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DETERMINANTS OF TERRORIST TARGET SELECTION:  
A QUANTITATIVE ANALYSIS

by

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## **ABSTRACT**

Existing research on the subject of terrorism is vast, spanning causes of terrorism, the membership of terrorist groups, types of terrorist attacks, and more. One area of terrorism research, though, has received only limited consideration: terrorist target selection. What research does exist explains target selection almost exclusively as a function of ideology (Asal et al. 2009, 270 and 274; Drake 1998b, 54-56 and 58). However, such a limited causal focus obscures other possible, and probable, explanations of terrorist target selection. This paper proposes an alternative explanation of terrorist target selection that includes ideological and terrorist group capability variables, as well as a variable measuring the security levels in the geographic areas in which terrorist attacks take place.

A research design employing multiple ordinary least squares regression is utilized. The findings demonstrate the importance of the independent variables, as well as the significance of the effects of the two-way and three-way interactions of variables from the three categories. Furthermore, the multiple regression models explain a greater percentage of the effects of the independent variables on the percentage of attacks against civilian targets when the three-way interaction variable is included than when this interaction variable is not included. From these findings, two primary policy implications are derived.

## **ACKNOWLEDGMENTS**

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## CHAPTER 1: INTRODUCTION

Embassies, football games, capitol buildings, subways, military barracks, and national monuments are all places where people gather, yet they are quite dissimilar. Diplomatic talks are conducted in embassies. Families gather to cheer on their favorite teams at football games. Laws are made in capitol buildings. People ride subways to work. Soldiers rest in their barracks. Excited tourists visit national monuments. The activities that take place at and the people in or at these locations are very different. However, each place, and each person, is a potential terrorist target. Existing research on the subject of terrorism is vast, spanning causes of terrorism, the membership of terrorist groups, types of terrorist attacks, and more. One area of terrorism research, though, has received only limited consideration: terrorist target selection. What research does exist explains target selection almost exclusively as a function of ideology (Asal et al. 2009, 270 and 274; Drake 1998b, 54-56 and 58). However, such a limited causal focus obscures other possible, and probable, explanations of terrorist target selection. This paper proposes an alternative explanation of terrorist target selection that includes ideological and terrorist group capability variables, as well as a variable measuring the security levels in the geographic areas in which terrorist attacks take place. In order to test this theory, a research design using multiple ordinary least squares regression is proposed.

### Problem

This thesis seeks to answer the question of what factors determine terrorist target selection. Detailed hypotheses concerning specific individual variables, as well as interactions between specific variables, will be included in the thesis. However, in general, in

accordance with the theory outlined below, decentralized terrorist groups are expected to attack a greater percentage of civilian targets, as opposed to government targets, when they are willing to sacrifice their own fighters and carry out their attacks in areas of low security. In contrast, decentralized terrorist groups are expected to attack a smaller percentage of civilian targets, as opposed to government targets, when they are unwilling to sacrifice their own fighters and carry out their attacks in areas of high security.

### Importance of Topic

This topic is extremely important to study because knowing what factors determine terrorist target selection will allow authorities to better preempt possible attacks. This is especially important, as attacks against civilians in Western states have increased. The terrorist attacks in the United States on September 11, 2001, ushered in a new era of civilian vulnerability. This has been reiterated time and again. Recent attacks include the coordinated November 13, 2015, attacks in Paris, France and the March 22, 2016, bombings in Brussels, Belgium, among others (Faiola and Mekhennet 2015; Witte et al. 2016). Unfortunately, there exists a serious dearth of research concerning terrorist target selection. The majority of analyses, both qualitative and quantitative, that have been conducted focus solely on ideological explanations of terrorist target selection. Furthermore, ideologies have typically been categorized under quite broad classifications, such as religion or anti-government sentiments (Asal et al. 2009, 270 and 274; Drake 1998b, 56 and 58). The specific ideological mechanisms that lead to terrorist target selection, and which very well may span multiple traditional ideological categories, have not been isolated and explored. Little empirical, quantitative consideration has been given to the effects of terrorist group capability and area security on target selection. This thesis seeks to fill this research void by considering the

individual and interactive causal effects of ideological stances, capability, and area security.

From the findings of this thesis, it is expected that specific policy recommendations in regards to security and attempts to create psychological counter-narratives to terrorist propaganda can be derived.

## CHAPTER TWO: DEFINITIONS

### Defining Terrorism

Before examining the literature concerning terrorist target selection, one must first understand what terrorism is. Although no universal definition exists, a common collection of characteristics describing terrorism has emerged among scholars of the topic. Scholars such as Cronin (2003, 32-33), Meisels (2006, 474), Walzer (2002, 5), and Tilly (2004, 8-10) assert that terrorism is a form of violence perpetrated against noncombatants. Furthermore, terrorism is conducted in order to achieve a social and/or political goal. However, the mechanism by which this goal is achieved is not simply direct physical violence against innocents. Rather, what is most important is that the violence has a psychological effect on a target population beyond those who are physically harmed (Cronin 2003, 32-33; Findley and Young 2015, 1121; Meisels 2006, 474; Pape 2003, 345; Richardson 1999, 209; Walzer 2002, 5; Tilly 2004, 8-10).

While these parameters provide a broad outline for defining terrorism, two of these characteristics are fiercely debated. The first is the requirement that the targets of terrorism be noncombatants. Pape (2003, 345) and Findley and Young (2015, 1121) assert that terrorism need not be carried out directly against noncombatants. Even attacks in which only combatants, such as military or law enforcement members, are physically injured have a significant psychological effect on noncombatants. In addition, not all targets can be neatly separated into the categories of combatants and noncombatants. For instance, government targets may contain a mixture of combatants and noncombatants, such as the mix of civilian and military personnel who work at the U.S. Pentagon. Furthermore, government targets that are visited often by civilians, such as the U.S. Capitol Building, are often seen by terrorists as

representatives of the government officials, and ordinary citizens, who vote in support of military actions (Richardson 1999, 2009). The second problem with the parameters of terrorism outlined above concerns the requirement that terrorism have a political and/or social purpose. Some scholars argue that, while a political goal may be explicitly stated by a terrorist group, this may not truly be the reason for an individual terrorist's actions or for the actions of the group as a whole (Crenshaw 1987, 15 and 19; Wilson 1973).

