

A Comparison Study of International Terrorism Using Geographic Information Systems

Michael Alaimo & Yonghong Tong

Abstract

This study uses a geographic information system (GIS) to analyze the casualty rates of terrorism attacks carried out from 1990 to 2015 in the three geographic regions of Western Europe, Eastern Europe, and the Middle East and North Africa. Each country within these regions was assigned to one of three government regime types (i.e., democracy, anocracy, or autocracy) in order to review what impact a country's type of government had on casualty rates. The results indicate that the majority of casualties from terrorist attacks occur in non-democratic countries. Moreover, this study confirms that government regime types, independent of other factors, cannot determine how lethal a terrorist attack may be. Lastly, the results show that terrorism-related violence is most concentrated within a few individual countries.

Introduction

With the fall of the Berlin Wall in 1990, the Cold War came to an end, and the geopolitical structure in many parts of the world was completely re-altered. No longer was the world engaged in an epic, polarized struggle between communist and democratic superpowers. Nations once tied to the affairs of the United States and the Soviet Union now found themselves free to chart their own course and make their stake in the world.

Through this geopolitical restructuring, the age of globalization rose out of the ashes of the Cold War. Modern advances in communication technology forever changed the world by narrowing the distance between nations, forming a world that is now more closely connected than ever before. In many ways, these modern marvels have proven to be adventitious for the nations of the world, but even with all the progress that has been made to unite the world, new menaces have emerged to threaten the security of those living in it. One of the great global threats whose presence has been amplified all the more after the end of the Cold War and the rise of globalization is terrorism.

Terrorism is by no means a new phenomenon. Its origins can be traced all the way back to the inception of modern civilization. An early example of this is the Sicarii, a highly organized splinter group of the Hebrew Zealots, who struggled against the Roman occupation of Palestine during 66-73A.D. (Enders & Sandler, 2012; Laqueur & Rubin, 2008). The word terrorism first became popular in the eighteenth century during the French Revolution, with the emergence of state terror under the post-revolutionary government, which massacred members of the French nobility and their associates (Enders & Sandler, 2012; Hoffman, 1998).

The modern incarnation of transnational terrorism can be said to have begun roughly in the late 1960s or early 1970s through international incidents, such as when members of the Popular Front for the Liberation (PFLP) hijacked an Israeli El Al airliner in 1968, and when operatives of Black September took hostage and eventually killed members of the Israeli Olympic team during the 1972 Summer Olympics in Munich, Germany (Enders & Sandler, 2012; Berkebile, 2012). Through incidents such as these, terrorist organizations, for the first time, were able to bring their grievances to the international stage by using the advances of modern communication technology to carry their message across the world.

Current research on the subject indicates that the terrorism of today is a deadlier strain than past specters have been. Taking an historical perspective, Rapoport (2001) describes four waves of modern global terrorism: anarchism, anti-colonialism, left-wing radicalism, and religious terrorism. Unlike the predominantly politically motivated terrorist groups of the past, which sought to win over a constituency, terrorists in this fourth wave appear to have more abstract motivations causing them to place much less value on winning over public support, and making them less discriminate about who they target (Hoffman,

1998). Although carrying out a fewer quantity of attacks, many of today's terrorists choose to act against high-valued targets with the intention of causing the maximum amount of injuries, deaths, and financial damage as possible (Blomberg & Hess, 2008; Czinkota, Knight, Liesch, & Steen, 2010; Enders & Sandler, 2000, 2012; Piazza, 2009).

The following study looks at the state of the world from the end of the Cold War right up to 2015, and assesses the impact that global terrorism has had on it. Specifically, this study addresses the lethality (i.e., injury and fatality rates) of terrorism incidents in different parts of the world for the years 1990 – 2015. Because acts of terrorism are usually based on political, religious, and/or ideological objectives, it seems only logical that political environments have a major influence on how terrorist organizations operate. Therefore, it is reasonable to assume that the type of governance which exists in the countries of origin for terrorist organizations contributes a lot to how these organizations are formulated, helping to determine such things as ideological beliefs, motives, objectives, methods of operation, targets, access to resources, and membership. Likewise, the government regime which exists in the countries that terrorist organizations choose to target (whether for domestic or transnational attacks) may also be seen as a primary factor in determining why terrorists chose to target one nation over another. Therefore, this study examines how the type of government regime within a country relates to the number of injuries and fatalities that occur from incidents of terrorism.

Furthermore, this study seeks to confirm a growing trend in the empirical literature showing that, in recent times, the trajectory of global terrorism has changed. Historically, terrorism has been viewed as a way in which marginalized groups retaliate against much stronger government forces, meaning that terrorists were most likely to direct their grievances at strong, stable governments. This idea is empirically demonstrated by the fact that, from 1970 – 1980, 54% of all terrorist attacks occurred in North America and Western Europe (Hendrix & Young, 2014). However, this trend seems to have made a rather drastic shift in recent years. Following the end of the Cold War, 54% of attacks have occurred in the Middle East, North Africa, and South Asia. During this same period, North America and Western Europe have experienced only 10% of the global total of terrorist attacks (Czinkota, et al., 2010; Hendrix & Young, 2014). Validating this realignment of terrorist attacks moving from democratic to non-democratic countries, the Global Terrorism Index (2016) reported that within the Middle East and North African region (MENA) five countries-- Iraq, Afghanistan, Nigeria, Pakistan, and Syria—experienced 72% of all deaths from terrorism in 2015.

In order to accomplish the objectives above, this study focuses on three regions of the world-- Western Europe, Eastern Europe, and MENA-- which, taken together, contain a wide spectrum of political regime types. The main research tool of this study is a geographic information system (GIS) software called ArcGIS. Using ArcGIS as the central research tool contributes to the literature on terrorism by utilizing the unique capabilities of the software to offer a visual portrait showing the distribution of terrorism across regions and within individual countries. The researchers hope that the regional maps created using the ArcGIS software will make the identification of geographical trends of the lethality of global terrorism quick and easy, and will inspire future research to evaluate why these trends are occurring the way that they are.

Literature Review

Terrorism and Democracy

The literature on the relationship between terrorism and systems of governance is very diverse and mixed. When it comes to how terrorism relates to democratic regimes, there are two opposing schools of thought: the strategic school and the political access school. Both schools of thought are based on rational choice theory. This means that they assume that terrorists are rational actors operating through a decision-making calculus. Both theories are intended to be comprehensive, attempting to explain both domestic and transnational attacks. With regard to transnational attacks, both schools agree that the political forces operating within a terrorist organization's country of origin has a major influence on the behavior of the

organization. By this, it is meant that the ability of perpetrators to prepare and execute an attack abroad depends on what safeguards their home country has put in place to protect against terrorism (Gaibullov, Piazza, & Sandler, 2016).

The strategic school argues that democracies are more vulnerable to terrorism because their concentration on individual liberties and freedoms prevent them from building up adequate safeguards against such violent activity. Proponents of this line of reasoning argue that democracies help to reduce the marginal cost of carrying out terrorist attacks within the country through freedom of association, freedom of movement, protection of civil liberties, access to potential targets, and rights to due process (Eyerman, 1998; Gaibullov et al., 2016; Piazza, 2007). Simply stated, the strategic school argues that more terrorism occurs in democracies due to the extensive freedoms and rights granted to their citizens.

