinguished counties that experienced terrorism.

However, the findings of the models predicting the likelihood of terrorist attacks at the county level also challenge traditional ecological theory and community-level empirical research of ordinary crime. First, consistent with the ordinary crime literature, areas characterized by residential stability are also buffered from terrorist attacks. Residentially stable areas may benefit from stronger social ties and consistent norms. But second, and counter to traditional ecological theory, whereas socioeconomic status and specifically concentrated disadvantage evidences a robust positive relationship with ordinary crime, the results of this analysis reveal that terrorist attacks are *less* likely to occur in areas characterized by concentrated disadvantage. While the finding that concentrated disadvantage is negatively related to terrorism is counter to what we would expect based on theories drawn from the ordinary crime literature,

this finding is consistent with other research examining community correlates of terrorism (Krueger and Maleckova, 2003; for a review, see LaFree and Ackerman, 2009). Moreover, we must also note that whereas most of the research examining the relationship between concentrated disadvantage and ordinary crime is conducted at a neighborhood or city level, the current research was conducted at a higher level of aggregation which may account in part or in total for the disparate findings.

Finally, an interesting finding emerged from this research when examining the relationship between our indicators of population heterogeneity and terrorism. In support of contemporary research examining the effects of population heterogeneity on ordinary crime, the findings presented here demonstrate that the percentage of a population that is foreign-born in a county does not significantly influence the likelihood of terrorist attacks. Some have argued however that this variable does not adequately capture the idea of population heterogeneity as a community could have a high concentration of foreign-born people yet have minimal levels of heterogeneity (see Graif and Sampson, 2010). Therefore, we also examine the effect of language diversity as a measure of heterogeneity. Counter to recent empirical findings, language diversity evidences a strong and significant positive relationship with terrorist attacks and ordinary crime. Much more work needs to be done to fully understand the relationship between language diversity and terrorism and ordinary crime. In particular, in future research we plan to identify and isolate potential effects of specific language groups.

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Appendix: Hot Spot Counties for Terrorism

County Name	Fips Code	Frequency of Events
Maricopa, AZ	04013	19
Alameda, CA	06001	64
Butte, CA	06007	8
Fresno, CA	06019	11
Los Angeles, CA	06037	156
Marin, CA	06041	13
Orange, CA	06059	20
Sacramento, CA	06067	17
San Bernardino, CA	06071	8
San Diego, CA	06073	27
San Francisco, CA	06075	99
San Mateo, CA	06081	25
Santa Clara, CA	06085	43
Santa Cruz, CA	06087	12
Sonoma, CA	06097	8
Boulder, CO	08013	10
Denver, CO	08031	21
District of Columbia	11001	79
Miami-Dade, FL	12086	103
Pinellas, FL	12103	11
Fulton, GA	13121	14
Kootenai, ID	16055	7
Alexander, IL	17003	11
Champaign, IL	17019	8
Cook, IL	17031	68
Monroe, IN	18105	8
E. Baton Rouge, LA	22033	7
Orleans, LA	22071	9
Prince George's, MD	24033	8
Middlesex, MA	25017	17
Norfolk, MA	25021	7
Suffolk, MA	25025	19

Appendix: Hot Spot Counties for Terrorism

County Name	Fips Code	Frequency of Events
Ingham, MI	26065	7
Washtenaw, MI	26161	7
Wayne, MI	26163	15
Hennepin, MN	27053	10
Ramsey, MN	27123	12
Jackson, MO	29095	14
Dakota, NE	31043	7
Essex, NJ	34013	9
Hudson, NJ	34017	14
Bernalillo, NM	35001	14
The Bronx, NY	36005	27
Kings, NY	36047	23
Nassau, NY	36059	17
Manhattan, NY	36061	343
Queens, NY	36081	47
Suffolk, NY	36103	8
Westchester, NY	36119	10
Cumberland, NC	37051	7
Cuyahoga, OH	39035	10
Franklin, OH	39049	7
Hamilton, OH	39061	11
Tulsa, OK	40143	8
Lane, OR	41039	13
Multnomah, OR	41051	19
Philadelphia, PA	42101	9
Harris, TX	48201	21
Salt Lake, UT	49035	11
Arlington, VA	51013	8
King, WA	53033	48
Snohomish, WA	53061	8
Thurston, WA	53067	9
Dane, WI	55025	8
Milwaukee, WI	55079	14