STRUCTURAL CAUSES OF TRANSNATIONAL TERRORISM: A CROSS-NATIONAL LONGITUDINAL ANALYSIS

THESIS

Presented to the Graduate Council of the University of North Texas in Partial Fulfillment of the Requirements for the Degree of

MASTER OF ARTS

By

Dierdre L. Wendel, B.A.
Denton, Texas
August, 1994
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This study provides a first attempt at building a multivariate model to explain terrorist activity by including six national factors proposed to have a relationship to the number of terrorist events occurring in a given nation and the number of terrorist incidents attributed to groups primarily identified with a given nation. These factors include rate of population growth, level of economic development, economic growth rate, level of democracy, presence of leftist regime type, and level of repression. After applying Ordinary Least Squares to these national factors in both a cross-sectional and a pooled cross-sectional time series analysis, only the level of democracy, the level of repression, and the lagged endogenous variables representing previous terrorist activity demonstrated strong and statistically significant relationships to the two dependent variables tested in both designs.
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CHAPTER ONE

INTRODUCTION

Terrorism has become an often-preferred method of political expression for many groups in the international arena. In recent years, groups who believe their opinions would go otherwise unheard have chosen this route. In order to gain their political objective, these disenfranchised groups use intimidation or fear by lashing out at targets who often have little or nothing to do with the specific grievances of the terrorist. This sort of target is selected in order to elicit a response from the general public that is believed to be more jarring and more widely felt due to the nature of the target, being wholly uninvolved. In contrast, the targeting of what could be viewed as a more responsible party, such as a politician or policy maker, would not be as effective because of a tendency to assign blame or guilt for the grievance announced by the terrorists to these targets. A target which can be seen to be somehow responsible for the grievance of the terrorist should not be expected to generate as much attention to the terrorist's cause as will the injury or death of an innocent victim. In short, most of the attacked are victimized, private citizens who "are not part of the decision-making
aparatus that terrorists seek to influence" (Sandler 1992, 05). They are simply targeted for their attention-getting potential, for logic suggests that when the innocent are attacked and victimized, more people will take notice. To explicate, in 1989 alone, "three quarters of transnational terrorism was directed against nonofficial targets such as businesses, tourists, and others" (Enders and Sandler 1991, 49).

However, though the concept of terrorism would seem self-descriptive, the actual definition of international terrorism varies as widely as the research in the field, for actually delineating between freedom fighters, civil warriors, and international terrorists is subjective in the least and is often ambiguous. In short, one person's freedom fighter is another person's terrorist. For example, the American rebels struggling to throw off British rule are certainly portrayed as freedom fighting heroes to American citizens, yet the British of the eighteenth century would have viewed these same tree-jumping, tea-dumping "heroes" as nothing more than terrorists. Hence, for the purposes of this paper and in order to achieve the highest level of internal consistency, the definition of transnational terrorism will be that employed by the data set called International Terrorism: Attributes of Terrorist Events (ITERATE) (1989), which will also be used for this analysis. There, transnational terrorism is defined as
the use, or threat of use, of anxiety-inducing extra-normal violence for political purposes by an individual or group, whether acting for or in opposition to established governmental authority, when such action is intended to influence the attitudes and behavior of a target group wider than the immediate victims and when, through the nationality or foreign ties of its perpetrators, its location, the nature of its institutional or human victims, or the mechanics of its resolution, its ramifications transcend national bound- aries... Transnational terrorism is carried out by basically autonomous non-state actors, whether or not they enjoy some degree of support from sympathetic states (Mickolus, Sandler, Murdock, & Fleming 1989, 1).

This definition shifts the focus to a generic motivation and action on behalf of the actor. By focusing only on the action, a more manageable definition is achieved. If an act is politically-motivated and intended to influence a wider audience as described by the extended definition included here, then for this study, it is considered a terrorist act.

Terrorism is often discounted as a relatively insignificant phenomenon in a sea of more "important" activity such as arms races, foreign policy making, and international war. In part, this discounting occurs because it is often sug-
gested that the number of people affected by terrorism when
compared to those affected by other international relations
issues is far too minute to merit the attention dedicated to
these other issues. Further, because of its seeming random
and sporadic nature, the difficulty of a study searching for
the causes of terrorism is only compounded.

Yet the impact of terrorism cannot be denied. Most
recently, international business was interrupted by the
bombing of the World Trade Center in New York City by
terrorists. Terrorists have interrupted international
travel, disrupted tourism, and instilled fear in any would-
be traveler through activities such as the bombing of Pan
American flight 103 over Lockerbie, Scotland, that cost not
only almost 300 lives but also any faith that could be
placed in what was once believed to be an airtight, and very
extensive, international airport security system. Terror-
ists have even held an entire nation hostage. Take, for
example, the 444 days fifty-two Americans, as well as the
entire nation, were held hostage, by Iranian extremists.
The American government was immobilized in any attempt to
free these hostages, and the whole nation was held captive
as it watched the torture of these hostages daily. The
bombing of a West German discotheque in April 1986 by Libyan
supported terrorists, resulting in the death of an American
serviceman and the injury of over twenty others, launched
the United States into an international incident (a bombing
raid) against another nation. Terrorism has also resulted in the freeing of an oppressed people. Note the recent granting of rights to a homeland to the Palestinians largely due to the relentless struggle by the Palestinian Liberation Organization. Once considered a madman, its leader, Yasar Arafat was invited to the White House for this historic event. Nationalist terrorism has also played a role in forming new nations. Recall the freedom fighting American rebels. While now immortalized in U.S. history, the rebels were nothing more than renegade terrorists to the British two centuries ago. Finally, a Young Bosnian zealot supported by the Serbian Black Hand committed a terrorist act that became an international incident of epic proportions. On June 28, 1914, the Young Bosnian nationalist assassinated Austrian Archduke Franz Ferdinand, hoping to liberate the Balkans from Hapsburg control. Instead, he triggered World War I.

The effects of terrorism, then, are these: interruption of international business, disruption of international travel and tourism, immobilization of a nation, massive international incidents, freeing of oppressed people, formation of new nations, and international war. With consequences like these, the importance of studying terrorism is clear. However, while looking for the root causes of such powerful activity is paramount in understanding its existence, finding the causes is considerably more diffi-
The approaches to explaining this phenomenon have been varied, though none have provided sufficient explanations. However, though not sufficient, the most common type of research in this field consists of case study accounts of particular terrorist groups and of the examination of their rise and activity in a given geographical location (Miller 1988, 65). Single factors contributing to terrorist group formation in particular countries, like religious or ethnic conflict, (Saper 1984, 114) have also been examined. Other work focuses upon tactical responses to terrorist attempts and international lawmaking against terrorism (Miller 1988, 67). However, some of the most prevalent work on terrorism consists of psychological studies which try to flesh out a "terrorist profile" based upon personality traits and socio-economic background factors of individuals that make them prone to joining terrorist organizations.

Clearly, several approaches have been taken, and explanations offered for what leads to terrorism. It is true that aggrieved groups seek public attention for their causes and do so by committing violent acts against unsuspecting targets. Terrorist acts may be perpetrated in order to create sympathy among a particular group so that new supporters may be cultivated, to incite hostility in the "enemy camp," to increase publicity for a given cause, or even to encourage the government to act (Crenshaw 1983,
But that is not what causes terrorism. It is simply the immediate motivation for terrorists to act but not what has caused the grievance to occur in the first place.

Some researchers suggest that particular ideologies cause terrorist organizations to act. Religious zealotry or political fanaticism is accredited with being singularly strong enough to cause terrorism. But

terrorism is not restricted to any particular ideology. Terrorists may be revolutionaries...nationalists fighting against foreign occupiers...minority separatists combatting indigenous regimes...anarchists or millenarians...or reactionaries acting to prevent change from the top..." (Crenshaw 1983, 117).

In short, no particular ideology can be considered solely responsible for causing terrorism.

Other researchers accredit common psychological factors or certain terrorist personality profiles for leading to terrorism. Many people believe terrorists to be crazy or disturbed individuals striking out at a society in which they do not fit. Others propose that members of terrorist organizations are seeking a place to belong, some sort of familialhood relationship much like that provided by street gangs. Peer pressure is also accredited with causing the "impatient" and "rash" youth in democracies to resort to more expedient routes to social change than waiting for the
well-established, albeit slower, processes of democracy to
do their work (Kampf 1980, 188). Still other researchers go
so far as to suggest that absent or abusive parents contrib-
ute to people becoming terrorists. Purportedly, these
terrorists are transposing the established order or govern-
mental authority for the parents their subconscious is
really struggling against. In short, all of these ideas
assert to some extent that "terrorists are simply fanatics,
unreasoning and unreasonable, reproducing in history the
essential disorder of their own minds" (Rubenstein 1987,
127). However, "the outstanding common [personality]
characteristic [among terrorists] is normality. [In fact,
terrorism often seems to be the connecting link among
dissimilar personalities" (Crenshaw 1990, 120).