In contrast, the political access school proposes that democratic nations are best equipped to mitigate the causes of terrorism. This is because the nature of democracy is to be politically inclusive, giving all viewpoints a voice and establishing non-violent channels through which political grievances may be settled (Gaibullov et al., 2016). The political access school argues that democracies are able to reduce the price of non-violent political expression while increasing the price of violent activity (Eyerman, 1998). Therefore, proponents of this school argue that democracies experience less terrorism.

The majority of the empirical literature has traditionally lent support to the strategic school, showing democracy and terrorism to have a positive relationship (Chenoweth, 2010; Eubank & Weinberg, 1994, 2001; Piazza, 2007; Ross, 1993; San-Akca, 2013; Savun & Phillips, 2009; Weinberg & Eubank, 1998). A much smaller number of studies have favored the political access school of thought revealing a negative or weak relationship between democracy and terrorism (Drakos & Gofas, 2006; Eyerman, 1998, Hamilton & Hamilton, 1983). Still, a few researchers have found an inconsistent relationship between terrorism and democracy (Dreher & Fischer, 2010; Piazza, 2008a).

Although many scholars have generally assumed that the relationship between democracy and terrorism is rather straightforward and one-directional, there is a growing body of literature suggesting that this relationship might be much more dynamic and complex. Li (2005) found that various aspects of democracies have different effects on transnational terrorism. The study found that democratic participation reduces transnational terrorism incidents, while government constraints tend to increase the number of terrorist incidents, indicating that the relationship between democracy and terrorism may be two-directional. Li (2005) concluded that when citizens have the ability to participate in government, their level of satisfaction increases, political efficacy improves, the amount of grievances are reduced, the ability of terrorist organizations to recruit is stymied, and the public becomes more tolerant of counterterrorism policies. At the same time, the results of the study showed that the political restraints that democracies place on leaders often create gridlock, increase the frustration of marginalized groups, and put a hard strain on governments to provide security, while simultaneously protecting civil liberties. Li (2005) concluded that the combination of all these factors makes democracies vulnerable targets for terrorism.

Like Li (2005), Young and Dugan (2011) found evidence that different aspects of democracy have varying impacts on whether or not terrorism will occur in a democratic state. The researchers concluded that terrorism is most likely to happen in democracies where the power to veto is most prevalent.

Similarly, Savun and Phillips (2009) determined that the positive correlation between democracy and terrorism might be spurious. The authors discovered that liberal democracies do not experience more domestic terrorism than other types of regimes. Further, the authors concluded that states, regardless of regime type, are likely to attract transnational terrorists when they are involved in foreign policy crises with other nations, when they have partnerships with the United States, and when they intervene in the civil wars of other nations. The authors concluded that liberal democracies are more likely to be the target of transnational groups, not due to some inherent feature of democratic regimes, but because of the type of foreign policy that they pursue.

Recently, Gaibullov et al. (2016) proposed a rather intriguing hypothesis by suggesting that the relationship between the type of government regime that exists within a country and the likelihood that terrorism will occur in that country is not linear, but rather an extremely robust, inverted U-shaped one. Applying this theory to both domestic and transnational terrorism, the researchers discovered that the

relationship between regime type and terrorism functions on a continuum: with stringent autocracies (with the ability coerce obedience) on the one end, and full-fledge democracies (with the ability to manage grievances while maintaining order) on the other end, and in the middle, intermediate regimes (with insufficient abilities in any of these areas) experiencing the greatest amount of terrorism.

Terrorism and Non-Democratic States

As noted previously, it seems that the nature of global terrorism might be slowly changing in the post-Cold War era. The conventional wisdom of the past, which said that terrorists most often target democratic nations, can no longer be assumed. Terrorism can now be viewed as being just as much of a threat to non-democratic regimes as it is to democratic ones (Chenoweth, 2012; Weeks, 2008). A solid body of evidence shows that characteristics generally attributed to autocratic states, such as the constriction of political rights and militaristic policies, might make individuals more primed to resort to terrorism (Callaway & Harrelson-Stephens, 2006; Hendrix & Young, 2014; LaFree, Dugan, & Korte, 2009; Piazza, 2015; Shor, Charmichael, Munoz, Shandra, & Schwartz, 2014). Such factors very often heighten the level of tension within a country, which can then result in a direct, negative backlash from terrorist groups feeling threatened by well-fortified governments.

A few researchers have argued that the observed change in the types of countries that terrorists are now targeting is due to the fact that autocracies hold no advantage over democracies when it comes to audience cost (Conrad, Conrad, & Young, 2014; Weeks, 2008). Audience cost is an international relations theory that describes the domestic consequences that leaders may suffer when making public threats during international crises and then later on, backing down from them. In an analysis of this topic, Weeks (2008) found no difference between autocratic and democratic states and the amount of terrorist attacks they experienced when audience cost was included as a factor. Carrying this concept further, Conrad et al. (2014) found empirical evidence that dictatorships which generate higher audience costs (e.g., military dictatorships, single-party dictatorships, and dynastic monarchies) experience as much terrorism as democracies, while autocracies generating lower audience costs (e.g., personalists dictatorships and non-dynastic monarchies) face fewer attacks than democratic nations. The findings indicate that terrorists may be more likely to target countries, either democratic or autocratic, where leaders are held accountable to their people. Terrorists realize that these types of governments will react in one of two ways: they will react harshly to the attacks and therefore, rally more moderates to sympathize with the terrorists' cause, or they will be more willing to make concessions to the demands of the terrorists, in order to avoid a public backlash.

It must be noted, however, that some scholars have found that belligerent policies within autocratic states increase the likelihood of terrorism up to a certain point, but once a certain threshold is reached, the probability of terrorist retaliation quickly dissipates (Callaway & Harrelson-Stephens, 2006). For instance, terrorism is virtually non-existent in a country such as North Korea because the extremely repressive practices of the country impede any type of terrorist campaign before it can become operational. Furthermore, it may also be deduced that terrorism is unlikely to occur under extremely oppressive regimes because these governments are not held accountable to their people, and therefore, it is highly unlikely that the public outcry resulting from terrorist activity will have enough influence on the leaders of these countries to get them to capitulate to the demands of terrorists.

Terrorism and Social Disorganization Theory

To explain the geographical shift in the occurrence of terrorism from democratic to non-democratic countries, one must understand the environmental circumstances that allow terrorist organizations to flourish in non-democratic countries. The most appropriate theoretical framework to do this with is social disorganization theory. Interest in the impact that social disorganization has on the level of crime and violence within societies goes back to research conducted by one of the founders of the field of sociology, Émile Durkheim. Durkheim argued that it is human nature to have insatiable desires, and it is the duty of society to create boundaries to regulate these desires and, therefore, keep people content (Bernburg, 2002;

Durkheim, 2010). Durkheim proposed that societies function optimally when all the parts of society are operating with cohesion, cooperation, and consensus (Bernburg, 2002; Durkheim 2010, 2014). Such well-organized societies are then able to integrate members into the mainstream social processes by providing them with a sense of community, and offering them realistic goals and aspirations. When societies are disorganized, however, both formal (law and the legal system) and informal (family, work, school, voluntary organizations) sources of social control are not able to effectively regulate primordial human desires and move people towards conventional behavior (Bernburg, 2002; Durkheim, 2010; Fahey & LaFree, 2015).