This thesis will define terrorism in accordance with the definition employed by the Global Terrorism Database. The Global Terrorism Database defines a terrorist attack as “the threatened or actual use of illegal force and violence by a non- state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation” (“Global Terrorism Database (Codebook)” 2016, 9). In order to be included in the database, an attack must first have three attributes. It “must be intentional”, it “must entail some level of violence or immediate threat of violence”, and “the perpetrators of the [incident] must be sub-national actors” (“Global Terrorism Database (Codebook)” 2016, 9). Furthermore, an attack must meet at least two of the following three criteria: 1) “The act must be aimed at attaining a political, economic, religious, or social goal.”; 2) “There must be evidence of an intention to coerce, intimidate, or convey some other message to a larger audience (or audiences) than the immediate victims.”; 3) “The action must be outside the context of legitimate warfare activities.” (“Global Terrorism Database (Codebook)” 2016, 9).

### Target Categories

Classifying terrorist targets into mutually exclusive groups is a difficult task that requires determining how exclusive each group should be. Such an undertaking can result in dozens of categories. However, two overarching categories have generally been agreed upon

in existing literature. The first category is government targets. These are members of the government, government owned facilities, or monuments to a government. This category includes targets that consist either only of combatants or of a combination of combatants and non-combatants (Coaffee 2010, 939). Civilian targets, in contrast, are not owned by or built in honor of a government. Civilian targets include only civilians, or locations where only civilians are targeted. They are typically much more easily accessible than are government targets, as defending them would be impossible to do without radically altering people's daily lives (Coaffee 2010, 943). Examples of such targets include, but are not limited to, private citizens, the media, religious groups, non-governmental organizations, and educational organizations (Asal et al. 2009, 266).

## CHAPTER THREE: THE ARGUMENT

Previous literature has identified three primary determinants of terrorist target selection: ideology, terrorist group capability, and state security countermeasures. However, the majority of studies concerning target selection identify ideology as the ultimate explanation of terrorist target selection. As defined by Drake, ideology is “the beliefs, values, principles, and objectives – however ill-defined or tenuous – by which a group defines its distinctive political identity and aims” (1998b, 54-55). Essentially, ideology serves as the prism through which a terrorist group identifies the “enemy” based upon subjective morals (Drake 1998b, 56 and 58). The most common ideological source referred to in the literature is religion. A study by Asal et al. (2009, 270) used zero-inflated negative binomial regression to analyze the relationship between religious ideology and terrorist target selection. Religious ideology was found to be a statistically significant explanation of target selection. Specifically, terrorist groups motivated by religious ideologies were more likely to attack soft targets, in this case meaning civilian targets, than government targets (Asal et al. 2009, 274). That being said, this theory can be further refined. Extant research concerning the effect of terrorist group ideology on target selection treats ideology as a nominal variable in which terrorist groups are categorized according to broad ideological classifications, such as religion or anti-government sentiments (Asal et al. 2009, 270 and 274; Drake 1998b, 56 and 58). The specific ideological mechanisms that lead to terrorist target selection, and which very well may span multiple traditional ideological categories, have not been isolated and explored. This thesis asserts that two ideological stances determine whether or not a terrorist group targets civilians. The first is a group’s willingness to sacrifice its own fighters, either through suicide terrorism or through extremely difficult missions that are highly likely to

result in the death of a high percentage of the attackers. This is because, in order to carry out a successful attack against civilians, the attackers must typically be inconspicuous. This can be most easily achieved through the use of suicide attackers or attackers with minimal weapons (Pape 2003, 346).

The second ideological stance that determines whether or not a terrorist group targets civilians is the group's willingness to sacrifice members of its community who are not members of the group itself. A terrorist group cannot survive without passive support from members of its own community who provide moral support and do not cooperate with authorities and/or the group's enemies (Cronin 2003, 54). If a terrorist group targets civilians, it risks accidentally injuring or killing members of its own community. In addition, it risks setting a precedent for retaliation against the civilians of its own community. Both of these results have the potential to turn members of the terrorist group's community against it (Cronin 2006, 27-29). However, if the group takes the ideological stance that the sacrifice of these community members for the "good of the cause" is justified, the potential repercussions may be ignored.

In his 1998 book, *Terrorists' Target Selection*, C. J. M. Drake qualitatively explored the impact of terrorist group capabilities on target selection. He identified three capability components: quality of leadership, quality of membership, and available material resources (Drake 1998a, 73). With respect to the most important component, leadership quality, Drake emphasized terrorist group structure, a leader's experience, a leader's desires, and a leader's ability to learn (Drake 1998a, 73-79). According to literature on principal-agent theory, these four factors are strongly interrelated. According to this theory, a disconnect exists between the preferences of leaders and the behavior of subordinates as a result of the incentives of



members to pursue private agendas (Abrahams and Potter 2015, 317). The actions of all people within a terrorist organization, including leaders and regular members, are the result of rational cost-benefit analyses made separately by these individuals. These cost-benefit analyses are calculated according to individual incentives. The clash of desires and goals arises because the incentives of leaders differ from the incentives of members in four fundamental ways. First, regular members have typically been part of terrorist organizations for shorter periods of time. Therefore, they have less exposure to conflict than do leaders. As a result, they are unlikely to have experienced, and therefore be wary of, the potential negative consequences of terrorism, such as overwhelming retaliation that can decimate the group or the possible loss of public support if a terrorist group's action is seen as too extreme (Abrahams and Potter 2015, 316; Cronin 2006, 28; Sogeman, 2008). The second difference in incentives between leaders and members is in regards to access to resources. Leaders have access to the majority, if not all, of the resources held by the terrorist group. In contrast, members have access only to the resources allocated to them by the leaders. Resources, of course, can be both personal items and items needed to carry out attacks. A lack of resources can restrict the actions of members in regards to attacks or incentivize members to attack in order to obtain additional resources for themselves (Abrahams and Potter 2015, 316; Shapiro and Siegel 2007, 406-408). The third incentive concerns commitment levels. Having typically been part of the organization since its founding, leaders are more invested, physically, emotionally, and financially, than are members who joined later. In addition, leaders are typically unable to leave the group, even if they want to do so despite their investment in the group, because, as a result of their prominent positions, they are more easily identifiable to law enforcement authorities, which seek to kill or capture them

(Abrahms and Potter 2015, 316-317). The final difference in incentives is a bit broader: members simply have more to gain by carrying out attacks than do leaders. Members are more likely to have known someone who was killed in the struggle in which the terrorist group is engaged. Therefore, conducting attacks allows members to exact revenge (Abrahms and Potter 2015, 316; Moghadam 2006, 722). In addition, leaders, by definition, are already as high in the organizational structure as they can be. Members, in contrast, have the potential to advance in the organizational ranks. Therefore, conducting terrorist attacks can be used by members as a form of outbidding against their rivals within the group. Conducting a successful attack enables a member to prove himself as more capable than other members or as highly dedicated to the cause (Abrahms and Potter 2015, 316).