Notwithstanding the commonality of normalcy found among
terrorists, it has also been argued that the only truly
common desire found universally in terrorists is a need for
vengeance (Rubenstein 1987, 7; Crenshaw 1990, 123). None-
theless, finding all of the people with a need for vengeance
still does not give researchers the set containing only and
all terrorists. Neither does finding those individuals who
are passionate about causes. Although it is true that "the
urban guerilla is likely to be a young adult of more than
average education, fervently committed to a political cause,
and driven by a combination of hope and desperation...,
(Rubenstein 1987, 5) again, these characteristics, taken
alone or together, do not constitute enough to determine that one will become a terrorist.

Some theorists have blamed state sponsorship for a large part of terrorism. The "Red network," or Soviet-supported communism by another name, and states where Islamic fundamentalism is the predominant religion often take the blame for supporting terrorist activity promoted primarily against the Western world (Valenta 1987, 59; Fairbanks, Jr. 1987, 64; Saper 1988, 23; Rubenstein 1987, 51). For example, one researcher reported that "Senate hearings on terrorism during the last five years have brought out sufficient evidence to conclude that there is more to terrorism than just a series of unrelated violent events perpetrated by a number of unrelated groups. We are now able to see the relationship among Marxist-Leninist propaganda, drug trafficking, insurgency, and terrorism directed against Western democracies" (Lisker 1987, 55). Further, nation-states from which terrorist groups claiming "holy war" status tend to be credited with as much responsibility for the event as the group itself, in large part due to a common religious background (namely, Islam), regardless of whether or not any real political connection exists. In any case, the religion of Islam itself, or any other group proclaiming religious status, or state-sponsorship is hardly responsible for causing terrorist activity.

Finally, still others suggest that the media provides
such an inviting stage for terrorist organizations that it must accept responsibility as an instigating factor for terrorist acts. Media coverage is a given for any newsworthy event occurring in the international arena because violent events with innocent victims involved generally serve to be newsworthy. Consequently, terrorists can easily capture the media's attention, and hence, the viewing public's. With this attention generally comes the media's attempts to explain what motivates the terrorist activities and, thus, the stage is set for the pronouncement of the perpetrating group's grievances. This stage for the expression of grievances to a large audience is what terrorists seek. However, because there exists a forum in which to promote a particular group's ideas and through which to gain publicity does not provide sufficient reason to actually cause terrorist activities. The existence of a conduit for the expression of grievances does not give rise to the actual grievances themselves. Indeed, any single cause cannot claim responsibility for terrorist activity (Paletz and Schmid 1992; Schaffert 1992).

Nonetheless, except for the small amount of empirical research done on specific issues contributing to terrorist activity (Enders and Sandler 1991), the frequency of the occurrence of terrorist events (Enders, Parise, and Sandler 1992), and nations' responses to these events (whether they be policy stances or counter-terrorist activity) (Poe 1987;
Cauley and Sandler 1988), very little has been done to develop a multivariate explanatory model for terrorist activity. Though some progress has been made in recent years, it is still probably accurate to say that "quantitative empirical studies of terrorism are still in their infancy" (Hamilton and Hamilton 1983, 39). Furthermore, while large amounts of quantifiable data have been collected on numerous political, social, and economic aspects of many countries around the world, few studies have attempted to utilize any national factors to explain the occurrence of transnational terrorism nor have attempted to integrate several such factors for the same purposes. Because "a comprehensive explanation...must take into account the environment in which terrorism occurs and address the question of whether broad political, social, and economic conditions make terrorism more likely in some contexts than in others" (Crenshaw 1981, 380), a model constructed to explain terrorism should try to encompass these different conditions. Because the causes of terrorism appear to be multi-dimensional, as no single cause has as yet been shown to prove sufficient for terrorist group action (Miller 1988; Gurr 1970), the questions remain, what factors facilitate the occurrence of terrorist incidents in a given country, or what combination of factors makes their occurrence more likely? And, what national factors lead to the emergence of terrorist incidents from groups primarily identified with a
given country? The answers to these questions will be sought in this paper by attempting to construct a model incorporating many systemic factors, and, thus, several previously suggested hypotheses, aiming at theory-building and integration. If any significant relationship is shown to exist between these factors, a clearer understanding of the omnipresent question of why such violent actions occur will be gained.
The literature in the field of terrorism falls into several distinct categories: historical-descriptive, normative, prescriptive, and causal. Of these, the largest quantity of literature lies in the historical-descriptive category, focusing on individual countries, regions, movements, or even individual terrorists as isolated case studies having little similarities to other terrorist groups or incidents. The normative sub-phylum of terrorism literature offers moral judgments both concerning the motivations behind terrorist activities as well as concerning the legitimacy of the use of terrorism as a political tool. The third division of terrorism literature, the prescriptive, discusses potential techniques to curtail the use of terrorism, and the utility of engaging in such activity.

Finally, the fourth category of terrorism literature, the causal, also stands as the most unrefined. This subset of terrorism literature suggests that several factors are responsible for terrorist activity: external agitators or state-ship, psychological propensities toward terrorist activities within certain individuals, diffusion and contagion phenomena, and structural causes. What is missing
from the literature, however, are any general theories attempting a comprehensive explanation of the causes of terrorism.

Psychological Profiles

One category of terrorism literature which attempts to explain the existence of terrorism suggests that psychological factors are responsible in large part for terrorist activity. This category encompasses many pieces written which focus upon psychological traits of individual terrorists. This literature suggests that terrorists share a set of psychological characteristics which constitute a sort of "terrorist profile" or a definable terrorist personality. Often, they try to identify those individual characteristics that would give one a predisposition to terrorist activity (Taintor 1974; Margolin 1977; Wilkinson 1986; Rubenstein). However, this idea has not been supported empirically (Aston 1986:77-78; Dougherty and Pfaltzgraff 1983) nor could such a study be conclusive, for psychology itself is based upon researcher-subjective evaluations and descriptions of individual terrorist personalities which in and of themselves cannot be measured.
Diffusion and Contagion Theory

Another subgroup of the literature seeking to explain why terrorism happens encompasses diffusion and contagion theory. Diffusion theory explains or predicts the spread of a given activity over space and time. Found within this theory is contagion theory, or "contagious diffusion," which "is the spread of the phenomenon through direct interpersonal contact between diffusers and adopters" (Heyman and Mickolus 1981, 177). In the case of terrorism, the direct interpersonal contact can be supplanted by media coverage of terrorist events. This coverage is purported not only to publicize the activities of a given terrorist organization but also to encourage other organizations to attempt similar activities in light of the successful dispersement of the broadcasted terrorist group's actions (Heyman and Mickolus 1981, 184-85).

In one diffusion study, by using adjacency maps and Markov chains, Edward Heyman and Edward Mickolus sought to discover such patterns in transnational terrorism by using the ITERATE data set covering the years 1968-1977 (1981). The results obtained indicate that terrorism does indeed diffuse throughout the international system, and the authors account for this diffusion with three factors: imitation of one terrorist group by another, media sensationalism of such events, and the simple movement of active terrorist groups.
from one region to another (Heyman and Mickolus 1981, 185). In another article, Frederick J. Hacker suggests that "extravagantly publicized and glamorized violence is as catching as an infectious disease which can reach epidemic proportions" (Hacker 1981, 75). He also asserts, like Heyman and Mickolus, that this contagion effect is a product of mass media influence (Hacker 1981). Additionally, in a third article, Lawrence C. Hamilton and James D. Hamilton utilize a chronology of international terrorist events compiled by Mickolus to develop a model to test contagion theory. They find evidence suggesting that, once again, terrorist activities do demonstrate a contagious nature over time and space. However, these researchers go a step further by suggesting that the reversal and decline of this contagiousness actually increases as the level of repressiveness of the regime under study increases.

Finally, Manus I. Midlarsky, Martha Crenshaw, and Fumihiko Yoshida examine the spread of international terrorism over the years 1968-1974 by using Poisson and negative binomial probability models. A chronology of terrorist events developed by J.M. Jenkins and J. Johnson was used to obtain the data, and the areas under study were Latin America, Western Europe, and the international community as a whole. The authors of this article conclude that bombings, kidnappings, and, to a lesser extent, hijackings are more contagious than assassinations and raids. They further
offer suggestions as to the application of subdivisions of contagion theory to different regions of the world. Furthermore, the authors conclude that international terrorismdiffused for the years from 1969-1971 across different parts of the world in different patterns, but that contagion theory applies to the years 1973-1974. One difficulty with this article, however, lies in the confusion of the arguments posed for the occurrence of such diffusion processes, for many of the arguments presented refer to domestic terrorism, while the data employed refer strictly to international terrorist activity. In any case, perhaps, the discovery of different diffusion patterns for different parts of the world lends credence to the idea that "objective grievances" are the root cause of terrorist activity, and that as these grievances change from one location to another and from one time period to another, so does the diffusion of terrorism. However, the results of the study contradict one assertion made by the authors that "when objective grievances are manifestly not the cause of terrorism, the contagion process may be responsible" (Midlarsky et al. 1980, 286). If this were so, then the contagion process would not substantially differ from one region to another, as the results of this study indicate. Nonetheless, the study certainly contributes to the understanding of the spread of terrorism over time and space. It shows that terrorism diffuses differently in different parts of the
world, and during different times, though it does not offer any conclusions as to why this is the case.