Evaluating how Durkheim's ideas can be applied to non-routine collective action, Useem's version of social disorganization theory contends that rapid social change and instability disrupts the restraining power of formal and informal social control mechanisms meant to govern societies. The depletion of these social controls leads individuals to become detached from society and frees those with high levels of deviant aspirations to engage in non-routine, violent collective action, such as riots, violent protest, and terrorism (Fahey & LaFree, 2015; Useem, 1998).

The association between social disorganization theory and terrorism is very much reflected in the research literature. Although few studies have directly tested social disorganization on worldwide rates of terrorism, many researchers have provided ample evidence that there is a distinct link between a country's level of instability and terrorism (Chenoweth, 2012; Conrad, Conrad, & Young, 2014; Hendrix & Young, 2014; Lai, 2007; Piazza, 2007; Piazza, 2008a; Piazza, 2008b). Furthermore, in a direct test of social disorganization theory, Fahey & LaFree (2015) examined the effects of country-level social disorganization on levels of terrorist attacks and fatalities in 101 countries from 1981 – 2010. Measuring social disorganization as the presence of state instability-- revolutionary and ethnic war, adverse regime change, and genocide-- the researchers found that social disorganization is consistently associated with increases in terrorist attacks and fatalities.

GIS and Terrorism

A review of the literature reveals that very few studies have been conducted utilizing GIS features to visualize terrorist activity. One notable exception to this is Blomberg and Hess (2008) who recruited GIS capabilities to construct two world maps. The first map displayed global terrorist incidents for the years 1968 – 2003 and used graduated colors to indicate the quantity of attacks that occurred in different parts of the world. The second map demonstrated the number of global terrorist incidents per capita for the same years. It, too, used graduated colors to represent the number of attacks.

Methodology

As indicated in the sections above, much literature has been written on the quantity of terrorist attacks in relation to a nation's political regime type, but very little research has explored the lethality of terrorist attacks in relation to political regimes. This study seeks to rectify this by viewing trends in the number of injuries and fatalities that nations have experienced from terrorist attacks in relation to their political regime type.

This study utilizes ArcGIS to help present a visual representation of trends in incidents of terrorism from 1990 – 2015 in the geographical regions of Western Europe, Eastern Europe, and MENA. These regions were specifically chosen for their ability to represent and contrast various types of political regimes. Western Europe is made up exclusively of democratic states; Eastern Europe offers a very heterogeneous composition of democratic to anocratic states; and MENA is made up largely of intermediate to authoritative regimes, with only a few democracies functioning in the region.

Defining Terrorism

The first step in any research endeavor devoted to the study of terrorism is to define what terrorism is, or perhaps more importantly, what it is not. Unfortunately, terrorism is notoriously difficult to define. Although many efforts have been made, no known universal legal definition of terrorism has ever been established (Schmid, 2012). However, one cannot even approach the study of terrorism until parameters are set establishing exactly what the phenomenon to be studied really is. Otherwise, the lines between what is and what is not terrorism will easily become blurred. For example, can acts committed by state actors be considered terrorist events? Do guerilla warfare tactics conducted in the context of a legitimate war count as terrorism?

Since establishing a definitive definition of terrorism is well beyond the scope of this study, an operational definition of terrorism has been adopted for the purpose of carrying out the study. Therefore, the definition of terrorism used in this study is as follows: *Terrorism is the premeditated use or threat of use of systematic violence by sub-national groups in order to obtain political, religious, and/or ideological objectives through intimidation of a larger audience (or audiences) outside the immediate victims, usually not directly involved in the decision making process* (Czinkota, Knight, Liesch, and Steen, 2010; Enders & Sandler 2000, 2012).

Data Collection

Data on worldwide terrorist events were obtained from the Global Terrorism Database (GTD). This is an open source database operated by the National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland. GTD contains information on over 150,000 domestic and transnational terrorist attacks from 1970-2015 (National Consortium for the Study of Terrorism and Responses to Terrorism [START], 2016). Data on the types of government regimes operating within the countries of Western Europe, Eastern Europe, and MENA were gathered from the Polity IV Project. This is an annual, cross-national, time-series dataset presented by the Center for Systemic Peace, covering all major, independent states with a total population of 500,000 or more over the period 1800-2015 (i.e., 167 countries). Polity IV rates a nation's regime type on a 21-point scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy) (Center for Systemic Peace, 2015).

Data from the GTD and Polity IV were grafted onto three different regional maps (Western Europe, Eastern Europe, and MENA) using ArcGIS computer-based mapping software, to show the total number of injuries and fatalities that occurred in each country of that region from 1990 – 2015, and indicating each country's regime type based on three regime categories (i.e., democracies, autocracies, and anocracies). The process of data input and output using ArcGIS applications looks as follows:

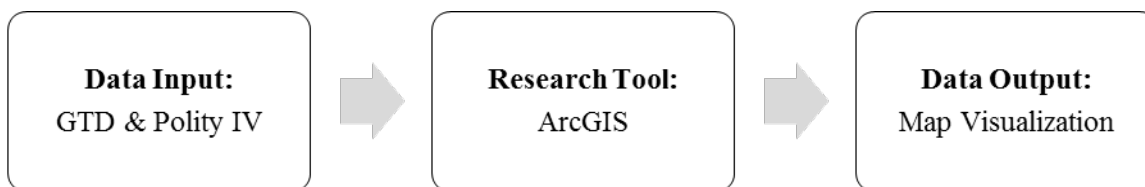


Figure 1. Model of ArcGIS data input and output process used in the study's analysis

Polity IV Data Categorization and Analysis

Polity scores were used in determining how to classify countries into different political regime categories. The polity score is a score developed by Polity IV based on the difference between a country's democracy score minus its autocracy score. It should be noted that the developers of the Polity IV database advise that the polity score be interpreted with caution. The authors warn that, since the factors comprising democracies and autocracies often coexist within a single country, and governments can make policy decisions that may

frequently shift from one end of the political spectrum to the other, it is hazardous to view the polity score as a conclusive statement on the type of government which exists in any one country (Marshall, Gurr, & Jagger, 2016). However, since the purpose of this study is to give an overall view of what influence a nation's political regime type may have on the number of casualties it experiences from terrorism, and not to examine the various complexities and nuances within political typologies, the polity score was determined to be an adequate measure.

Data on the various countries within the three regions of interest for the years 1990 – 2015 were entered into Microsoft Excel and, from this, an average polity score was determined for each country.