A highly centralized organizational structure serves to alleviate the effects of clashing incentives between leaders and regular members. This is because the structure gives the leaders, whomever they may be, the power to enforce their desires that result from their incentives (Galbraith, 2007). On the other hand, “networked” terrorist groups, or those with decentralized organizational structures, do not alleviate the effects of clashing incentives between leaders and regular members. This is because the structure gives the leaders less power to enforce their desires. Rather, this decentralized structure allows for the creation of multiple decision sources that set agendas based on differing incentives (Abrahms and Potter 2015, 318; Heger et al. 2012, 747-748). This decentralized structure makes it very difficult for leaders to set primary agendas, to efficiently communicate these agendas to all members, and/or to enforce compliance with them (Eilstrup-Sangiovanni and Jones 2008, 19-20; Heger et al. 2012, 748; Helfsten and Wright 2011, 788-789). This structure gives leaders less power. Instead, it delegates power to regular members of the terrorist group, who can then act

upon their own desires, which are based on their personal incentives (Abrahms and Potter 2015, 312; Heger et al. 2012, 745-746). Therefore, a centralized group structure instead allows a leader to enforce his choice of target type. This choice is the result of the leader's own incentives. These incentives, as explained above by principal-agent theory, are likely to result in a terrorist group leader choosing a government target to attack rather than a civilian target. Therefore, terrorist groups that have centralized structures will attack a greater percentage of government targets than will terrorist groups with decentralized structures, and, vice versa, terrorist groups that have decentralized structures will attack a greater percentage of civilian targets than will terrorists groups that have centralized structures.

Recent research also indicates that the security of the area in which a potential target is located may affect terrorist target selection. A recent study by Brandt and Sandler (2010, 225) employed Bayesian Poisson regression to test the relationship between target fortification and target selection. The authors found that, when a state launched a concerted effort to fortify possible terrorist targets owned by the state, terrorists increasingly attacked soft targets (2010, 233). This suggests that terrorist groups are more likely to attack targets that are less fortified, or in areas with less security, than targets that are more fortified, or in areas of higher security.

From these arguments, the following three preliminary hypotheses can be derived:

*Hypothesis 1: The percentage of civilian targets that a terrorist group attacks is greater for terrorist groups that are willing to sacrifice their fighters than for terrorist groups that are not willing to sacrifice their fighters.*

*Hypothesis 2: The percentage of civilian targets that a terrorist group attacks is greater for terrorist groups with decentralized organizational structures than for terrorist groups with centralized organizational structures.*

*Hypothesis 3: The percentage of civilian targets that a terrorist group attacks is greater in areas of low security than in areas of high security.*

However, from the existing literature outlined above, a more complex theory emerges that requires rigorous quantitative testing. Terrorist target selection is not simply the result of one factor. Rather, it is an amalgamation of factors. Specifically, whether a terrorist group attacks a civilian or government target is the result of an interaction of ideology, capability, and security. In regards to the interaction between the willingness of a terrorist group to sacrifice its fighters and the organizational structure of the terrorist group, regular members, rather than leaders, of terrorist groups have an incentive to carry out attacks in order to prove themselves. However, these regular members typically have limited resources with which to conduct attacks (Abrahms and Potter 2015, 316; Shapiro and Siegel 2007, 406-408). The willingness to sacrifice themselves and their comrades in an attack, though, allows these regular members to avoid lack of resource problems because sacrificing oneself requires only one's own body and less sophisticated weapons, such as knives, guns, or homemade bombs. As a result, regular terrorist group members have an incentive to be willing to sacrifice themselves and other fighters. A decentralized organizational structure of a terrorist group facilitates the implementation of attacks based upon these incentives because it allows for the creation of multiple incentive sources and does not give the leaders of the terrorist group sufficient power to prevent regular members from acting upon their own incentives (Abrahms and Potter 2015, 316 and 318; Heger et al. 2012, 747-748).

The effect of the willingness of a terrorist group to sacrifice its fighters is also related to the security in the area in which the terrorist group chooses to attack. This is because suicide attacks, or attacks that are highly likely to end in the deaths of the attackers, are easier to carry out in unmonitored areas. In contrast, the weapons used during these attacks are likely to be detected by the modern security and surveillance equipment utilized in high security areas (Brandt and Sandler 2010, 233). The effects of the organizational structure of a terrorist group and the security of the area in which that group attacks are related as well. This is because, as explained above, regular members, as opposed to leaders, of terrorist groups have an incentive to carry out successful attacks in order to prove themselves (Abrahms and Potter 2015, 316). Decentralized organizational structures empower these regular members to act on their own incentives (Abrahms and Potter 2015, 318; Heger et al. 2012, 747-748). Also as explained above, successful attacks, such as those sought by these regular members to prove themselves, are easier for terrorists to carry out in low security areas than in high security areas (Brandt and Sandler 2010, 233).

These hypothesized two-way interactions suggest a possible three-way interaction between the constituent independent variables. Regular members of terrorist groups have an incentive to carry out successful attacks in order to prove themselves (Abrahms and Potter 2015, 316). A decentralized organizational structure allows the regular members to act upon their own incentives (Abrahms and Potter 2015, 318; Heger et al. 2012, 747-748). Successful attacks are easier to carry out in areas of low security than in areas of high security (Brandt and Sandler 2010, 233). Simultaneously, these regular members typically have fewer resources with which to carry out attacks (Abrahms and Potter 2015, 316; Shapiro and Siegel 2007, 406-408). The willingness to sacrifice themselves and their comrades permits regular

members to avoid these resource problems. Furthermore, attacks that require the willingness to sacrifice one's own fighters generally utilize weapons that are better suited to low security areas where modern security and surveillance measures that might detect these weapons either do not exist or are limited (Brandt and Sandler 2010, 233).