Though these diffusion studies of the spread of terrorism are interesting, they offer little substantive theory as to why terrorism occurs. It is possible that a spatially or temporally close terrorist event might spur other events. However, one event happening is not enough to be the reason behind terrorist activity. It takes much more than a recent terrorist event to move others to express themselves violently. There would seem to be a need for a terrorist group to form in the first place. Simply wanting to form so that the group could wait for a terrorist event to happen so that it could imitate it does not seem likely. These studies do suggest what might be considered precipitating events—but not root causes.

Cycles of Terrorist Activity

In another series of empirical articles on terrorism, Gabriel Weimann and Han-Bernd Brosius attempt to detect cycles or patterns within terrorist events and victimization rates (1988). The data base used for this study is the RAND Corporation's Chronology of International Terrorism, which contains information covering every reported case of international terrorism from 1968-1986. In this article, the authors find evidence that there exist monthly waves of
terrorism, with a highly active month being followed by a month with few incidents of terrorist attacks. However, they conclude that no clear periodicity in the sum of fatalities and injuries occurs, although the overall number of victims has been steadily rising (1988). The second conclusion seems sensible enough for two reasons. First, a large degree of randomness would seem to be involved in the determination of the number of victims of any terrorist event (e.g. a bomb explosion). Second, the number of violent tactics is rising, and with it, the number of those being injured. However, the first conclusion regarding monthly waves of terrorism appears questionable. Since the data employed for the study were monthly, the data being measured at monthly intervals does not allow for the discovery of patterns, or waves, of terrorism in anything but monthly cycles. For example, a six-week sine wave, or a forty-one day sine wave, could not be found by using only a data set measured monthly. Hence, it appears as though the measurement of the data used has dictated the findings.

Further, two studies have provided evidence concluding that many terrorist events illustrate cyclical patterns over the years 1970-1989 (Iksoon Im, Cauley, and Sandler 1987; Enders, Parise, and Sandler 1992). In the first article, Im et al. (1987) apply spectral analysis, a method used to search for "hidden periodicities" (Enders, Parise, and Sandler 1992, 311) in data sets, to monthly data on transna-
tional terrorist events using the ITERATE II data for 1968-1979. The incidents examined, along with their periodicities, include the following: four and twenty-eight months for skyjackings, forty-eight months for kidnappings, seventy-two months for barricade events, twenty-four months for nonhostage events, and twenty-eight months for all events taken together. Enders et al. (1992) also apply spectral analysis to transnational terrorist time series including hostage incidents, bombings, assassinations, hoaxes, threats, and all terrorist incidents taken together. They utilize quarterly data for 1970-1989, which are taken from ITERATE II-IV. In their research, the authors discovered cycles for all of the series: eighteen quarters for hostage incidents, 7.2 quarters for bombings, eighteen quarters for assassinations, 3.6 quarters for hoaxes and threats, and 7.2 and eighteen quarter cycles for all incidents taken together.

In all of these articles, one is still left wondering what the discovery of these patterns tells the student of terrorism, beyond the fact that there are waxes and wanes in the level of terrorist activity. Further, while these studies indicate some existing cycles or patterns, the simple existence of these patterns does not explain why the terrorist acts occur, the causes that lie behind the actions. The "terrorism as a theater" (i.e. media publicity) or the contagion theory, which are both offered as explana-
tory material in the Hans and Brosius article, simply does not account for the motivational factors influencing terrorists to act. In short, these articles, while offering interesting bits of information, are void of any theoretical support or construct.

Nonetheless, these articles do offer the opportunity to examine the long-run impact of a policy change on certain terrorist activity. For example, the effect of the installation of more metal detectors at an airport on the number of hijackings could be studied. Further, this type of research might make possible the development of certain policies, like the addition of police officers during peaks in terrorist activities, in areas prone to attack. Hence, while these articles may not be theoretically rich, they do offer direction for further research and policy development.

Structural Causes of Terrorism

Seeking structurally-centered research on terrorism is quite difficult, and a search outside the field of terrorism and into the broader field of conflict, of which terrorism is considered a special case (Singer & Wallace 1979), is necessary in order to find much that facilitates theory building. In Why Men Rebel, T.R. Gurr examines why civil violence occurs and concludes that one of its major reasons is found in the concept of relative deprivation. In short,
the gap created when expectations of goods and conditions of life exceed the goods and conditions of life actually received, civil violence may occur (1970, 24). Additionally, James Rosenau concludes that rapid economic growth rates are linked to outbreaks of violence (1964, 5), and Thomas Wickham-Crowley as well as Barrington Moore and others suggest that poor economic conditions can lead to peasant insurrection (1991; 1969). Furthermore, Sabri Sayari and Bruce Hoffman examine terrorist activity in Turkey and conclude that rapid population growth causing rapid urbanization contributes to terrorist activity (1991). Additionally, Jonathan Wilkenfeld, Gerald Hopple, and Paul Rossa suggest that population growth leads to a more general sort of internal pressure that can lead to civil strife (1979, 113). Finally, Sharon Stevenson suggests that the deprivation of human rights and terrorism exhibit a sort of cyclical connection (1991). However, although these studies offer support to single factors contributing to either terrorism in particular or civil violence more generally, no precise set of conditions has been identified leads to the outbreak of violence. Multivariate testing of a combination of factors would begin this identification (Wilkinson 1986, 8).

Within the literature concerning structural causes of terrorism, a few pieces can be found. Jeffrey Ross (1993) offers a conceptual model based upon structural factors and
suggests that these factors should be integrated. These factors include geographical location, type of political system, level of modernization, social, cultural, and historical facilitation, terrorist organizational split and development, presence of other forms of unrest, level of support, counterterrorist organization failure, availability of weapons and explosives, and grievances. It is noteworthy that Ross tries to account for all possible influences of terrorist activity in his model. He also analyzes the shortcomings of each of the variables. The inability to operationalize and objectively measure many of the factors, such as cultural and historical facilitation, terrorist organizational split and development, and counterterrorist organization makes any use of the model he presents difficult. However, the author stops short of any real empirical analysis because he does not attempt to utilize his model for any original purpose though the reasoning for such is found in its lack of workability (Ross 1993). Nonetheless, he could have tried to use parts of his model which can be operationalized, such as type of political system and geographical location, to construct and test a more workable, though admittedly less complex, model.

Additionally, in a yet unpublished Brophy-Baermann (1993) article seeking to predict international terrorism, the author develops a consumer maximizing utility model to explain variations in such events over the years 1968-1990.
on data taken on a quarterly basis. He tests his model by using multiple interrupted time series analysis and concludes that the level of international terrorism is a function of cost to the terrorist organization, the level of success of previous terrorist attacks, and an eight-pronged variable representing a terrorist's "taste" for terrorism. He also accounts for approximately three-fourths of the variance in the level of international terrorism (Brophy-Baermann 1993, unpublished manuscript). However, the greatest problem with this study is its reliance upon a created variable which is supposed to represent a terrorist's taste for terrorism. This in and of itself makes the model questionable because measuring a highly subjective thing like taste empirically is difficult at the very least. Additionally, this variable is constructed using eight intervention variables based upon major international events concerning terrorism (e.g. the United States retaliatory bombing raid against Libya). Further, these variables are only given one time lag to have any effect. Because the variable is constructed to capture a terrorist's "taste" for violence based upon his or her perceptions of the legitimacy of violence, allowing the variable representing taste to have an effect for only one time lag (which is three months) is questionable. Terrorists' "taste for terrorism", in all likelihood, is not so timebound. In spite of these difficulties, this paper is a contribution to the limited litera-
ture on the causes of terrorism. It will likely move work on this question ahead, by adding to the debate over what forces precipitate terrorist activity.

In another article, Steven C. Poe (1987) examines the relationship between the number of hostage-terrorist events per country and a given country’s stance on terrorist negotiations, and the time intervals between terrorist events, for the years 1968-1977. The data were taken from ITERATE II, a data set compiled by Heyman and Mickolus (1981) to study international and transnational terrorist events. The policy assumption under consideration is that the harder the stance a given country takes against terrorist activities, the greater the deterrence of such attacks to that country or its citizens. However, Poe found little support that hard-line responses actually have any deterrent effect, for countries such as the United States and Israel, who pronounce the hardest stances, also have the greatest number of terrorist attacks on their citizens or businesses. One problem, however, with this study, lies in its inclusion of a dummy variable identifying the Middle Eastern countries as some sort of “hotbed” for terrorist activity. The singling out of a particular region, along with the seeming stereotyping involved in such a variable, is questionable at the least. Nonetheless, this paper sheds light on the actual effects, or lack of effects, that certain policies have.
It is obvious, then, from a review of the literature in the field of terrorism that there exists a hole in the work that has so far been done. "The absence of significant empirical studies of relevant cross-national factors is an obstacle to identification of propitious circumstances for terrorism" (Crenshaw 1981, 114). While a few good first attempts have been made at empirical research on the causes of terrorism, very little multivariate analysis exists which accounts for multiple influences on terrorist activity. Clearly, more than one factor must be considered before research can move any closer to unearthing the causes of terrorism. It is hoped that the following research will begin this process.
CHAPTER THREE