Once average polity scores were calculated, they were converted into three regime categories: autocracies (-10 to -6), anocracies (-5 to +5), and democracies (+6 to +10). These categorizations were decided upon based on a recommendation by the developers of the Polity IV database (Marshall et al., 2016).

GTD Data Categorization and Analysis

Data recorded by GTD on the number of injuries and fatalities that resulted from individual attacks within the selected countries were also entered into Microsoft Excel to calculate the sum totals of the amount of injuries and fatalities that occurred in each country for the years 1990 -2015. For the purposes of this study, only attacks that were aimed at achieving a political, economic, religious, or social goal, where there was evidence of an intention to coerce, intimidate, or convey some other message to a larger audience (or audiences) than the immediate victims, and where action was outside of the context of legitimate warfare activities were included. All other cases were excluded from the analysis because it was determined that these cases did not follow the definition of terrorism used by this study as noted in the section above.

Country Selection by Region

Tables 1 – 3 show the countries that were selected for inclusion in the study. The tables indicate the geographical region of each country, the type of government regime that operates, within each country, the total number of fatalities that took place in each country as a result of terrorist attacks for the years 1990 – 2015, the total number of injuries that took place in each country as a result of terrorist attacks for the years 1990 – 2015, the total combined number of injuries which occurred from acts of terrorism for all the selected countries of that region for the years 1990 – 2015, and the total combined number of fatalities which occurred from acts of terrorism for all the selected countries of that region for the years 1990 – 2015. The selection of which countries to be included in the study was based on which countries had a suitable amount of corresponding data when pairing Polity IV and GTD datasets. With regard to Eastern Europe, data for the countries of Czechoslovakia, Yugoslavia, and Serbia was known and included in Table 2 but could not be included in Figure 2.2. Both Czechoslovakia, Yugoslavia stopped being countries in the early 1990s following the collapse of the Soviet Union, and therefore, were not included as data points in the original world shapefile used to produce the three regional maps. Serbia was also not included as a data point on the original shapefile but the origin of this is unknown. A review of the data from these countries reveals that their absence from the ArcGIS maps had little impact on the conclusions of this study.

Table 1. Western Europe Casualties 1990 - 2015

Country	Regime	Fatalities 90-15	Injuries 90-15
Austria	Democracy	5	22
Belgium	Democracy	12	37
Cyprus	Democracy	3	4
Denmark	Democracy	3	8
Finland	Democracy	0	2
France	Democracy	221	575
Germany	Democracy	56	497
Greece	Democracy	17	84
Ireland	Democracy	7	8
Italy	Democracy	23	107
Luxembourg	Democracy	0	0
Netherlands	Democracy	5	9
Norway	Democracy	77	78
Portugal	Democracy	2	15
Spain	Democracy	369	2,795
Sweden	Democracy	9	26
Switzerland	Democracy	9	14
United Kingdom	Democracy	434	2,514
Totals		1,252	6,795

Table 2. Eastern Europe Casualties 1990 – 2015

Country	Regime	Fatalities 90 – 15	Injuries 90 – 15
Albania	Democracy	35	104
Belarus	Anocracy	14	211
Bosnia-Herzegovina	N/A	73	132
Bulgaria	Democracy	23	35
Croatia	Anocracy	248	66
Czech Republic	Democracy	6	28
Czechoslovakia	Anocracy	1	21
Estonia	Democracy	2	10
Hungary	Democracy	5	12
Kosovo	Democracy	65	288
Latvia	Democracy	1	1
Lithuania	Democracy	1	1
Macedonia	Democracy	46	50
Moldova	Democracy	13	88
Montenegro	Democracy	1	0
Poland	Democracy	5	7
Romania	Democracy	0	6
Russia	Anocracy	3,505	6,559
Serbia	Democracy	2	7
Slovak Republic	Democracy	5	8
Slovenia	Democracy	1	2
Ukraine	Democracy	1,029	1,128
Yugoslavia	Autocracy	67	212
Totals		5,148	8,976

Table 3. Middle East and North Africa Casualties 1990 – 2015

Country	Regime	Fatalities 90 – 15	Injuries 90 – 15
Algeria	Anocracy	9,694	7,790
Bahrain	Autocracy	37	160
Egypt	Anocracy	1,810	2,802
Iran	Anocracy	501	1,306
Iraq	Anocracy	49,637	105,430
Israel	Democracy	1,144	5,585
Jordan	Anocracy	76	149
Kuwait	Autocracy	35	236
Lebanon	Anocracy	1,007	3,822
Libya	Autocracy	1,022	1,361
Morocco	Autocracy	75	163
Qatar	Autocracy	2	13
Saudi Arabia	Autocracy	270	797
Syria	Autocracy	6,357	8,209
Tunisia	Anocracy	131	135
Turkey	Democracy	2,599	4,773
United Arab Emirates	Autocracy	1	1
West Bank/Gaza Strip	N/A	873	1,698
Western Sahara	N/A	0	4
Yemen	Anocracy	3,535	4,989
Totals		78,806	149,423

GIS Regional Maps

Figure 2, Figure 3, and Figure 4 are three ArcGIS regional maps showing terrorist injury and fatality rates for the various countries contained in the regions of Western Europe, Eastern Europe, and the MENA for the years 1990 – 2015. The type of government regime each country is classified as (i.e., democracy, anocracy, or autocracy) is represented by contrasting colors. Injury and fatality rates are represented by a series of dots charted via geographic density. Each red dot in Figure 2 is equal to 9 injuries resulting from terrorism. Each black dot in Figure 2 is equal to 9 fatalities resulting from terrorism. Each red dot in Figure 3 is equal to 7 injuries resulting from terrorism. Each black dot in Figure 3 is equal to 7 fatalities resulting from terrorism. Each red dot in Figure 4 is equal to 100 injuries resulting from terrorism. Each black dot in Figure 4 is equal to 100 fatalities resulting from terrorism.

