

**POLITICAL TERRORISM IN WESTERN EUROPE, 1965 - 1990:  
EVENT COUNT ANALYSES OF A MACRO-STRUCTURAL MODEL**

by

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## Abstract

There are few formal models of anti-state terrorism. One reason is the inherent difficulty of integrating multi-level analytic variables in a predictive or causal chain. No theories of anti-state terrorism can exclude historical variables, economic factors, political structures and policies, and cultural dimensions. In addition to the broad range of nomothetic variables, there are numerous idiographic or historical incidents which must be incorporated into a formal model. Also, specific policies and counter-anti-state terrorist organizations have a visibly direct connection to anti-state terrorism. Finally, the complex nature of individual motivation and its relationship to terrorism must be addressed. This wide variety of potential antecedents has severely complicated and hindered the process of model building and evaluation.

The thesis presents an empirical evaluation of a theoretical model of domestic anti-state political terrorism in 12 countries, including Belgium, Denmark, France, Ireland, Italy, Greece, Luxembourg, the Netherlands, Portugal, Spain, the United Kingdom, and West Germany. Variables in the multivariate relationships are derived from a modified version of Corrado & Tompkins (1992) model. These and other variables are operationalized with multiple indicator indices. As well, the bivariate relationships from the model are specified. The statistical assessment of the model is done with *Count*, a recent and innovative statistical package developed by Gary King. *Count* utilizes maximum likelihood estimation techniques, which are demonstrated to be superior to other statistical measures in the estimation of "event count" data. Finally, several tests are conducted on the final model to assess the reliability and validity of the independent variables.

The following variables are found to be statistically significant with political terrorism: postmaterial values, religious fragmentation, unemployment, inflation, political mobilization, immigration, and life satisfaction. These findings clearly indicate that, in the context of political terrorism, causal modeling must be approached holistically, in recognition of the displayed interdependence between socio-structural, economic, political structural, and political cultural causes.

## Table of Contents

Page

Aproval Page.....	ii
Abstract.....	iii
List of Tables .....	viii
List of Charts and Figures.....	ix
Introduction .....	1
<b>Chapter One</b>	
<b>Multi-Level Theoretical Perspectives of Anti-State Political Terrorism and the Search for an Integrative Theory .....</b>	<b>5</b>
Analytic Levels and Theoretical Considerations .....	9
Individual Level Perspectives .....	10
Organizational Level Perspectives.....	23
Structural Level Perspectives .....	25
Causal Modeling Approaches .....	32
Corrado and Tompkins' Model.....	41
<i>Macro or Structural Level Variables</i> .....	41
<i>Middle or Organizational Level Variables</i> .....	43
<i>Micro or Individual Level Variables</i> .....	43
<b>Chapter Two</b>	
<b>A Multi-Variate, Macro-Structural Theoretical Model.....</b>	<b>45</b>
The Dependent Variable: Political Terrorism .....	45
Independent Variables: Corrado and Tomkins Revisited .....	50
Social Structure .....	51
<i>Ethnolinguistic Fragmentation</i> .....	53
<i>Religious Fragmentation</i> .....	54
<i>Immigration</i> .....	56

Economic Structure.....	57
<i>Gross Domestic Product</i> .....	59
<i>Inflation</i> .....	60
<i>Unemployment</i> .....	61
Political Structure.....	62
<i>Democracy</i> .....	63
<i>Turnout</i> .....	65
<i>Polarization</i> .....	66
<i>Fractionalization</i> .....	68
<i>Durability</i> .....	70
Political Culture.....	72
<i>Life Satisfaction</i> .....	74
<i>Interpersonal Trust</i> .....	75
<i>Social Change</i> .....	76
<i>Political (Democratic) Satisfaction</i> .....	77
<i>Political Mobilization</i> .....	78
<i>Ideological Self-Placement</i> .....	79
<i>Postmaterial Values</i> .....	80