BUILDING A MODEL OF TERRORIST ACTIVITY

The research design for this study is as follows. At the outset, I will briefly outline the overarching theoretical basis for the construction of an explanatory multivariate equation to explain two dependent variables. The dependent variables under study will be (1) the number of terrorist incidents occurring in a given nation, and (2) the number of terrorist incidents attributed to groups primarily identified with a given nation, no matter where an event will actually take place. Second, I will focus upon specifying and operationalizing the independent variables representing the factors hypothesized to have some relationship to the dependent variables. Third, I will present the methodology that will be employed to ascertain the significance of the independent variables included, and the relative potency of these indicators will be assessed in terms of their ability to explain the existence of the dependent variables. In my conclusion, I will present an evaluation of the overall endeavor, both in terms of the specific model presented in this paper and the potential utility of this type of model for the systematic study of terrorism (Wilkenfeld, et al. 1979, 110).
Data Sources and Sampling Procedures

The data employed for this study were gathered from two data sets: the ITERATE III Common file (Mickolus et al. 1989) and a data set created by Poe and Tate (Poe and Tate 1992). ITERATE III (1989) is a data set constructed to collect all available information on international terrorist activity which occurred between the years 1978 and 1987, ranging from the actual number of terrorists involved in any international terrorist attack to the devised method of escape for the terrorists. The data set is composed of four parts: a common file, a fate file, a highjacking file, and a hostage file. The common file will be used in this study. Additionally, the data set created by Poe and Tate (1992) was originally generated to study repression levels internationally. This data set includes many national factors such as gross national products, human rights measures, and population measures, and covers the years 1980-1987. The purpose of this study is to include as many countries and as many incidents of terrorism as possible in order to obtain the best representation of how well the model proposed reflects reality. For this reason, all countries represented in all of the three data sets will be included, leaving an N of 145 (See Appendix A). The years examined will be 1981-1987.
Operationalizing the Dependent Variables

I will use two dependent variables in this study. The first dependent variable consists of the number of terrorist events occurring in a given country for the seven-year period under study. This variable is selected for study because it is believed that certain national attributes constitute indicators for hostility levels to be directed at certain countries, which would find their expression in terrorist activity. These same attributes might also contribute to one country being attacked by citizens of another country through terrorist activity. This activity is a form of hostile expression directed at the attacked nation's government or its people for a perceived role in manipulating or influencing the national factors of the "home base" nation-state which cause the grievance to the terrorist group.

The second dependent variable is the number of terrorist incidents committed by terrorist groups with primary identification with a given country. This variable is selected for study because it is proposed that certain national attributes constitute factors that spawn actions by discontented groups who will exhibit the hostility that accompanies such discontent by committing terrorist acts. Thus, the number of terrorist acts attributed to groups which are based in a given nation will be counted. The
difference, then, between the two dependent variables is that the first measures the number of terrorist incidents committed within a given nation's borders, and the second measures the number of incidents perpetrated by terrorist groups primarily identified with a given nation.

To operationalize these variables, both will be obtained from the ITERATE III Common File (1989). The number of terrorist events for a given country will be obtained from the variable included in this data set representing the location of origination of the terrorist event.¹

To operationalize the second dependent variable, which taps the number of terrorist incidents attributed to groups primarily identified with a given nation, is a bit more complicated. Data for this variable are also taken from the ITERATE III Common file (1989), and specifically from the variable identifying the "first nationality" of a group to which a terrorist attack is attributed.² Although some of the terrorist groups may have a mix of nationalities, ITERATE III (1989) identifies the first nationality of the group as the nationality to which the majority of its members belong. It is noted that particular groups will appear more than once in a listing of this sort for the seven-year time period. However, this analysis focuses upon the total number of incidents attributed to groups with their first nationality being the same country and not the number of groups itself. Hence, groups will be counted as
many times as they are listed, so that the total number of incidents from terrorist groups with the same nationality can best be approximated.

Operationalizing the Rate of Population Increase

The rate of population increase from one year to the next constitutes the first independent variable. Previous studies indicate that rapid population growth can lead to high levels of internal pressures (Wilkenfeld et al. 1979, 113). Further, in a case study of Turkey, it has also been demonstrated that rapid population growth both in rural and urban areas can lead to some form of civil unrest (Sayari & Hoffman, 1991). As populations expand, both in rural and urban areas, the crunch to obtain or maintain employment in order to secure limited resources for survival creates tension. With a limited resource pool yet an ever-increasing demand on the same finite resources, many people are put in an economically-precarious situation. Hence, this economically-precarious status typically leads to social and political unrest as the fulfillment of basic expectations is not met (Gurr 1979, 156). With no legitimate means for expression of displeasure with personal circumstances or any available means for remedying them for people in this situation (who typically do not have a voice in the government (Wickham-Crowley 1991)), people search for extra-normal
ways to express displeasure. It may be directed towards the "have" in their society, in other societies, or towards governments. In any case, rising tensions facilitate the inclination towards the desire for a route for hostility expression and, hence, terrorist activities as a selected outlet to make a statement which might otherwise go unheard. Therefore, it is proposed that this would also apply to a larger population sample. It is hypothesized that as the average percent increase in population for a given country rises, the number of terrorist activities occurring in that country will rise, ceteris paribus. Secondly, it is hypothesized that as the average percent increase in population for a given country rises, the number of incidents sponsored by terrorist groups primarily identified with that country will rise, ceteris paribus.

To operationalize this variable, the average percent increase in national population from one year to the next, over the seven-year period of this study, will be used. The data will be obtained from the data set created by Poe and Tate (1992).

Operationalizing the Level of Economic Development

Studies have found contradictory results as to the effect of economic development on political violence including terrorism (Olson, Jr. 1963; Sigelman and Simpson 1977;
Muller and Mitchell 1987). Logic suggests that the higher the overall level of economic development as measured by per capita GNP, the fewer of people's needs will go unmet. Simply put, the more overall income, the more necessities supplied. With fewer needs going unmet, it would be expected that fewer people would be dissatisfied, thus fewer people would be inclined to express hostile feelings. The lower the level of hostility, the fewer violent outbursts, like terrorist incidents, would be expected. By extension, terrorist activity is predicted to decline along with a decline in feelings of discontent spawned by an overall good level of economic development.

Therefore, in order to capture the level of economic development for a given country, per capita gross national product (GNP) will be used. It is acknowledged that per capita GNP is an average income, or mean, and thus, may mask a great income disparity between a very poor class and a very wealthy class in any given country. Other quality-of-life indices, or measures of economic standing, have also been proposed which might offer a more accurate reflection of the true level of economic development. However, the data necessary to create such indices are not available on all of the units of analysis utilized in this study, while per capita GNP is available for all units. Though a per capita measure of GNP might not fully represent the living conditions of the general public, it is the best available
measuring system for the countries to be examined, so it will be used for this study. It is, therefore, hypothesized that as the overall per capita level of economic development increases, the number of terrorist incidents will decrease, ceteris paribus. Secondly, it is hypothesized that as the overall per capita level of economic development increases, the number of incidents committed by terrorist groups primarily identified with a given country will decrease, ceteris paribus. These data will also come from the data set generated by Poe and Tate (1992).

Operationalizing the Level of Economic Growth Rate

The level of economic growth rate will be included as an independent variable for much the same reasoning as is population growth. It has been suggested that "rapid economic growth is a major force leading towards revolution and [political] instability" (Olson, Jr. 1963, 216) and, by extension, to other forms of civil unrest like terrorism. Primarily because economic growth occurs unevenly and often in favor of the upper classes, relative deprivation ensues, and with it, the probability of hostilities increase. Gains received from the growing economy are less than the growing expectations people develop about what they will or should receive (Gurr 1970). Further, the rise in expectations occurring along with the perceived economic growth generally
exceeds actual outcomes for parts of the system. The
distribution of the growth is frequently uneven and tends to
favor the elites, all the while everyone, regardless of
class, can readily view the sum total of growth occurring.
These relatively deprived groups are to some extent "'dam-
aged' by ongoing economic processes" and are, hence, more
likely to rebel in some form (Wickham-Crowley 1991, 181)
such as terrorist activity. Thus, it is hypothesized that
as the economic growth rate for a particular country in-
creases, the number of terrorist incidents will increase,
ceteris paribus. Secondly, it is hypothesized that as the
economic growth rate for a particular country increases, the
number of incidents committed by terrorist groups primarily
identified with a given country will increase, ceteris
paribus. To operationalize this variable, economic growth
rate will be determined by taking the average percent change
of the gross national product from one year to the next, for
the seven-year time period under study. The data necessary
to determine the economic growth rate will be obtained by
using the data set collected by Poe and Tate (1992).

Operationalizing the Level of Democracy

The next independent variable included for analysis is
democracy. Democracy can be a multi-faceted concept.
However, democracy by its procedural definition will be used
for this study. Therefore, democracy for these purposes will be defined as

the presence of institutions and procedures through which citizens can express effective preferences about alternative policies and leaders[,] ... the existence of institutionalized constraints on the exercise of power by the executive[,] ... [and] the guarantee of civil liberties to all citizens in their daily lives and in acts of political participation (Gurr 1990: 38).