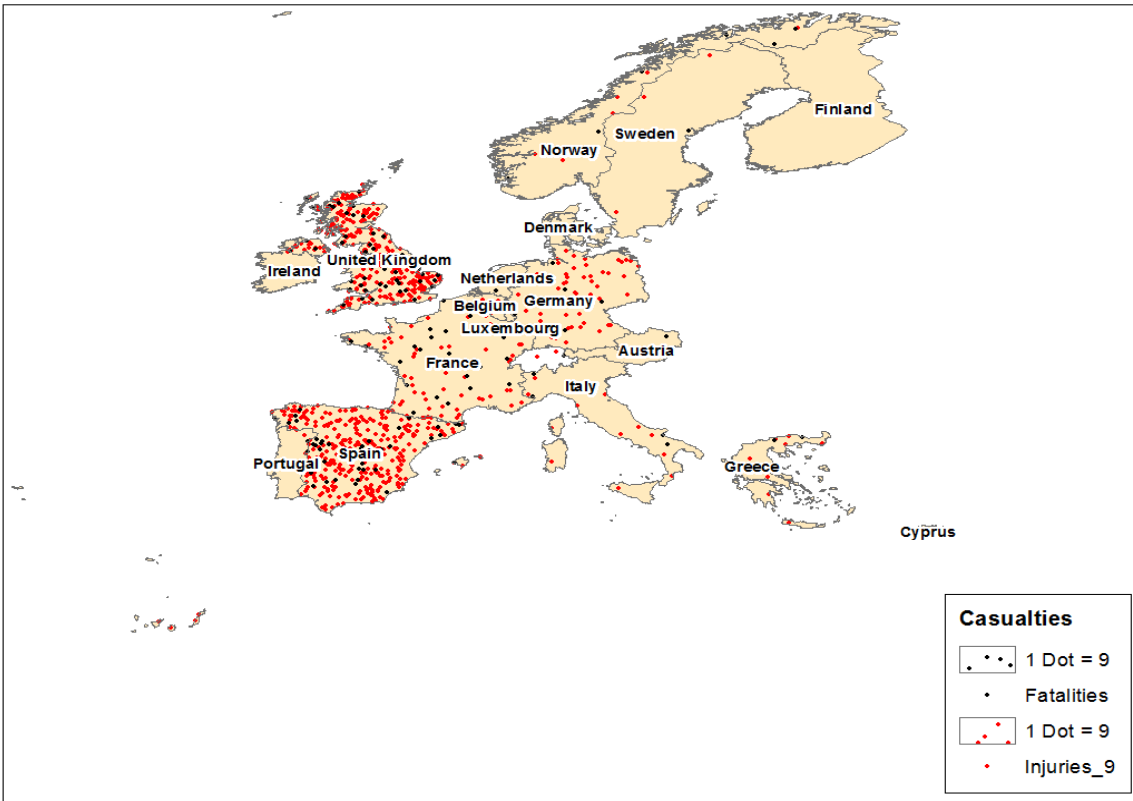


Figure 2. Western Europe Casualties from 1990 – 2015

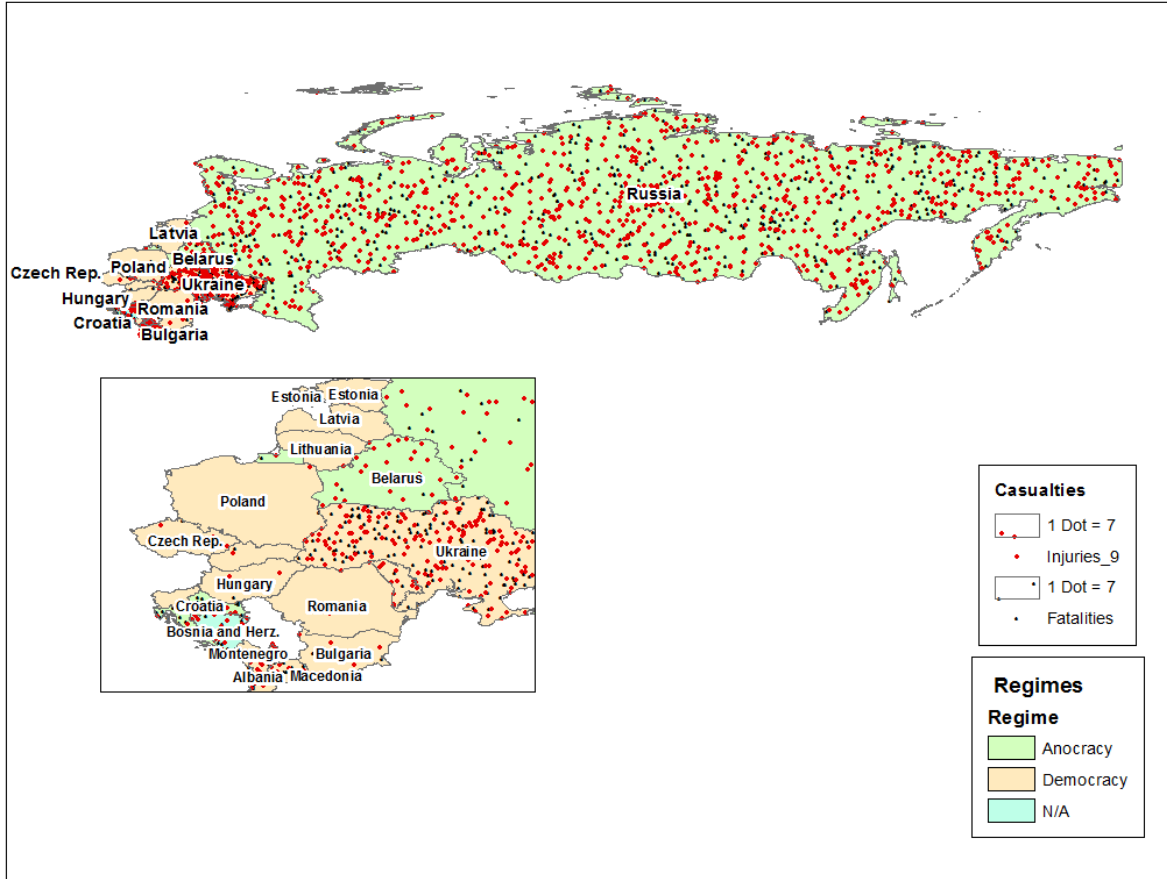


Figure 3. Eastern Europe Casualties from 1990 – 2015 with Inset Map of the Nations of Eastern Europe Excluding Russia