From these arguments, the following four additional hypotheses are derived:

*Hypothesis 4: The percentage of civilian targets that a terrorist group attacks is greater for decentralized terrorist groups in high security areas that are not willing to sacrifice their fighters than for centralized terrorist groups in high security areas that are not willing to sacrifice their fighters.*

*Hypothesis 5: The percentage of civilian targets that a terrorist group attacks is greater for decentralized terrorist groups in high security areas that are willing to sacrifice their fighters than for centralized terrorist groups in high security areas that are willing to sacrifice their fighters.*

*Hypothesis 6: The percentage of civilian targets that a terrorist group attacks is greater for decentralized terrorist groups that attack in low security areas and are willing to sacrifice their fighters than for centralized terrorist groups that attack in low security areas and are willing to sacrifice their fighters.*

*Hypothesis 7: The percentage of civilian targets that a terrorist group attacks is greater for decentralized terrorist groups that attack in low security areas and are willing to sacrifice their fighters than for decentralized terrorist groups that attack in high security areas and are not willing to sacrifice their fighters.*

## **CHAPTER FOUR: THE DATA**

### Sources

The data for this study will come from multiple datasets. The first existing dataset that will be used is the Global Terrorism Database, or GTD (“Global Terrorism Database (Dataset)” 2016). The second dataset contains the United Nations Office on Drug and Crimes’ United Nations Surveys of Crime Trends and Operations of Criminal Justice Systems (United Nations 1995-1996). The third dataset is one compiled by Dr. Frederic Pearson, Dr. Isil Akbulut-Gok, and Dr. Marie Olson Lounsbery for their paper titled “Group Structure and Intergroup Relations in Global Terror Networks: Further Explorations”. This dataset is a compilation of their own research, as well as a terrorist network dataset created by Brian Phillips and a terrorist group organizational structure dataset created by Dr. Joshua Kilberg, among other datasets (“Group Structure and Intergroup Relations in Global Terror Networks (Dataset)” 2015). As a result of the available data, this thesis will be limited to analyzing data from 1998 to 2005. In addition, data for two terrorist groups active in Western Europe and North America during this time period are available from only one of the above sources. Therefore, these two groups, and the handful of attacks they perpetrated, are not included in this study.

### Independent Variables

As stated above, there exist two ideological stances that may lead terrorist groups to target civilians. In order to measure these stances, ideally two ideological variables would be created. Unfortunately, however, data is not available to measure whether or not a terrorist group accepts the potential injuring or killing of members of the community from which the

group comes, either by the group itself or by opposition forces in retaliation for the terrorist group's actions. Therefore, as a limitation of this study, this variable will not be included. A binary nominal *Fighter Sacrifice* variable, though, will be created from data in the Global Terrorism Database ("Global Terrorism Database (Codebook)" 2016, 25). Terrorist groups that have committed at least one suicide attack in the years preceding the year in question will be coded 1 for "Yes". Terrorist groups that have not committed at least one suicide attack in the years preceding the year in question will be coded 0 for "No". This will result in a reference value of "No". Unfortunately, this operationalization of the variable cannot measure the willingness of a terrorist group to sacrifice its own fighters not directly through suicide attacks, but rather through attacks in which it is highly probable that members of the group will be killed. This is a limitation of this study resulting from the difficulty of obtaining the necessary information to include this extended operationalization within the time frame allotted to complete this thesis.

As outlined by C. J. M. Drake, a terrorist group's capabilities include the quality of leadership of the group (Drake 1998a, 73). Therefore, an independent variable measuring the organizational structure type of each terrorist group in a given year will be included in these analyses. The variable will be called *Decentralized*. Data for this variable will come from the variable *Org\_strt* in the "Group Structure and Intergroup Relations in Global Terror Networks" dataset. This four-category ordinal variable was first taken from the terrorist group organizational structure dataset created by Dr. Joshua Kilberg. It classifies each terrorist group as having one of the following four structural types, from most centralized to least centralized, in any given year: "bureaucracy", "hub-spoke", "all-channel", and "market" ("Group Structure and Intergroup Relations in Global Terror Networks" 2015). First, the



variable will simply be renamed *Decentralized* for clarity. Next, this ordinal-level variable will be recoded as a nominal-level variable. The categories “bureaucracy” and “hub-spoke” will be recoded as 0 for “Centralized”. The categories “all-channel” and “market” will be recoded as 1 for “Decentralized”. This will result in a reference value of “Centralized”.

The variable *Low Area Security* will measure the security level of the area in which the terrorist attacks took place. Data for this variable will come from the variable *Total Police Personnel Rate per 100,000 Population* in the United Nations Office on Drug and Crimes’ United Nations Surveys of Crime Trends and Operations of Criminal Justice Systems (United Nations 1995-2006). This variable measures the police per 100,000 people in the state in which the terrorist attacks perpetrated by a given group in a given year took place. It is important to note, however, that this dataset presents two limitations. The first, and most problematic, is that data for this variable is not available for every state for each year in this study. To correct for this, the difference is calculated for each missing time period for each state. This difference is then divided by the number of full years missing. The dividend, or multiple of the dividend, is then added or subtracted from the last known value of the variable to estimate the value of the variable for the missing year. For example, the value of the variable *Total Police Personnel Rate per 100,000* for France in 2000 was 211.01. The value of this same variable for France in 2006 was 318.11. No values for this variable are available for France for the years 2001, 2002, 2003, 2004, and 2005. Therefore, they must be estimated. This is done by first calculating the difference on average of the value of the variable from 2000 and 2006. During this time period, the value of the variable increased by 107.1. Also during this time period, six full years elapsed: 2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, and 2005-2006. Therefore, the difference of 107.1