This definition includes for citizens the ability to choose the nature of the system under which they are governed. Additionally, by this definition, standard procedures are said to exist which allow formal and legitimate expression of social and political grievances, like political parties and elections that can carry ideas "forcefully into government" (Henderson 1991, 125). The assurance provided by the umbrella of democracy allows for the free exchange of ideas and the expression of both disagreement and discontent with the operations of the current government. Violent outbursts are not necessary in order to secure the government's attention for two reasons. First, there exist institutional guarantees that some modicum of attention will be given to grievances expressed by segments of the citizenry. Second, there is a possibility that effective measures will be taken to address the perceived grievances. Further, a fully-realized democracy offers to its citizens an elected head of
state with a term limit and the opportunity to participate in the leader's selection, again extending a leash to the citizens with which to rein in a power-hungry leader. As this guarantee diminishes, however, the power the executive possesses necessarily increases. The extreme removal of the citizenry's check on the executive, in other words, the ability of the executive to do whatever he or she wants, ultimately defines a dictatorship. The expected result of the diminishing of a democratic state is action taken by citizens to obtain civil liberties, a voice in the government, and a hand in the control of the executive. However, as the level of democracy decreases, the opportunity to take action within the confines of the system also decreases. Hence, it can be expected that extra-legal ways to obtain the same result would be sought. As effective channels to express political or other opinions increase, as the protection of civil liberties increases, and as the level of control over the head of government increases (hence, keeping control out of the hands of a single person—dictator), the desire or need to express discontent violently will decrease, ceteris paribus.

This variable is obtained by using the Freedom House index of Political Rights, which measures the existence of democracy strictly in terms of the aforementioned procedural definition so as not to overlap with human rights or other such measures. In this measure, political rights are placed
on a scale ranging from one to seven, with one representing little to no inclusion of democratic principles in a nation's government, and with seven representing the operation of a fully-realized democracy as previously defined. This scale has been inverted from its original form by Poe and Tate so that the scores awarded nations will increase in number as the level of democracy increases, instead of decreasing as it did in its original form. Therefore, it is hypothesized that as the level of democracy increases, the number of terrorist incidents will decrease, ceteris paribus. Secondly, it is hypothesized that as the level of democracy increases, the number of individual terrorist events attributed to groups primarily identified with a given nation will decrease, ceteris paribus. This variable will be taken from the Poe and Tate data set (1992).

Operationalizing Leftist Regime Type

An independent variable representing leftist regimes in included because these types of regimes are considered highly politically repressive by definition. Due to their foundation upon Marxist or Marxist-Leninist ideology, these regimes submit the individual, and hence individual rights to expression and to other political rights, to the power of the state. The state "requires" submission of the individual so that it may organize society to achieve equality
politically, economically, and socially for all, although this has actually never been achieved. In any case, this sort of requirement for submission keeps dissident groups from expressing opinions, since political participation is strictly limited. A confining political atmosphere, which permits little to no participation, may foster the search for other routes of expression like terrorist activity. Hence, it is hypothesized that in the presence of leftist regimes, the number of terrorist incidents will increase, ceteris paribus. Second, it is hypothesized that in the presence of leftist regimes, the number of individual terrorist events attributed to groups primarily identified with a given nation will increase, ceteris paribus.

Operationalizing the Level of Repression

The final independent variable to be included for analysis is a measure of the level of repression or human rights abuse for a given country. Repression, for these purposes, will be represented by a measure of human rights violations. The definition of human rights will be confined to those rights regarding the "integrity of the person." This means that a person has a right to be free from murder, torture, disappearance, and imprisonment for his or her political views (Poe and Tate 1994, 4). The deprivation of
basic human rights, or repression, previously defined as those regarding the integrity of the person, "are rooted in a regime's willingness to repress its citizens" (Poe and Tate 1994, 5). When a regime chooses to act in this manner, a very personal form of repression is enacted upon individuals. Three options, then, remain open to the person or persons being deprived of their rights: accept the repression without acting, attempt to work through the established political system for the restoration of the rights desired, or utilize alternative means which lie outside of the established political system to express discontent and press for change. Of the three options present, the first requires little overt action on the part of the repressed, and the second is almost wholly impossible, for a political system engaged in blatant repression is generally not accessible to those being repressed. The third option available is what most concerns this study, for if the repressed choose to utilize alternative means to express discontent and push for change, terrorist acts may be the chosen option to those who feel as though they have no other opportunity to express their discontent.

The definition used for this study is not meant to include all possible human rights, for what are and what are not considered to be human rights has been hotly debated; further, many aspects which are considered to be human rights, such as economic welfare and the right to vote, are
factors which are already considered in other variables contained in this study. Thus, to avoid overlapping of variable definitions, and hence over-representation of certain factors to be considered, human rights will be defined as those regarding the integrity of the person only.

A recent historical study undertaken by Sharon Stevenson suggests that there exists a cyclical relationship between deprivation of human rights and terrorist activity, with those being repressed often engaging in terrorist activity themselves in response to their oppressors (1991). Therefore, it is hypothesized that as the level of basic human rights violations rises, the number of terrorist incidents per country will increase, ceteris paribus.

Secondly, it is hypothesized that as the level of basic human rights violations rises, the number of incidents of terrorist activity perpetrated by terrorist organizations with primary identification with a given nation will increase, ceteris paribus.

However, such a relationship may not be as straightforward as it may at first appear.

Comparative studies of civil strife suggest a curvilinear relationship whereby medium levels of coercion, indexed for example by military participation ratios or ratings of regime repressiveness, are associated with the highest magnitudes of strife (Gurr 1962, 294). Hence, there may exist some middle ground within repression
levels where the measures of terrorist activity demonstrate their highest levels. At one end of the spectrum exists virtually total protection of civil liberties and the presence of institutions for the expression of opinions whereby there exists little need for terrorist activity in order to express opinions. On the other end of the spectrum exists total repression of all fundamental rights with no opportunity for personal expression and with almost instantaneous, guaranteed persecution of dissenters, allowing no possibility for terrorist activity. In the middle, however, there exists enough repression of human rights in order both to spawn discontent and to allow enough movement to respond to the repression felt. "In situations where paths to the legal expression of opposition are blocked, but where the regime's repression is inefficient, revolutionary terrorism is doubly likely, where permissive and direct causes coincide" (Crenshaw 1983, 384). Nonetheless, initially in this study, the previously proposed linear relationships between the two dependent variables and repression will be tested.

The data for this variable will be taken from the Poe and Tate data set. The variables for Amnesty International and the State Department will be combined to form one variable, representing the mean of the two values, and is scaled from one to five. One represents a nation with very little to no human rights violations reported, whereas as five is awarded to a country demonstrating massive human
rights violations. The choice to use both collections of human rights abuses will facilitate removing bias from one group or the other.
CHAPTER FOUR

STATISTICAL METHODS AND RESULTS

The statistical technique to be used for this study will be an Ordinary Least Squares (OLS) multiple regression analysis. Regression involves the display of data points in a two-dimensional space and the calculation of the line that comes closest to splitting the center of the space established by these data points. The multivariate, algebraic equation which best describes this line, and hence the relationship between the data points, establishes the given relationships between the dependent and independent variables. The relationship described by this equation for each independent variable is captured by the regression coefficients. Hence, multiple regression analysis suggests that independent variables proposed to have a relationship to a dependent variable will demonstrate such a relationship that the "dependent variable is seen as a linear function" of the independent variables (Lewis-Beck 1980, 48). The closer the actual relationship of the independent variables to the dependent variable, the closer to the limit of one (1.0) will be the resulting $R^2$. The closer the $R^2$ is to 1.0, the better-fitted is the model, and, hence, the more confidence
we can have that the relationship between the variables is an accurate representation of reality.

This method of estimation of the fit of a developed model was chosen because it provides a simple and both a widely accepted and widely understood manner in which to approach the testing of a model. Further, OLS results are easy to interpret and to apply to the data utilized for the analysis. Using OLS also decreases the possibility of important relationships being missed or spurious ones being accepted because each variable can be assessed as to its importance in the relationship to the dependent variable as well as how all of the variables taken together influence the independent variable. Therefore, each independent variable as well as the whole model can be analyzed for its effectiveness.

Methodology

The methodology to be used will consist of an ordinary least squares (OLS) multiple regression equation as follows:

\[ Y = a + b_1 x^1 + b_2 x^2 + b_3 x^3 + b_4 x^4 + b_5 x^5 + b_6 x^6 + b_7 x^7 + e \]
where:

\[ Y = \text{number of terrorist incidents occurring in a given country for equation one; number of terrorist incidents attributed to groups primarily identified with a given nation for equation two; } \]
\[ a = \text{the average value of the likelihood of terrorist activities when all variables equal 0} \]
\[ X^1 = \text{rate of population increase} \]
\[ X^2 = \text{level of economic development as measured in per capita GNP} \]
\[ X^3 = \text{economic growth rate} \]
\[ X^4 = \text{level of democracy} \]
\[ X^5 = \text{level of human rights abuse} \]
\[ X^6 = \text{presence of leftist control} \]
\[ X^7 = \text{the number of terrorist incidents occurring in a given nation in the previous year for equation one; the number of terrorist incidents attributed to terrorist groups primarily identified with a given nation in the previous year for equation two;} \]
\[ e = \text{error term} \]

To test the level of statistical accuracy of the model created, the number of incidents occurring in each country will be gathered for the seven years under study from the ITERATE III common file for the first dependent variable.
For the second dependent variable, the number of terrorist incidents attributed to all groups primarily identified with a given country for the time period under study will be gathered from ITERATE III as well. All tests of statistical significance will be two-tailed tests.