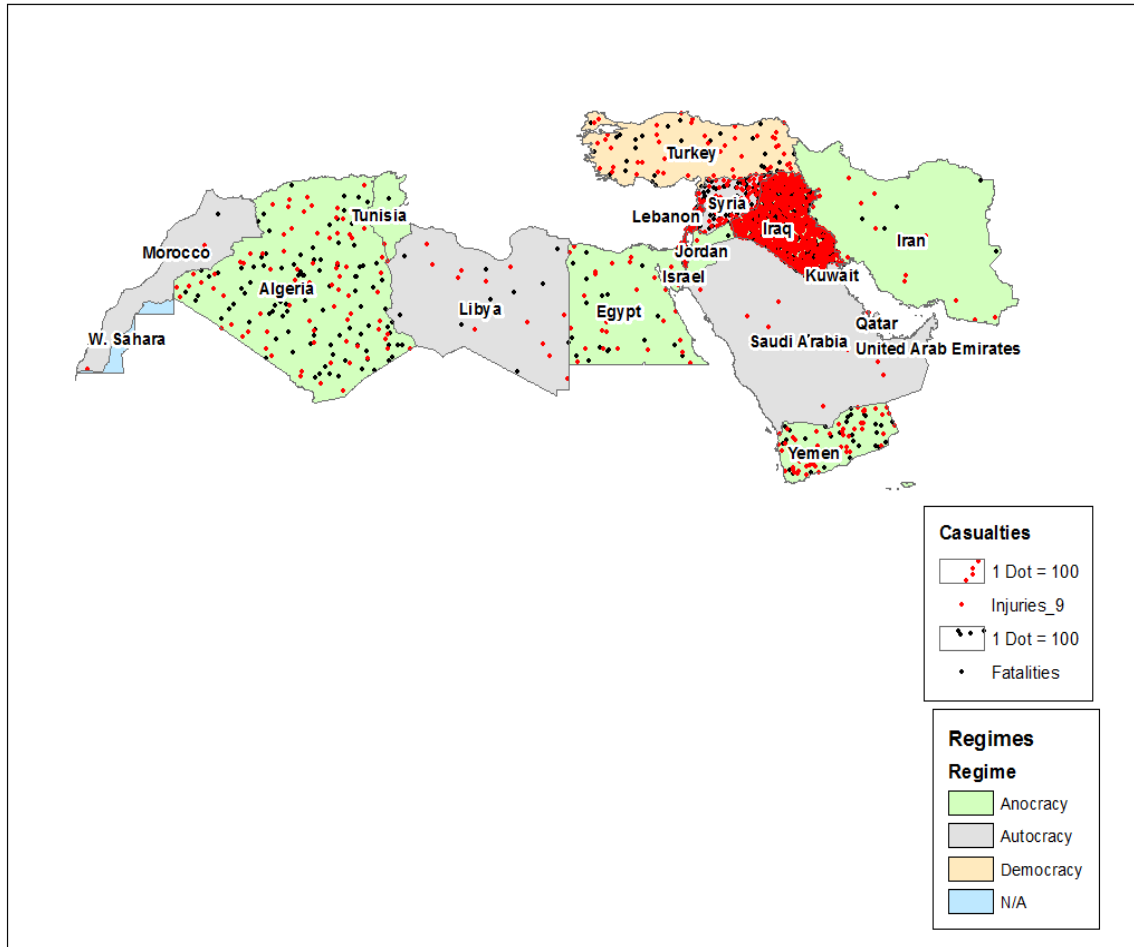


Figure 4. the Middle East and North Africa Casualties 1990 – 2015

Results

An inspection of the three figures above reveals some very interesting divergences in the terrorism casualty rates for the years 1990 – 2015. Figure 2 shows that relatively few terrorism-related fatalities and injuries within the Western European region, with the highest concentration of casualties occurring in Spain, the United Kingdom, and France.

Figure 3 shows that injuries and fatalities from terrorist attacks in Eastern Europe occurred predominantly in Russia (an anocracy) and Ukraine (a democracy), with relatively few casualties occurring in the other surrounding countries. This is quite a notable finding, given the different regime types of the two nations. It is also notable that Yugoslavia, the only country categorized as an autocracy in the region, experienced much fewer casualties than both Russia and Ukraine.

A review of Figure 4 demonstrates some differing trends in the terrorism casualty rates with concern to political regime types. Iraq (an anocracy), Algeria (an anocracy), and Syria (an autocracy) experienced the highest amount of injuries and fatalities from terrorism. It is notable that Syria, as an autocratic regime, experienced so many casualties, since the other autocratic countries of Qatar, Kuwait, Bahrain, and Morocco sustained the least amount of casualties from terrorism in the region. Figure 4 also shows that the two democratic regimes reviewed (Israel and Turkey) experienced intermediate to a high amount of casualties when compared to the other countries within the region.

A comparison of the three regional maps shows quite clearly that MENA sustained the highest amount of casualties from 1990 – 2015, with a total of 149,423 injuries and 78,806 fatalities related to acts of terrorism, while Eastern Europe sustained a total of 8,976 injuries and 5,148 fatalities, and Western Europe sustained a total of 6,795 injuries and 1,252 fatalities.

Discussion

The findings from Figure 2 revealing that the greatest number of casualties from terrorism happened in Spain, the United Kingdom, and France are not surprising. These three countries have historically been the targets of much terrorist activity. In Spain, members of the terrorist organization, Euskadi Ta Azkatasuna (ETA) have been engaging in attacks against police and military personnel, politicians, businesspersons, judges, and journalists since the 1960s (Allen, 2008). The large concentration of casualties from terrorist activity in the United Kingdom may largely be explained by the political unrest and violence that occurred in Northern Ireland, inspired by such groups as the Irish Republican Army (IRA), the more militant Provisional Irish Republican Army (PIRA), and other oppositional groups. In the period known as “the Troubles” (1968 – 1998), the IRA and PIRA launched a string of bloody campaigns against the British government in a failed attempt to make Ireland an independent republic (Enders & Sandler, 2012; Hoffman, 1998). Like its counterparts, France has been tangling with the actions of terrorist groups for decades. In the 1950s and 1960s, French forces struggled against anti-colonial groups in Algeria, who adopted terrorist tactics in order to force the French to concede and grant them their independence (Enders & Sandler, 2012; Hoffman, 1998). During the 1990s, while Algeria was descending into civil war, the radical Islamist group, Groupe Islamique Armée (GIA), committed attacks against France, both to gain more momentum for its political campaign and to punish France for its imperial past in Algeria (Millington, 2015). In recent years, Spain, the United Kingdom, and France have all had to deal with terrorism events perpetrated by individuals and groups who were inspired by radical Islamic movements. These include such events as the Madrid train bombings of 2004 and the November 2015 Paris Attacks.

The finding from Figure 3 indicating that Russia and the Ukraine suffered much more casualties from terrorism than all of the other countries in the region, suggests that a country’s form of government is not the sole determining factor in the level of terrorist violence committed against it. Russia, as an anocracy, experienced 3,505 injuries and 6,559 fatalities from acts of terrorism for the years 1990 – 2015, while Ukraine, as a democracy, experienced 1,029 injuries and 1,128 fatalities from acts of terrorism for the same years.

A review of the modern history of Russia clearly shows, even to the most casual of observers, that it has had a long, sordid history with terrorism, with the most notable being its long struggle with Chechen militant groups. Chechens are a largely Muslim ethnic minority group living in Russia’s North Caucasus region. For over two hundred years, Russia has governed Chechnya with frequent resistance from the Chechen people. In the early 1990’s, after the fall of the Soviet Union, Chechen separatists, with the goal of independence, launched a coordinated campaign against Russia, which resulted in two devastating wars (the First Chechen War and the Second Chechen War) and an ongoing insurgency within the region (Bhattacharji, 2010).

Another possible factor that should be considered when trying to explain the concentration of terrorist activity in Russia is the massive size of the country. Scholarship has shown that nations with larger populations are often more conducive to the practice of terrorism than smaller states. This is because larger countries create more opportunities for terrorists to blend in with ordinary citizens, provide a larger pool of candidates from which to recruit, and tend to have a wider spectrum of diverging political views, which increases the possibility of public support (Berkebile, 2012). Likewise, research has shown that nations with large surface areas are more susceptible to terrorism (Abadie 2004; Eyerman 1998). This may be explained by two factors. First, when a country has a large landmass, national security forces have a much more difficult time monitoring citizens. Second, populous states have larger borders, allowing for easy entry and exit points (Berkebile, 2012).

This does not, however, explain why Ukraine, a country much smaller than Russia, sustained so many casualties from terrorism. The great disparity in size between the two countries gives much credence to the idea that a nation's size, independent of other factors, cannot explain the amount of terrorist violence that may take place against that country.