is divided by 6, resulting in a dividend of 17.85. Because the value of the variable increased on average from 2000 to 2006, multiples of this dividend will be added to the value of the variable in the year 2000 to estimate the missing values of the variable. Adding 17.85 to 211.01 results in an estimated value of 228.86 police per 100,000 people in France in 2001. Adding 17.85 times 2, or 35.7, to 211.01 results in an estimated value of 246.71 police per 100,000 people in France in 2002, and so on. Using this estimation technique, the value of police per 100,000 population can be calculated for all states for all missing years provided a previous value exists for the state on or after the year 1997. If no such previous value exists, an estimated value for a certain state for a certain year cannot be calculated. Thankfully, this lack of previous data is not common in the dataset created for this thesis. It is primarily only a problem because it prohibits the estimation of the value of this variable for the United Kingdom for the years 1998, 1999, and 2000. The second problem with this variable is that a total police per 100,000 population is not available for the United Kingdom as a whole for the years 2003, 2004, and 2005. Rather, it is only available for each individual province within the United Kingdom. As a result of these two issues, area security data is only available for the United Kingdom for the years 2001 and 2002 (United Nations 1995-2006). Once the measures of police per 100,000 people have been listed for each state for each year within the given time frame, the values will be recoded. The values of this variable in the top 50<sup>th</sup> percentile during this time frame will be coded as 1 for “Low Security”. The values of this variable in the bottom 50<sup>th</sup> percentile during this time frame will be coded as 0 for “High Security”. This will result in a reference value of “High Security”. While seemingly counterintuitive, coding areas of low security as 1 and areas of high security as 0 allows for the clearer interpretation of the regression coefficients of this variable and of interaction

terms that include this variable.

From these independent variables, the following interaction variables will be created: *Fighter Sacrifice X Decentralized*, *Fighter Sacrifice X Low Area Security*, *Decentralized X Low Area Security*, and *Fighter Sacrifice X Decentralized X Low Area Security*.

### Dependent Variable

The dependent variable, titled *Percent Civilian Attacks*, will measure the percentage of attacks against civilian targets, rather than against government targets, in a geographic area. The Global Terrorism Database contains a variable titled *Target/Victim Type*. This nominal variable codes targets into 22 categories: “Business”, “Government (General)”, “Police”, “Military”, “Abortion Related”, “Airports and Aircraft”, “Government (Diplomatic)”, “Educational Institution”, “Food and Water Supply”, “Journalism and Media”, “Maritime (Includes Ports and Maritime Facilities)”, “Non-Governmental Organizations”, “Other”, “Private Citizens and Property”, “Religious Figures and Institutions”, “Telecommunications”, “Terrorists/Non-State Militias”, “Tourists”, “Transportation (Other than Aviation)”, “Unknown”, “Utilities”, and “Violent Political Parties” (“Global Terrorism Database (Codebook)” 2016, 30-38). In accordance with the definitions of government and civilian targets outlined above in the literature review, this variable will be recoded into the new variable *Target Type*. The categories “Government (General)”, “Police”, “Military”, and “Government (Diplomatic)” will be recoded as 0 for “government target” since they include either only combatants or a combination of combatants and noncombatants. The categories “Business”, “Abortion Related”, “Airports and Aircraft”, “Educational Institution”, “Food or Water Supply”, “Journalism and Media”, “Maritime (Includes Ports and Maritime Facilities)”, “Non-Governmental Organizations”,

“Private Citizens and Property”, “Religious Figures and Institutions”, “Telecommunications”, “Tourists”, “Transportation (Other than Aviation)”, and “Utilities” will be recoded as 1 for “civilian target” since, according to the descriptions in the GTD codebook, they include only noncombatants. Attacks against the categories “Terrorists/Non-State Militias” and “Violent Political Parties” will be dropped from the analysis because they do not belong in either the government or civilian target categories and there are very few in the sample (“Global Terrorism Database (Codebook)” 2016, 30-38). All attacks in which the target is categorized as target type “Unknown” will also be dropped, as this category contains a mix of government and civilian targets (“Global Terrorism Database (Codebook)” 2016, 33). Once all targets are recoded, the percentage of civilian targets of a certain terrorist group in a geographic area in a certain year will be calculated by dividing the number of civilian targets attacked by that terrorist group in that geographic area in that year by the total number of targets attacked by that terrorist group in that geographic area in that year. The percentage will be recorded in the form of a number between and including 0 and 1.0. For the First Dataset and the Third Dataset, explained below, the geographic level at which this percentage is calculated is the province-level. For the Second Dataset and the Fourth Dataset, also explained below, the geographic level at which this percentage is calculated is the state-level.

### Control Variables

Three control variables are included in this study. The first control variable is the variable *Religious Motivation*. This control variable, which comes from the “Group Structure and Intergroup Relations in Global Terror Networks” dataset, is included in order to account for the possibility that religiously motivated terrorist groups may be more likely to attack

civilian targets than are terrorist groups that are not religiously motivated (Asal et al. 2009, 274; “Group Structure and Intergroup Relations in Global Terror Networks (Dataset)” 2015). Religiously motivated terrorist groups will be coded 1 for “Religiously Motivated”. Terrorist groups that are not religiously motivated will be coded as 0 for “Not Religiously Motivated”. This will result in a reference value of “Not Religiously Motivated”. The second control variable is the variable *Region*. Terrorist attacks that take place within North America will be coded as 1 for “North America”. Terrorist attacks that take place within Western Europe will be coded as 0 for “Western Europe”. This will result in a reference value of “Western Europe”. This variable will come from the variable *Region* in the Global Terrorism Database (“Global Terrorism Database (Codebook)” 2016, 18-19). The third through tenth control variables are dummy variables of the years 1998 to 2005: *1998*, *1999*, *2000*, *2001*, *2002*, *2003*, *2004*, and *2005*. The dummy variable *1998* is the reference variable for all other dummy year variables. These variables come from the variable *Year* in the Global Terrorism Database (“Global Terrorism Database (Codebook)” 2016, 11). The coefficients of these variables are not included in the model tables below. They are simply included to control for heterogeneity across years.

## CHAPTER FIVE: THE METHODOLOGY

The theory outlined above is tested using quantitative analyses. Multiple ordinary least squares, or OLS, regression is used because the dependent variable is a continuous variable (Abrams 2007). Four datasets are created using terrorist attacks in Western Europe and North America from 1998 to 2005. The First Dataset and the Second Dataset include all attacks from the Global Terrorism Database, even if an attack is coded as possibly being some other type of attack than a terrorist attack. This is typical when using the Global Terrorism Database. However, out of an abundance of caution, the Third Dataset and the Fourth Dataset only include attacks that are not coded as possibly being some other type of attack than a terrorist attack. Furthermore, in the First Dataset and the Third Dataset, the unit of analysis is *Percent Civilian Attacks* per Year-Group-Province. In the Second Dataset and the Fourth Dataset, the unit of analysis is *Percent Civilian Attacks* per Year-Group-State. For each of these four datasets, five regression models are analyzed. Listwise deletion is used in the regression analyses because the use of pairwise deletion is likely to cause errors due to the tolerance limits of the dependent variable.