Bivariate Analysis

First of all, each of the independent variables was regressed on each of the dependent variables, both in a cross-sectional and a pooled cross-sectional design. However, none of the independent variables tested, including the rate of population increase, the level of economic development, the economic growth rate, the presence of leftist regime type, the level of democracy, or the measure of the level of repression, demonstrated any significance when tested against the dependent variables in a bivariate relationship. This lack of independent significance lends credence to the idea that more than one element must be present for terrorist activity to occur.

Cross-sectional Design

The first multivariate tests will utilize a cross-sectional design. In a cross-sectional design, measurements of the dependent variables and the independent variables are
all taken at the same point in time. If the time period to be investigated contains subdivisions, such as analyzing a ten-year slice of time with data measured yearly, then an appropriate measure (such as a mean of the values of a variable) must first be generated from these data so that only one value per variable is used for this time period. In this study, the mean of all of the independent variables will be used for the seven-year period under study so that an average measure of these values for any single year in the time period can be employed to examine terrorist activity. In this way, no single year will be evaluated, and its potential aberrant effects will be curtailed; rather, an "average" year for the entire time period will be studied. Additionally, the dependent variables have been summed so that I may study the effects of the independent variables on the whole time period rather than their effects on just one year in the time period.

To explicate, the measures of the structural variables do not usually change greatly on a yearly basis. However, the number of terrorist events occurring in a given nation or attributed to groups primarily identified with it can vary considerably on a yearly basis, even though its proposed causes do not. For these reasons, a cross-sectional design might provide a better reflection of how these structural variables actually affect terrorist activity overall.
Hence, the next two models tested were cross-sectional designs applying the same independent variables, excluding the lagged endogenous variables, to the two dependent variables to be tested. The results to these two models are found in Table One.

(Table One about here; see Appendix B)

Neither the level of economic development, the economic growth rate, the population growth rate, or the presence of leftist regime type were statistically significant or strong. However, both the measure of the level of democracy and the measure of the level of repression demonstrated great strength and rose to exceptional statistical significance in both cross-sectional models. Furthermore, though not statistically significant, the direction of the measure of the level of economic development was in the expected direction for both models, but the population variable for the location model contradicted its hypothesized direction. However, the population variable’s coefficients in the terrorist nationality’s model were in the expected direction, though also not statistically significant. Finally, the overall fit of these two models was fair for the study of terrorism. The model of terrorist activity occurring in a given nation, hereafter referred to as the “nationally-located” model, demonstrated an $R^2$ of 0.28, while the model
of terrorist activity attributed to groups primarily identified with a given nation, hereafter referred to as the "terrorist nationality" model, resulted in an \( R^2 \) of 0.30.

Pooled Cross-sectional Designs

The next two models tested used OLS regression in a pooled cross-sectional time series analysis. The first of these two models tested, sought to explain the number of terrorist incidents occurring in a given nation on a yearly basis, and the second pooled cross-sectional design was used to explain the number of terrorist incidents attributed to groups primarily identified with a given nation for each year under study.

A pooled cross-sectional time series (PCT) has been selected as the final design to use with this data set due to the data's nature, simply that a number of observations, or independent variables, have been collected concerning a large number of units, or countries in this case, over a relatively short period of time (seven years). In this design, the observations for each of the independent variables representing different measures are pooled together, allowing the analysis of the effects of both space and time elements on a relationship. Furthermore, while a simple time series analysis would be constrained by the limited amount of time-data points in this study, "the number of
available data points [in this data set] is much larger if one uses pooled cross-sectional time series designs" (Clarke, unpublished manuscript, 2) which eases the sample size problem by multiplying the number of units by the number of time points (Clarke, unpublished manuscript, 3).

However, using OLS regression on pooled cross-sectional data poses some inherent difficulties. In this design, the data are arrayed in such a manner that the result is a stacked data set. Each case is a single unit at one given time followed by the same unit's measures taken at a different time, with each subsequent case having observations taken at again a different time. The key to this "time" display is that each time interval between measures is exactly the same. When all cases for a given unit are stacked together, this bunch of data, if you will, is then stacked upon another bunch of data gathered about a different unit but with the same observations being measured across the same time frame. The stacking continues until the set of units under study has been exhausted (Stimson 1985, 918).

In any case, statistical problems arise when applying OLS to data stacked in this way because OLS treats each case independently of the others, ignoring the pooled nature of the data altogether (Stimson 1985, 918). Two problems, in particular, occur because of this oversight. Autocorrelation of the error terms is common because the "cases
are not independent along the time dimension within units" (Stimson 1985, 918), and heteroscedasticity is common as well (Clarke, unpublished manuscript, 4; Stimson 1985, 919-920). The overall result can be biased and inconsistent estimators, for example, inflated regression coefficients (Stimson 1985, 921), or "misleading estimates of model parameters and their standard errors" (Clarke, unpublished manuscript, 4).

Obviously, these problems need to be corrected. First of all, OLS used with a variation in White's Robust Standard Errors technique can be used to control for the heteroscedasticity problem (Beck et al. 1993, 947). OLS with Robust Standard Errors is the best available method when analyzing data where the number of observations per cross-section, here the number of years, is less than the number of cross-sections, here the number of countries (Beck et al. 1993, 947) because other statistical methods will overestimate standard errors. Thus, the Robust Standard Errors technique is well-suited to this study. Robust Standard Errors can estimate the variability of the OLS estimates "by estimating a parameter covariance matrix that is consistent in the presence of heteroscedasticity" (Poe and Tate 1994, 21). "This method does not change the coefficient estimates but does improve estimation of standard errors" (Beck et al. 1993, 946), especially on large sample sizes found frequently in cross-national panel studies such as this one.
The inclusion of the lagged endogenous variables in both pooled cross-sectional models serves a two-fold purpose. The more obvious reason for adding such a variable is to solve the second of the problems arising when applying OLS regression to a pooled cross-sectional time series. A lagged endogenous variable has the ability to control for autocorrelation of error terms. Because autocorrelation is usually a problem in pooled cross-sectional designs such as the two tested in this study, both models were tested initially without the lagged endogenous variables. Indeed, autocorrelation was present in both, but this was handily controlled for by adding the lagged endogenous variables.

The second purpose for including these variables is substantive. By definition, a lagged endogenous variable is the inclusion of the value for the dependent variable at time t-1 as an independent variable in the model testing the dependent variable at time t. The inclusion of a measure of the previous year’s dependent variable suggests that, consistent with the conclusions of the diffusion literature discussed above, the tested year’s dependent variable is, in part, a product of its past history (Heyman and Mickolus, 1981). Furthermore, the inclusion of the values of the dependent variable at time t-1 allows the values of the independent variables at time t-1 to demonstrate the effects they have on the dependent variable over time. The conceptual connection between the past history of each of the
independent variables to the dependent variable at time $t$ becomes strengthened as each year is added to the data set being tested. Additionally, this addition of a lagged endogenous variable presents a more realistic conceptualization of terrorist events occurring at time $t$. Instead of suggesting that terrorist events occur because of the population growth, level of economic development, level of repression, and so forth for a single given year, the lagged endogenous variable allows the idea (and the testing of the idea) that what terrorist events occur at time $t$ were precipitated by a history of population growth, poor living conditions, massive repression, and other factors rather than the events occurring in an isolated year. In short, "these coefficients [of lagged endogenous variables] provide a mechanism through which the effects of changes in the independent variables at a given time ($t_{1}$) continue to influence the dependent variables beyond the time of the occurrence of the change" (Poe and Tate 1994, 23).

The models were first tested without the lagged endogenous variables. Without the presence of the lagged dependent variables, the overall level of economic development and the overall population growth rate reached statistical significance, but both did so in the opposite direction of the proposed hypotheses. Additionally, the measure of the level of democracy and the measure of the level of repression were both strong and statistically different from zero.
As might be expected, however, there was an autocorrelation difficulty, as indicated by the Durbin-Watson statistics of 0.84 for the nationally-located model, and 1.00 for the terrorist nationality model.

Both pooled cross-sectional time series designs were then tested including the lagged endogenous variables. Not surprisingly, the results of the models changed. They are found in Table Two.

(Table Two about here; see Appendix B)

The rate of population increase, the level of economic development, the economic growth rate, and the presence of leftist regime type were all weak and statistically insignificant for both models. However, though not achieving statistical significance, the economic growth rate and the population growth rate for the second model both occurred in unexpected, and unpredicted, directions. Further, the variable representing the presence or absence of leftist control resulted in the predicted, positive direction when examined for its relationship to the dependent variable.