Figure 4 clearly shows that Syria, as an autocratic state, suffered many more casualties from acts of terrorism than all the other autocratic countries within the region (Qatar, Kuwait, Bahrain, and Morocco). A probable explanation for this is the large amount of political instability and violence that has resulted from the ongoing Syrian Civil War. In 2011, the Arab Spring revolutions, which sprang up across the Middle East, triggered nationwide protests in Syria demanding that President Bashar Hafez al-Assad resign from office. Since that time, Syria has been devastated by an ongoing civil war and humanitarian crisis, as a result of conflict between Assad's government forces and supporting countries (e.g., Russia and Iran), anti-government militia groups, such as the Free Syrian Army (FSA), and terrorist organizations, such as the Islamic State of Iraq and the Levant (ISIL) (Rodgers, Gritten, Offer, & Asare, 2016). In terms of terrorist activity, the most significant factor associated with this upsurge of violence seems to be the ascension of ISIL and al-Qaeda affiliated terrorist groups. The Global Terrorism Index (GTI) reported that, in 2015, 17 different groups were responsible for terrorist attacks in Syria, but just two groups were responsible for three quarters of all deaths: ISIL and the Jabhat al-Nusra Front (a group that has had an affiliation with al-Qaeda). Furthermore, Figure 4 demonstrates that Iraq, by far, sustained more casualties than any other country in the study, with 49,637 fatalities and 105,430 injuries. This can be accounted for by the amount of political and social upheaval that has occurred in the country since the U.S. invasion in 2003. For instance, in 2003, fatalities from terrorist attacks rose so dramatically that they were five times higher than the combined total for the years 1998 – 2002 (GTI, 2016).

These findings suggest that the social and environmental factors that make terrorism more prevalent in one country than another are multifaceted and complex. The fact that Syria and Iraq sustained the most casualties from terrorism, two countries that can be classified as being largely unstable during the time period under consideration, strongly supports the hypothesis that there is a link between terrorism and social disorganization. It follows that failed states are advantageous to the practice of terrorism largely due to the inability of government forces to generate counter-terrorism initiatives that are strong enough to impede terrorist activity. This provides terrorist organizations with the opportunity to train, generate revenue, and set up a system of logistics and communication with very little government interference (Piazza, 2008b). Often, terrorist organizations are able to establish autonomous regions within failed states that have separate social, political, and economic institutions beyond the authority of the central government (Piazza, 2008b).

Conclusion

The results from this study generally show that terrorism is not just an issue confined mainly to Western democratic states, but in fact, is a burden borne by many countries across the world. In fact, this study supports current research findings that have shown that, in the post-Cold War era, most terrorist events have occurred in the non-democratic nations (Chenoweth, 2012; Weeks, 2008). The findings from this study also validate the idea that political regime types alone are not a determining factor of terrorism casualty rates. This is indicated by how Syria suffered so many more casualties than all the other autocratic regimes within the MENA region. Factors such as a nation's size, population, environmental surroundings, history, and more importantly, stability-- in terms governance, economics, and social cohesion-- should be considered when determining how vulnerable a particular country is to terrorism. Moreover, the findings from this study confirm that when it comes to terrorism, even within regions prone to such activity, most events are concentrated in a few selected countries rather than in all of the nations in the region. This unveiling of terrorism "hotspots" underlines the importance of identifying the specific characteristics that makes certain countries predisposed to terrorism.

A major limitation of this study is that it was designed for the overall purpose of giving a visual representation of trends in terrorist activity in the post-Cold War era, and therefore was not able to provide

any definitive explanations as to why terrorists act the way that they do. Therefore, the findings of this study are limited, and should be viewed as supplemental to the established literature on the subject rather than as a standalone project.

This study reveals that terrorist events have been increasingly occurring in non-democratic countries. It has given strong indication that environmental factors-- especially, a country's level of stability-- strongly influence terrorist organizations in terms of lethality rates. Future studies should further investigate the connection between a country's level of stability and terrorism.

References

- Abadie, Alberto. 2004. "Poverty, Political Freedom, and the Roots of Terrorism" Working Paper: No. w10859. National Bureau of Economic Research.
- Allen, Nick. 2008. "The Long History of Basque Terrorism." *The Telegraph*. <<http://www.telegraph.co.uk/news/worldnews/europe/france/3129053/The-long-history-of-Basque-terrorism.html>> Accessed October 15, 2016.
- Berkebile, Richard, E. 2012. "Causes of Domestic Terrorism: 1970-2010." Ph.D. dissertation. ProQuest: The University of Missouri--Columbia.
- Bhattacharji, Preeti. 2010. "Chechen Terrorism (Russia, Chechnya, Separatist)." Council on Foreign Relations. < <http://www.cfr.org/separatist-terrorism/chechen-terrorism-russia-chechnya-separatist/p9181>> Accessed October 10, 2016.
- Blomberg, S. Brock., and Hess, Gregory, D. 2008. "From (no) Butter to Guns? Understanding the Economic Role in Transnational Terrorism." pp. 83-115. In Phillip Keefer and Norman Loayza, eds., *Terrorism, Economic Development, and Political Openness*. New York: Cambridge University Press.
- Bernburg, Jon, G. 2002. "Anomie, Social Change and Crime. A Theoretical Examination of Institutional Anomie Theory." *British Journal of Criminology*, Vol. 42, No. 4, September, pp. 729-742.
- Callaway, Rhonda, & Harrelson-Stephens, Julie. 2006. "Toward a Theory of Terrorism: Human Security as a Determinant of Terrorism." *Studies in Conflict & Terrorism*, Vol. 29, No.7, November, pp. 679-702.
- Center for Systemic Peace. 2015. Polity IV project dataset. <<http://www.systemicpeace.org/polityproject.html>> Accessed October 15, 2016.
- Chenoweth, Erica. 2010. "Democratic Competition and Terrorist Activity." *The Journal of Politics*, Vol. 72, No.1, pp. 16-30.
- Chenoweth, Erica. 2012. "Is Terrorism Still a Democratic Phenomenon?" *International Relations/Uluslararası İlişkiler*, Vol. 8, No. 32, pp. 85-99.
- Conrad, Courtenay, R., Conrad, Justin, and Young, Joseph, K. 2014. "Tyrants and Terrorism: Why Some Autocrats are Terrorized While Others are Not." *International Studies Quarterly*, Vol. 58, No.3, February, pp. 539-549.
- Czinkota, Michael, R., Knight, Gary, Liesch, Peter, W., and Steen, John. 2010. "Terrorism and International Business: A Research Agenda." *Journal of International Business Studies*, Vol. 41, No. 5, June, pp. 826-843.
- Drakos, Konstantinos and Gofas, Andreas. 2006. "In Search of the Average Transnational Terrorist Attack Venue." *Defence and Peace Economics*, Vol. 17, No. 2, August, pp. 73-93.
- Dreher, Axel and Fischer, Justina, A. 2010. "Government Decentralization as a Disincentive for Transnational Terror? An Empirical Analysis." *International Economic Review*, Vol. 51, No.4, November, pp. 981-1002.
- Durkheim, Émile 2010. *Suicide: A Study in Sociology* J. A. Spaulding and George Simpson, trans. London: Routledge Classics. (Original work published 1897)