The first model will test the relationships between the independent ideological variable *Fighter Sacrifice*, the independent capability variable *Decentralized*, and the independent variable *Low Area Security* and the dependent variable, *Percent Civilian Attacks*, while also including the control variables of *Religious Motivation* and *Region*, as well as the dummy year variables. The second model will replicate the first model but will also include the two-way interaction variable of *Fighter Sacrifice X Decentralized*. The third model will replicate the second model but will also include the two-way interaction variable of *Fighter Sacrifice X Low Area Security*. The fourth model will replicate the third model but

will also include the two-way interaction variable of *Decentralized X Low Area Security*. The fifth model will replicate the fourth model but will also include the three-way interaction variable of *Fighter Sacrifice X Decentralized X Low Area Security*.

## CHAPTER SIX: THE FINDINGS

### Analysis

Although it was the original intention of this study to perform all five regression models for each of the four datasets, this proved not to be possible. When computing the interaction variables for the Third Dataset and the Fourth Dataset, it was determined that several of the resulting interaction variables had values that did not vary at all. This was most likely due to the relatively small sample size of attacks that were characterized without doubt as terrorist attacks during the limited time period of 1998 to 2005. This prevented all five regression models from being performed on these two datasets, and, as a result, no regression models were ultimately run on the Third Dataset and on the Fourth Dataset.

Despite this setback, the First Dataset was able to be analyzed using all five regression models. Prior to the regression models, though, descriptive statistics were analyzed for each of the three individual independent variables, as well as for the dependent variable and two of the control variables. The results are presented in Table 1 below. Clearly, several of the variables are skewed. This is most likely a result of the limited geographic scope and short time span of these analyses. This is a limitation of this thesis resulting from the dearth of availability of the necessary data.



Table 1: Descriptive Statistics of Individual Independent, Dependent, and Control Variables

Variable	N	Min.	Max.	Mean		Std. Deviation	Skewness		Kurtosis	
	Stat.	Stat.	Stat.	Stat.	Std. Error	Stat.	Stat.	Std. Error	Stat.	Std. Error
Fighter Sacrifice	183	0	1	.20	.029	.399	1.538	.180	.371	.357
Decentralized	183	0	1	.64	.035	.480	-.610	.180	-1.646	.357
Low Area Security	155	0	1	.54	.040	.500	-.144	.195	-2.005	.387
Religious Motivation	183	0	1	.03		.179	5.291	.180	26.279	.357
Region	183	1	2	1.69		.464	-.821	.180	-1.341	.357
Percent Civilian Targets	183	.00	1.00	.7055	.02885	.39023	-.922	.180	-.756	.357
Valid N (listwise)	155									

Prior to running Models 1 through 5 on the First Dataset, preliminary ordinary least squares regression analyses were run for each of the three independent variables. All control variables were included for each of these analyses. The first regression found a significant positive relationship between the independent variable *Fighter Sacrifice* and the dependent variable *Percent Civilian Attacks*. This preliminary finding lent support to *Hypothesis 1*. The second regression found a significant positive relationship between the independent variable *Decentralized* and the dependent variable *Percent Civilian Attacks*, lending support to *Hypothesis 2*. However, the third regression found no significant relationship between the independent variable *Low Area Security* and the dependent variable *Percent Civilian Attacks*. This finding gave no support to *Hypothesis 3*.

The first regression model presented below tests the relationships between the independent variables *Fighter Sacrifice*, *Decentralized*, and *Low Area Security* and the dependent variable *Percent Civilian Attacks* using ordinary least squares regression, while also controlling for the variables *Religious Motivation* and *Region*, as well as for the multiple dummy year variables. The results of Model 1 are presented in column one of Table 2. In this Model, the relationship between *Decentralized* and *Percent Civilian Attacks* is significant at the .01 level. In addition, the direction of the relationship is in the expected positive. Therefore, the percentage of civilian targets attacked by decentralized terrorist groups is 25.1 percent greater than the percentage of civilian targets attacked by centralized terrorist groups. This supports *Hypothesis 2*. Because the coefficients of the variables *Fighter Sacrifice* and *Low Area Security* are not significant, *Hypothesis 1* and *Hypothesis 3* are not supported by Model 1. The  $R^2$  value of .520 indicates that Model 1 explains 52.0 percent of the variation in the dependent variable.

The second regression model tests the relationships between the independent variables *Fighter Sacrifice*, *Decentralized*, *Low Area Security*, and *Fighter Sacrifice X Decentralized* and the dependent variable *Percent Civilian Attacks* using ordinary least squares regression. The aforementioned control variables are also included. The results of Model 2 are presented in column two of Table 2. The regression coefficient of the variable *Decentralized* is significant at the .01 level and in the positive direction. This means that the percentage of civilian targets attacked by decentralized terrorist groups that are not willing to sacrifice their fighters is 24.4 percent greater than the percentage of civilian targets attacked by centralized terrorist groups that are not willing to sacrifice their fighters. The  $R^2$  value of Model 2 is .520, meaning that Model 2 explains 52.0 percent of the variation in the dependent variable.

The third regression model tests the relationships between the independent variables *Fighter Sacrifice*, *Decentralized*, *Low Area Security*, *Fighter Sacrifice X Decentralized*, and *Fighter Sacrifice X Low Area Security* and the dependent variable *Percent Civilian Attacks* using ordinary least squares regression. The previously mentioned control variables are also included. The results of Model 3 are presented in column three of Table 2. The regression coefficient of the variable *Decentralized* is significant at the .05 level and in the positive direction. This means that the percentage of civilian targets attacked by decentralized terrorist groups that attack in areas of high security and are not willing to sacrifice their fighters is 22.7 percent greater than the percentage of civilian targets attacked by centralized terrorist groups that attack in areas of high security and are not willing to sacrifice their fighters. The  $R^2$  value of Model 2 is .525, meaning that Model 2 explains 52.5 percent of the variation in the dependent variable.