Furthermore, both the democracy variable and the level of repression variable were strong and statistically significant. However, the results of the measure of democracy were in the opposite direction of the proposed hypothesis, which gives support for later argument in favor of democ-
racy's permissive nature. Additionally, the results of the measure of the level of repression were in the expected, positive direction as its proposed relationship to the dependent variables for both tests.

Clearly, the strongest explanations of both measures of terrorism were the lagged endogenous variables which were very strong and statistically significant in both analyses. The substantive import of such findings is strong; it is clear that the effect of previous terrorist incidents on those occurring presently is important. Such results indicate that not only the measures of the dependent variable in previous years, but also the wealth of information contained in the lagged dependent variables concerning past values of other independent variables, are very important determinants in the terrorist events occurring presently. Furthermore, the strength of the effects of the independent variables, especially the variables measuring the level of democracy and the level of repression, as mediated through the lagged endogenous variables, become more apparent as they are filtered out of the lagged dependent variables.

Through a series of simple calculations, the "additional" effects of these independent variables that are buried within the lagged endogenous variables can be discovered. In fact, it can be seen that the impact of both the level of democracy and the level of repression increases substantially over time. The increase of these effects can be seen
graphically in Figure One for the level of democracy and in Figure Two for the level of repression.

(Figures 1 and 2 about here; See Appendix C)

For example, when the effect of the level of democracy on terrorism is discerned, as both the coefficient of this independent variable and its time-lag effect as filtered from the lagged endogenous variable are considered, the total effect of the level of democracy on terrorist activity suggests that at time t+11, the effect of the level of democracy on the number of terrorist incidents has more than tripled, before reaching asymptopia a few lags later.

Furthermore, the total effect of the level of democracy on the number of terrorist incidents attributed to groups primarily identified with a given nation also increases dramatically over time but levels off to a continuous effect more quickly. For this variable, its effect almost triples also, but does so by time t+8 and then levels off.

Additionally, the total effect of the level of repression responds in much the same fashion. By time t+11, the total effect of the level of democracy effects almost a one-to-one relationship with the number of terrorist events occurring in a given nation. In other words, for each one unit of the level of democracy, there is a corresponding one unit increase in the measure of terrorist activity occurring
in a given nation. Further, the relationship between the level of repression and the number of terrorist incidents attributed to groups primarily identified with a given nation is similar. Increasing in strength until leveling off in effect at about time $t+11$, this measure increases its effect by a full unit, with the resulting number of terrorist incidents increasing by 1.68 units for every one unit increase in the level of repression. Hence, these lagged endogenous variables are really melting pots of the history of the effects of the independent variables on the dependent variables. This history, then, is integral in effecting the outcome of terrorist events.

Finally, the overall fit of the first model, testing the number of terrorist incidents occurring in a given nation, is quite respectable. It resulted in an $R^2$ of 0.62. The second model, seeking to explain the number of terrorist incidents attributed to groups primarily identified with a given nation, was less than the first model. However, it still achieves a respectable level of explanatory power, in the context of the terrorism literature, returning an $R^2$ of 0.47.
CHAPTER FIVE

CONCLUSION

In this study, I have sought to explain two facets of international terrorism: its occurrence in particular countries and its perpetration by terrorist groups consisting of members that share the same national origin. I have proposed several national factors to have some relationship to the occurrence of these two aspects of international terrorism. These include the rate of population growth, the overall level of economic development, the economic growth rate, the level of democracy, the presence of leftist regime type, and the level of repression found in a nation. These proposed relationships were tested using Ordinary Least Squares Regression analysis, first as simple cross-sectional designs and then as more complex pooled cross-sectional time series analysis. Seven years of data were analyzed, covering 1981-1987.

Economic development, economic growth rate, population growth rate, and the presence of leftist regime type did not demonstrate any strong relationships to the dependent variables. First, the hypotheses drawn from the case study of Turkey where rapid population growth lead to outbreaks of violence were not borne out when applied to terrorist
activity. Perhaps, terrorism is not associated with population growth because little responsibility can be placed, as terrorism often does rightly or wrongly, upon a person, group, or government body for the population growth which is causing the economic deficiencies plaguing the population. With no one to blame and no one's attention to get, for there is little realistic change to press for, terrorism may not be seen as an expedient remedy to the problem.

Second, the hypotheses concerning the effect of the presence of a leftist regime type were also not borne out when applied to terrorist activity. While the presence of a leftist regime type may drive people to desire to rebel against this form of government, it is possible that the presence of a leftist regime type actually immobilizes people from acting to fight for freedoms due to the very nature of the system. This nature, by definition, subjugates individual rights to the "rights" of the state.

Third and fourth, neither the level of economic development nor the economic growth rate demonstrated strength or statistical significance in accordance with their proposed hypotheses. This lack of positive results, however, may not suggest that these two variables have no relationship to the number of terrorist events occurring. Instead, it may be a remnant of the lack of sufficiently precise measurements of these independent variables. Because a yearly measure of development and economic growth rate were not available for
many of the countries in the sample, an average for the seven-year period was used both in the cross-sectional design, as would be expected, and for each of the yearly values for these variables in the pooled cross-sectional design, as would not be normally expected. Further, it is possible that representing economic development and growth rate with variations of the per capita gross national product of each country might be masking the true economic situation of many nations. Hence, the lack of precision as well as the possibility of the lack of true representativeness of these measures could be distorting the relationship shown to exist between these economic measures and terrorist activity.

However, common to all designs tested as well as to both dependent variables, the level of democracy and the level of repression were strong indicators of a rise in terrorist activity. Based upon this commonality, it can be concluded with some confidence that these two variables are integral parts in the formation of terrorist activity. Knowing what part they play is crucial to understanding this phenomenon and to finding ways to solve this problem.

First of all, the level of repression, or violations of basic human rights termed personal integrity rights, demonstrated a strong relationship to both the number of terrorist incidents occurring in a given country and the number of terrorist incidents attributed to groups primarily identi-
fied with a given nation. Clearly, as more personal integrity rights were repressed because of political views maintained by those oppressed, the number of terrorist events escalated. To clarify, as the number of politically-related murders, incidents of torture, disappearance, and imprisonment increased, so did both the number of occurrences of terrorism in a given nation and the number of incidents spawned by groups from a given nation. Clearly, some citizens are not choosing the first option available, to accept the repression without acting. If this route were chosen by all, the number of terrorist incidents would not increase as repression levels rise. The second option available, to work through the established system to regain the rights being repressed, is also not taken because it is simply not available in a society where the politically-motivated abuse of its citizens is acceptable to a government. The third option, then, to choose alternative means to express opinions and fight for change outside of the confines of the existing system, is chosen and accounts for the rise in terrorist events associated with the rise in the level of repression in a nation.

Quite surprisingly, the second independent variable, the measure of the level of democracy, was strong and statistically significant but was so in the opposite direction of its proposed hypothesis. The implications of this finding are striking in the least. Does democracy spawn
terrorism? Could an increase in the granting of political rights to citizens lead to an increase in the number of terrorist events occurring in that nation and an increase in the number of terrorist incidents attributed to groups identified with that nation's citizenry? The answer is apparently yes. Though seemingly contradictory, the mix of more political freedoms and terrorism works. As the ability of people in a nation to express themselves without censure grows, the ability to form into dissident groups increases also. True, the political process in a nation may actually provide a legitimate route for the expression of grievances through activities such as voting, political party participation, and interest groups; however, none of these routes may be seen as expedient enough or effective enough for the fulfillment of causes for some disenfranchised groups. There may simply not ever be enough realistic mass support for a cause or political position that is embraced by some groups for there to be an effective, legitimate fulfillment of a group's political goals. These groups, then, respond through the means they deem necessary to effect change politically, or simply to have their dissenting voices heard in a very powerful way.

Remember also that the level of democracy demonstrated a relationship both to what nation or its citizens were attacked and what nation's citizens did the attacking. Several conclusions can be drawn. Indeed, democracy's
openness allows the easier formation of dissident groups. Most politically-motivated actions, short of violence, go unfettered and even remain protected in this political environment. It is easier for any terrorist organization from any nation to carry on its activities in a nation with protected democratic freedoms. Therefore, it is simply easier to form a group, and to complete a terrorist attack in one of these nations as well.

Additionally, these findings also suggest that terrorists acts are more likely to occur because of terrorist groups with a primary nationality from a democratic nation. Admittedly, this finding is initially puzzling. Why would people who have more freedoms become more likely to engage in terrorism? Possibly, as suggest earlier, the democratic process still does not offer to these groups any real possibility of achieving their desired political ends. Add to this the political relative deprivation that occurs. Disenfranchised groups see around them a political system that fulfills the political desires of most people relatively well. The members of these same groups, sharing a nationality embracing a democratic process, are also strongly aware of the political rights they enjoy and the political fulfillment they have been politically socialized to expect. Others around them, guaranteed by the same political ideology the same rights as the would-be terrorists, are presently seeing the fulfillment of their political desires.
through the available, legitimate processes that are disappointing the would-be terrorists. Although one group has no more legal right to its political goals, because it enjoys more widespread support, it sees the fulfillment of its goals. However, the disenfranchised groups do not realize any satisfaction, and must seek other ways to do so. This disillusionment, coupled with the freedom to form into groups, makes it not only desireable but also easier to carry out terrorist activity.