- Durkheim, Émile 2014. *The Division of Labor in Society* H. D. Halls, trans., Steven Lukes, eds. New York: Simon and Schuster. (Original work published 1893)
- Fahey, Susan., & LaFree, Gary. (2015). Does Country-Level Social Disorganization Increase Terrorist Attacks? *Terrorism and Political Violence*, Vol. 27, No.1, December, pp. 81-111.
- Enders, Walter and Sandler, Todd. 2000. "Is Transnational Terrorism Becoming More Threatening? A Time-Series Investigation." *Journal of Conflict Resolution*, Vol. 44, No.3, June, pp. 307-332.
- Enders, Walter and Sandler, Todd. 2012. *The Political Economy of Terrorism* (2nd ed.). New York: Cambridge University Press.
- Eubank, Walter, L. and Weinberg, Leonard. 1994. "Does Democracy Encourage Terrorism?" *Terrorism and Political Violence*, Vol. 6 No.4, December, pp. 417-435.
- Eubank, Walter, L. and Weinberg, Leonard. 2001. "Terrorism and Democracy: Perpetrators and Victims." *Terrorism and Political Violence*, Vol. 13, No.1, March, pp. 155-164.
- Eyerman, Joseph. 1998. "Terrorism and Democracy: Perpetrators and Victims." *International Interactions*, Vol. 24, No.2, March, pp. 151-170.
- Gailbulloev, Khusrav, Piazza, James, A., and Sandler, Todd. 2016. "Regime Types and Terrorism." Unpublished working paper.
- Hendrix, Cullen, S. and Young, Joseph, K. 2014. "State Capacity and Terrorism: A Two-Dimensional Approach." *Security Studies*, Vol. 23, No. 2, April, pp. 329-363.
- Hamilton, Lawrence, C. and Hamilton, James, D. 1983. "Dynamics of Terrorism ." *International Studies Quarterly* Vol. 27, No. 1, March, pp. 39-54.
- Hoffman, Bruce. 1998. *Inside Terrorism*. New York: Columbia University Press.
- Institute for Economic and Peace & National Consortium for the Study of Terrorism and Responses to Terrorism. 2016. Global Terrorism Index.
- LaFree, Gary, Dugan, Laura, and Korte, Raven . 2009. "The Impact of British Counterterrorist Strategies on Political Violence in Northern Ireland: Comparing Deterrence and Backlash Models." *Criminology* Vol. 47, No.1, February, pp. 17-45.
- Lai, Brian. 2007. "Draining the Swamp": An Empirical Examination of the Production of International Terrorism, 1968–1998." *Conflict Management and Peace Science* Vol. 24, No. 4, October, pp. 297-310.
- Laqueur, Walter & Rubin, Barry eds. 2008. *The Israel-Arab Reader: A Documentary History of the Middle East Conflict* (7th Revised and Updated ed.) Penguin.
- Li, Quan. 2005. "Does Democracy Promote or Reduce Transnational Terrorist Incidents?" *Journal of Conflict Resolution*, Vol. 49 No. 2, April, pp. 278-297.
- National Consortium for the Study of Terrorism and Responses to Terrorism. 2016. Global terrorism database. < <http://www.start.umd.edu/gtd/database>> Accessed October 12, 2016.
- Marshall, Monty, G., Gurr, Ted, R., and Jaggers, Keith. 2016. *POLITY IV PROJECT: Political Regime Characteristics and Transitions, 1800-2015: Dataset Users' Manual*. Center for Systemic Peace.
- Millington, Chris. 2015. "Terrorism in France." *History Today*. <<http://www.historytoday.com/chris-millington/terrorism-france>> Accessed October 14, 2016.
- Piazza, James, A. 2007. "Draining the Swamp: Democracy Promotion, State Failure, and Terrorism in 19 Middle Eastern Countries." *Studies in Conflict & Terrorism*, Vol. 30, No. 6, May, pp. 521-539.
- Piazza, James, A. 2008a. "Do Democracy and Free Markets Protect Us From Terrorism?" *International Politics*, Vol. 45, No.1, January, pp. 72-91.
- Piazza, James, A. (2008b). "Incubators of Terror: Do Failed and Failing States Promote Transnational Terrorism?" *International Studies Quarterly*, Vol. 52, No. 3, August, pp. 469- 488.
- Piazza, James, A. 2009. "Is Islamist Terrorism More Dangerous? An Empirical Study of Group Ideology, Organization, and Goal Structure." *Terrorism and Political Violence*, Vol. 21, No. 1, January, pp. 62-88.
- Piazza, James, A. 2015. "Repression and Terrorism: A Cross-National Empirical Analysis of Types of Repression and Domestic Terrorism." *Terrorism and Political Violence*, Vol. 29, No.1, February, pp. 1-17.

- Rapoport, David, C. 2001. "The Fourth Wave: September 11 in the History of Terrorism." *Current History*, Vol. 100, No. 1, December, pp. 419-424.
- Rodgers, Lucy, Gritten, David, Offer, James, and Asare, Patrick. 2016. "Syria: The Story of the Conflict." BBC World News. < <http://www.bbc.com/news/world-middle-east-26116868>> Accessed October 22, 2016.
- Ross, Jeffery, I. 1993. "Structural Causes of Oppositional Political Terrorism: Towards a Causal Model." *Journal of Peace Research*, Vol. 30, No. 3, August, pp. 317-329.
- San-Akca, Belgin. 2013. "Democracy and Vulnerability An Exploitation Theory of Democracies by Terrorists." *Journal of Conflict Resolution*, Vol. 0 No.0, August, pp. 1-26.
- Savun,, Burcu and Phillips, Brian, J. 2009. "Democracy, Foreign Policy, and Terrorism." *Journal of Conflict Resolution*, Vol. 53 No.6, December, pp. 878-904.
- Schmid, Alex P. 2012. "The Revised Academic Consensus Definition of Terrorism. *Perspectives on Terrorism* Vol. 6 No. 2, May, pp. 1958-1959.
- Shor, Eran, Charmichael, Jason, Munoz, Jose, I., N., Shandra, John, and Schwartz, Michael. 2014. "Terrorism and state repression of human rights: A cross-national time-series analysis." *International Journal of Comparative Sociology*, Vol. 55 No. 4, August, pp. 294-317.
- Useem, Bert. 1998. "Breakdown Theories of Collective Action." *Annual Review of Sociology*, Vol. 24, January, pp. 215-238.
- Weeks, Jessica L. 2008. "Autocratic Audience Costs: Regime Type and Signaling Resolve." *International Organization*, Vol. 62, No.1, January, pp. 35-64.
- Weinbeg, Leonard B., and Eubank, William.1998. "Terrorism and Democracy: What Recent Events Disclose." *Terrorism and Political Violence*, Vol. 10, No.1, March, pp. 108-118.
- Young, Joseph K., and Dugan, Laura. 2011. Veto Players and Terror. *Journal of Peace Research*, Vol. 48, No. 1, November, pp. 19-33.