The fourth regression model tests the relationships between the independent variables *Fighter Sacrifice*, *Decentralized*, *Low Area Security*, *Fighter Sacrifice X Decentralized*, *Fighter Sacrifice X Low Area Security*, and *Decentralized X Low Area Security* and the dependent variable *Percent Civilian Attacks* using ordinary least squares regression. The control variables outlined previously are included as well. The results of Model 4 are presented in column 4 of Table 2. Surprisingly, none of the regression coefficients of the independent variables in the model are significant. The  $R^2$  value of Model 4 is .525, meaning that Model 4 explains 52.5 percent of the variation in the dependent variable

The fifth regression model tests the relationships between the independent variables *Fighter Sacrifice*, *Decentralized*, *Low Area Security*, *Fighter Sacrifice X Decentralized*, *Fighter Sacrifice X Low Area Security*, *Decentralized X Low Area Security*, and *Fighter Sacrifice X Decentralized X Low Area Security* and the dependent variable *Percent Civilian Attacks* using ordinary least squares regression. The control variables mentioned earlier are included as well. The results of Model 5 are presented in column 5 of Table 2. The inclusion of this three-way interaction variable results in three significant independent variable regression coefficients. The variable *Decentralized* is significant at the .05 level and in the expected positive direction. This means that the percentage of civilian targets a terrorist group attacks is 30.4 percent greater for decentralized terrorist groups that attack in high security areas and are not willing to sacrifice their fighters than for centralized terrorist groups that attack in high security areas and are not willing to sacrifice their fighters. This finding supports *Hypothesis 4*. The variable *Fighter Sacrifice X Low Area Security* is significant and in the negative direction. The variable *Fighter Sacrifice X Decentralized X Low Area Security* is significant and in the positive direction. The significant regression

coefficient of the variable *Fighter Sacrifice X Decentralized X Low Area Security* is greater than the significant regression coefficient of the variable *Fighter Sacrifice X Low Area Security*. Therefore, the percentage of civilian targets a terrorist group attacks is greater for decentralized terrorist groups that attack in areas of low security and are willing to sacrifice their fighters than for centralized terrorist groups that attack in areas of low security and are willing to sacrifice the fighters. Specifically, this is a difference of 34.4 percent ( $1.395 - 1.051 = .344$ ). This supports *Hypothesis 6*. Furthermore, the percentage of civilian targets that a terrorist group attacks is greater for decentralized terrorist groups that attack in areas of low security and are willing to sacrifice their fighters than for decentralized terrorist groups that attack in areas of high security and are not willing to sacrifice their fighters. This is a difference of 52.0 percent ( $1.395 - .151 - .724 + .304 = .824 - .304 = .52$ ). This finding supports *Hypothesis 7*. Unfortunately, this model provides no support for *Hypothesis 5*.

Following these findings of the analyses of the First Dataset, the regression models were applied to the Second Dataset. However, in each of the five regression models, none of the independent variables, nor any of the interactions of the independent variables, were found to be significant. This is most likely because the Second Dataset groups terrorist attacks at the geographic state-level. As only a few states accounted for the majority of the terrorist attacks in North America and Western Europe during this time period, the data was most likely skewed.

Table 2: OLS Regression Models of the Effects of Determinants of Terrorist Target Selection

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
	B	B	B	B	B
Fighter Sacrifice	.111	.023	-.056	-.055	.597
Decentralized	.251**	.244**	.227*	.237	.304*
Low Area Security	-.008	-.011	-.050	-.038	.051
Fighter Sacrifice X Decentralized		.097	.052	.049	-.724
Fighter Sacrifice X Low Area Security			.170	.174	-1.051*
Decentralized X Low Area Security				-.018	-.151
Fighter Sacrifice X Decentralized X Low Area Security					1.395**
Religious Motivation	-.207	-.213	-.147	-.146	-.068
Region	-.063	-.062	-.085	-.087	-.111
Constant	.507**	.508**	.558**	.558**	.570**
$R^2$	.520	.520	.525	.525	.558
N	155	155	155	155	155

*Note:* \* significant at the .05 level, \*\* significant at the .01 level

*Note:* The regression coefficients are unstandardized.

*Note:* Dummy variables for the years of this analysis are included in all five models in order to control for heterogeneity across years, but the coefficients of these variables are not listed above.

## Discussion

These findings show that decentralized terrorist groups attack a greater percentage of civilian targets, as opposed to government targets, when they are willing to sacrifice their fighters and carry out their attacks in areas of low security. In contrast, decentralized terrorist groups attack a smaller percentage of civilian targets, as opposed to government targets, when they are not willing to sacrifice their fighters and when they carry out their attacks in areas of high security. Furthermore, decentralized terrorist groups that attack in high security areas that are not willing to sacrifice their fighters attack a greater percentage of civilian targets than do centralized terrorist groups that attack in high security areas that are not willing to sacrifice their fighters. This pattern does not exist in high security areas, though, when both centralized and decentralized groups are willing to sacrifice their fighters. This could possibly be because the willingness to sacrifice one's own fighters has a greater effect within the interaction term than does the organizational structure of the terrorist group. In contrast, decentralized terrorist groups that attack in low security areas and are willing to sacrifice their fighters attack a greater percentage of civilian targets than do centralized terrorist groups in low security areas that are willing to sacrifice their fighters.

These findings suggest several policy implications. The first is in relation to area security. These analyses demonstrate that decentralized terrorist groups, which are especially prevalent today in Western Europe and, particularly, in North America, in most instances, attack a greater percentage of civilian targets, as opposed to government targets, than do centralized terrorist groups, especially in areas with low security. In addition, the findings also show that the willingness of a decentralized terrorist group to sacrifice its own fighters increases the likelihood of attacks against civilians in low security areas. Special attention,

then, should be given to protecting civilian targets in Western states by increasing security measures not only at specific sites, such as sporting arenas, but in geographic areas in general. This could be done by increasing the police per capita in a region, as well as possibly by creating, or increasing the capacity of, counterterrorism divisions at both the local-level and state-level and by stationing state-level law enforcement officers and counterterrorism divisions in multiple locations throughout single states. Furthermore, a counter-narrative to the use of suicide terrorism must also be created and publicized. As mentioned above, the willingness of a decentralized terrorist group to use suicide attacks, or attacks that are highly likely to result in the death of the attackers, in low security areas increases the likelihood of attacks against civilians. Regular terrorist group members are most likely to use this method of attack in order to prove themselves as more capable than other members or as highly dedicated to the cause, as well as to avoid the problem of limited resources. In these instances, sacrificing one's life has a positive connotation. It is seen as an expression of commitment to and belief in the cause. To reduce the use of suicide attacks, this psychological narrative must be countered. Governments and non-profit organizations must frame the use of suicide attacks as cowardly and selfish. This counter-narrative must be publicized through all available methods, including through television ads, online videos, Internet articles, social media sites, and classroom lessons. This counter-narrative must reach individuals of all ages both within Western states and around the world in order to lessen the incentives that regular members of terrorist groups have to use suicide attacks.