Finally, findings obtained with this variable also suggest that there may be a "political freedom threshold" that exists in democratic countries. Terrorist activity may actually increase once a nation reaches a certain level of freedom because the opportunity to participate in such activity exists. However, it is possible that once the level of freedom pierces this threshold, terrorist activity may decrease because sufficient avenues for the legal expression of disagreement exist so that dissident groups would not need to express themselves through terrorist activities. This proposition provides grounds for further investigation of this variable on terrorist activity.

The last strong and statistically significant independent variables, the lagged endogenous variables, offer results that are rich in substance. These types of variables provide to a relationship the string that links one set of observations to another for any given dependent
variable. For a time series model, it is suggested that the relationship between the dependent and independent variables is temporal, but this timeliness does not mean that the relationship is time-bound to one particular set of observations. On the contrary, time series modeling suggests that a relationship exists across time. Lagged endogenous variables allow this time-spanning relationship to be accounted for. However, the inclusion of a "past" value of a dependent variable in an equation used to model a "present" value of a dependent variable does not just suggest, for this study, that past terrorism leads to present terrorism. Instead, it should also be remembered that this past value of terrorism has been modeled based upon past values of the same independent variables presently being modeled. Remember that each lagged dependent variable is a conglomeration of the effects of its independent variables over time. All of these past effects have been incorporated into the model for the present values of terrorism. Hence, each year's terrorism is in part modeled upon the previous year's values for the dependent variables, which are based upon not only their present independent variables but also the preceding year's dependent variables, all of which are based upon yet still another previous year's variables. Hence, the present value assigned to terrorist activity is really the result of a number of previous year's measures. The inclusion of the lagged dependent variables suggests, then, along with the
results found, that terrorist activity is very much a function of its historical context as well as past values of terrorist incidents. That terrorism can be and is somehow a function of its past occurrence lends support to the diffusion theory of terrorist activity.

Nonetheless, only two of the six independent variables, apart from the lagged endogenous variables, demonstrated a strong relationship to the dependent variables. These are the level of democracy and the level of repression of personal integrity rights.

Finally, the remedies to terrorism are easy to offer yet inherently more difficult to achieve. The first remedy is also easy to understand. Decreasing the level of repression in any nation should result in a decrease in the number of terrorist incidents occurring within its borders or against its citizens, and in a decrease in the number of terrorist incidents attributed to groups primarily identified with that nation.

However, the second remedy is difficult to stomach. According to these results, a decrease in the level of democracy should decrease the number of terrorist events. However, I cannot suggest working towards a decrease in guaranteed political rights internationally in order to decrease the number of terrorist incidents occurring. The benefits of democracy go without enumerating. Terrorist activity, while not an acceptable cost, may be one that has
to be beared in order to maintain what is cherished by all those who enjoy democratic freedoms.

In closing, this study provides a good first cut at discovering the mixture of conditions that provoke terrorist activity. Much more research remains to be done in this field. Addressing the many possible reasons for the increase of terrorist activity within the midst of democratic freedoms is a good starting point for future research. Finding a way to incorporate other important factors that influence a great deal of political action, such as cultural and geographical factors, would move the study of terrorism much closer to capturing many more of its relevant influences. Additionally, testing the role of economic development and economic growth rate using more accurate measures or perhaps a different quality-of-life index, when available, might bear out a stronger indication of the role these two factors play in terrorist activity. Using a measure of leftist regime strength, as opposed to just its presence or absence, would give a clearer picture of its role. Finally, testing the relationship of democracy to terrorist activity by using a different modeling technique, allowing for the presence of a curvilinear relationship, might also provide a more accurate reflection of how terrorist activity is affected by the presence of democratic principles.
ENDNOTES

1. Most events will happen within the national boundaries of one nation-state. However, some terrorist events themselves do cross borders, such as skyjackings, which is one caveat to the definition of transnational terrorism. In any case, only the country of origination will be counted as the target of a terrorist attack, for it is believed that the chosen target of the attack in the case of skyjackings is generally the nation from which the airplane is originating and not the country to which the airplane is skyjacked. Further, if both countries were counted for this analysis, the results might overrepresent some countries as targets that were really only chosen as a relatively safe place to land an airplane, and would also inflate the number of terrorist incidents in the analysis.

2. The variable "first nationality" of terrorists in attack force is coded in ITERATE III according to the nationality of the simple majority of terrorists in a group if the group consists of only one nationality or is mixed.

3. Again, one such occurrence in Turkey has already been studied. In this instance, urban terrorism erupted in Turkey between 1976 and 1980; the most obvious structural change occurring in Turkey simultaneously with this violence was Turkey's transformation from a predominantly rural
society to an increasingly urban one. The growing rural population moved from the resource-strapped rural areas to the already growing urban areas in search of employment; the urban areas could not withstand this surge in population. High levels of tension were created by this change, and armed violence erupted. Hence, population growth led to violence (Sayari and Hoffman 1991).

4. see Henderson (1991) and Morris (1979)

5. These data were originally gathered by Poe and Sirirang by content analysis of State Department and Amnesty International reports for the years 1980-1987. They then ranked nations based upon a five point ordinal scale originally established by Gastil, with intercoder reliability being 85.6%. The criteria for this ranking is as follows:

1) "Countries...under a secure rule of law, people are not imprisoned for their views, and torture is rare or exceptional...political murders are extremely rare."

2) "There is a limited amount of imprisonment for nonviolent political activity. However, few persons are affected, torture and beating are exceptional...political murder is rare."

3) "There is extensive political imprisonment, or a recent history of such imprisonment. Execution or other political murders and brutality may be common. Limited detention, with or without trial, for political views is accepted..."
4) "The practices of (Level 3) are expanded to larger numbers. Murders, disappearances are a common part of life...In spite of its generality, on this level terror affects primarily those who interest themselves in politics or ideas."

5) "The terrors of (Level 4) have been expanded to the whole population...The leaders of these societies place no limits on the means or thoroughness with which they pursue personal or ideological goals." (Gastil as quoted in Stohl and Carlton 1985).

6) This study is a first cut at applying the broader field of conflict literature to terrorism and exploring its causes. Further, it is a first try at applying structurally-related hypotheses to terrorist activity; additionally, no previously-supported hypotheses about its structural causes exist from which to ascertain specific directions. Therefore, these statistical tests will be two-tailed tests although the theoretical support drawn from the cited conflict literature, and the hypotheses derived from this support, are directional.
APPENDIX A

LIST OF COUNTRIES
## APPENDIX A

### LIST OF ALL COUNTRIES INCLUDED IN ANALYSIS

<table>
<thead>
<tr>
<th>Country</th>
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Rwanda
Saudi Arabia
Senegal
Sierra Leone
Singapore
Somalia
South Korea
South Africa
South Yemen
Soviet Union
Spain
Sri Lanka
Sudan
Sweden
Switzerland
Syria
Taiwan
Tanzania
Thailand
Togo
Trinidad/Tobago
Tunisia
Turkey
Uganda
United Kingdom
United States
Uruguay
Venezuela
Yemen
Yugoslavia
Zambia
Zimbabwe
APPENDIX B

TABLES
TABLE ONE

CROSS-SECTIONAL DESIGNS

<table>
<thead>
<tr>
<th>INDEPENDENT VARIABLES</th>
<th>MODEL ONE Location</th>
<th>MODEL TWO Nationality</th>
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<td>(8.44)</td>
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R²                     | 0.28              | 0.30                  |
Number of cases         | 145               | 145                   |

Note: Main entries are unstandardized regression coefficients, generated using SPSS. The standard errors are in parenthesis.

*p < .02 (two-tailed test)     ***p < .01 (two-tailed test)
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<thead>
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<th>INDEPENDENT VARIABLES</th>
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<th>MODEL TWO</th>
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<td>Average Contemporaneous Correlation of Errors</td>
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Note: Main entries are unstandardized OLS coefficients, generated using RATS 386 version 4.02. The Robust Standard Errors, which were used to control heteroscedasticity (White 1980; Beck et al., 1993), are in parentheses.

*p < .02 (two-tailed test)  ***p < .01 (two-tailed test)
FIGURE 1

DEMAC1 = democracy score for dependent variable = location of terrorist incident
DEMAC2 = democracy score for dependent variable = primary nationality of terrorist group
Figure 2

<table>
<thead>
<tr>
<th>AINEW1</th>
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</table>

INCREASE IN TERRORIST EVENTS AS A RESULT OF INCREASE OF 1

TIME AT TIME T + LAG of N
N = 0 - 18

AINEW1 = repression score for dependent variable = location of terrorist incident
AINEW2 = repression score for dependent variable = primary nationality of terrorist group
REFERENCES


Clarke, Harold D. "Dynamic Analyses Using the European Data Base: The Case of the Euro-Barometers," unpublished manuscript.


Test of the Linkage Between Economic Inequality and Political Violence," *Journal of Conflict Resolution* 21(1): 105-128.


Covariance Matrix Estimator and a Direct Test for Heteroskedasticity," *Econometrica* 48: 817-838.