## CHAPTER SEVEN: CONCLUSION

This thesis provides the first comprehensive quantitative analysis of terrorist target selection. This study uses ordinary least squares regression to study the effects of terrorist group ideological stances, terrorist group capability, and area security levels, as well as two-way and three-way interactions among these variables, to explain the percentage of attacks against civilian targets in certain geographic areas within North America and Western Europe from 1998 to 2005. As predicted, this study concluded that decentralized terrorist groups attack a statistically greater percentage of civilian targets than do centralized terrorist groups in areas of high security and in areas of low security. However, this effect is further exacerbated in areas of low security when terrorist groups are willing to sacrifice their own fighters. In addition, among decentralized terrorist groups, attacking in low security areas and being willing to sacrifice fighters results in a greater percentage of attacks against civilian targets than does attacking in high security areas and not being willing to sacrifice fighters. Furthermore, as expected, the multiple regression models explain a greater percentage of the effects of the independent variables on the percentage of attacks against civilian targets when the three-way interaction variable among the terrorist group ideology, terrorist group capability, and area security variables is included than when this interaction is not included. These findings emphasize the necessity of increasing general area security measures in Western states, particularly in geographic areas in which multiple or large potential civilian targets are located. Additionally, these findings demonstrated the effect of the willingness of terrorist groups to sacrifice their own fighters when attacking in areas of low security. The psychological arguments used by terrorist groups to promote the use of suicide attacks and of attacks that are highly likely to result in the deaths of the attackers must be countered by

Western governments and non-profit organizations in order to decrease the appeal of such attacks, and therefore, the incentives of regular terrorist group members to carry out such attacks.

### Key Assumptions and Limitations

This paper makes two fundamental assumptions. The first is that terrorists are rational actors. They make their decisions based on cost-benefit analyses that are determined by individual incentives. The second assumption is that terrorist groups are not unitary actors. Both assumptions are derived from principal-agent theory, described above, which states that the actions of a terrorist group are the result of clashing incentives on the part of individual members and leaders. The actions carried out are determined by the structure of the group, which either assists in or inhibits the enforcement of actions based on certain incentives (Abrahams and Potter 2015, 317; Galbraith 2007).

As with all studies concerning terrorism, there are several limitations to these analyses. The first is the short time span. This thesis is limited to the time period from 1998 to 2005. That being said, this time period still spans nearly a decade. In addition, it encompasses time both before and after the defining September 11, 2001, attacks on the United States. The second limitation is geographic in nature. Only attacks that took place in Western Europe or North America are included. This is because specific data on attack targets is often difficult to obtain for attacks in other geographic areas. This geographic limitation also introduces a third limitation related to regime type. As only terrorist attacks in these two geographic areas are considered, the locations of all the analyzed attacks are in states with democratic regimes. This limitation makes it impossible to study the effects of state regime type on terrorist target selection.

A few variable operationalizations are also problematic. The first potentially problematic variable operationalization is that measuring the willingness of a terrorist group to sacrifice its own fighters. As mentioned in the data section of this paper, this ideological stance is operationalized as a dummy variable that measures for a terrorist group in a given year whether or not that terrorist group has launched suicide attacks in previous years. While useful, this operationalization is unable to measure a terrorist group's willingness to sacrifice its fighters in attacks that, while not suicide attacks, are likely to result in the deaths of the perpetrators. The second possibly problematic operationalization is the inability to include a variable measuring a terrorist group's willingness to sacrifice members of its community who are not members of the group itself. The arguments above present a compelling case for the effect of this ideological stance on terrorist target selection. However, the data simply does not currently exist. The final potentially problematic operationalization is that of area security. There are numerous factors that contribute to the security of any given geographic area. These include, besides available police, counterterrorism units, physical measures, private security, and more. However, while it may be possible to collect data from various sources in order to measure some of these other variables, preferably at the province-level or city-level rather than at the state-level, the time limitations of this thesis make such an endeavor impossible.

It is also important to note that this study is limited to attacks by terrorist groups as defined by the Global Terrorism Database. The Global Terrorism Database defines a terrorist as one or more individuals who commit a terrorist attack, defined as “the threatened or actual use of illegal force and violence by a non- state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation (“Global Terrorism Database

(Codebook)” 2016, 9)”. This study is further limited by the fact that it excludes terrorist attacks committed by lone individuals and un-established groups, such as the generic group categorizations of “anarchist” or “separatists”. These exclusions are necessary, though, due to the inherent nature of this thesis, which seeks only to analyze the factors that influence the target selections of established terrorist groups.

### Contribution to Knowledge

This thesis contributes to existing research in several ways. This study contributes to extant research in regards to the effects of terrorist group capability on terrorist target selection. Previous research has been mostly speculative; empirical, quantitative analyses are lacking (Drake 1998a, 73-95). This thesis provides detailed quantitative analyses to fill this gap. Furthermore, this study provides the first quantitative analysis of the effects of area security on terrorist target selection. Extant research has been mostly speculative in nature or has centered on the security of attacked targets, rather than on the security of the geographic areas in which the attacked targets were located (Brandt and Sandler 2010, 225 and 233).

### Future Research

There are several ways in which this research can be expanded upon in the future. In order to minimize the presence of skewed data, future analyses should include terrorist attacks in geographic areas outside of North America and Western Europe, as well as outside of the limited time span of 1998 to 2005. Additionally, the variable *Fighter Sacrifice* should be operationalized in such a way as to include not only suicide attacks, but also terrorist attacks in which it is highly likely that the attackers will be killed. A *Community Sacrifice* variable measuring the willingness of a terrorist group to sacrifice members of its own

community who are not members of the group itself should be included as well. Finally, additional measures of area security, such as the presence of counterterrorism units and federal law enforcement officers, should be included in any future analyses.

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