### Chapter Three

<b>Event Count Models and Maximum Likelihood Estimation</b> .....	84
<i>Ordinary Least Squares Regression, Logarithmic</i> <i>Transformations, and Event Counts</i> .....	85
<i>The Standard Poisson Distribution</i> .....	87
<i>Event Count Data Generation and a Poisson Regression Model</i> .....	88
<i>Probability, Inference and Likelihood Theory</i> .....	90
<i>Maximum Likelihood Estimation</i> .....	91
<i>The Event Count Data Generation Process and Stochastic</i> <i>Assumptions Revisited</i> .....	94
<i>Compound Poisson Models</i> .....	95
<i>Preliminaries to a Generalized Event Count Model</i> .....	96
<i>The Generalized Event Count Model</i> .....	100
<i>Conclusion</i> .....	101

<b>Chapter Four</b>	
<b>Domestic Political Terrorism: An Overview of Historical Frequencies.....</b>	<b>103</b>
Domestic Terrorist Events Over Time .....	103
Domestic Terrorist Events by Nation .....	107
<i>Moderately Low Level Terrorism: Belgium, Ireland,</i> <i>and Portugal .....</i>	<i>109</i>
<i>Moderately High Level Terrorism: Greece, United Kingdom,</i> <i>and West Germany.....</i>	<i>112</i>
<i>High Level Terrorism: Italy and Spain.....</i>	<i>117</i>
<i>Very High Level Terrorism: France.....</i>	<i>121</i>
<i>Conclusion.....</i>	<i>122</i>
<b>Chapter Five</b>	
<b>Bivariate Relationships, Hypothesis Testing, and Empirical Model</b>	
<b>Development .....</b>	<b>124</b>
Bivariate Results and Hypothesis Testing.....	125
<i>All Cases Model .....</i>	<i>125</i>
<i>Democracies Only Model .....</i>	<i>128</i>
Model Development.....	132
<i>Methodology and Results .....</i>	<i>133</i>
Discussion .....	139
Conclusion.....	148
<b>Chapter Six</b>	
<b>Model Testing.....</b>	<b>153</b>
<i>Time Dependency .....</i>	<i>154</i>
<i>Within-Country Variance.....</i>	<i>156</i>
<i>Intercountry Differences .....</i>	<i>160</i>
Conclusion.....	161
<b>References .....</b>	<b>163</b>
<b>Appendices .....</b>	<b>177</b>



## List of Tables

<i>Table</i>	<i>Title</i>	<i>Page</i>
1.	Summary of Independent Covariates.....	52
2.	Summary of Operationalized Independent Covariates .....	83
3.	Bivariate Relationships with Domestic Terrorism Events - All Cases..	126
4.	Summary of Hypotheses for All Cases.....	127
5.	Bivariate Relationships with Domestic Terrorism Events Democracies Only.....	129
6.	Summary of Hypotheses for Democracies Only.....	130
7.	Generalized Event Count Regression Model Initial Model - All Cases .....	134
8.	Generalized Event Count Regression Model Preliminary Model - All Cases .....	135
9.	Generalized Event Count Regression Model Final Model - All Cases .....	136
10.	Generalized Event Count Regression Model Preliminary Model - Democracies Only.....	138
11.	Generalized Event Count Regression Model Final Model - Democracies Only.....	139
12.	Factor Matrix for Final Model - All Cases.....	142
13.	Correlation Coefficients for Final Model - All Cases .....	142
14.	Factor Matrix for Final Model - Democracies Only.....	146
15.	Proportion of Total Variance that is Within-Country .....	157
16.	Coefficient and T-Value Estimates of Independent Parameters With and Without Country Dummies.....	159

## List of Charts and Figures

<i>Chart</i>	<i>Title</i>	<i>Page</i>
1.	Domestic Terrorist Event Frequencies, 1965 - 1990 .....	104
2.	National Distribution of Terrorist Events, 1965 - 1990.....	108
3.	Domestic Political Terrorism in Ireland, Belgium and Portugal, 1965 - 1990.....	110
4.	Domestic Political Terrorism in Greece, UK. and West Germany, 1965 - 1990.....	113
5.	Domestic Political Terrorism in Italy and Spain, 1965 - 1990 .....	118
5.	Domestic Political Terrorism in France, 1965 - 1990.....	122
<i>Figure</i>	<i>Title</i>	<i>Page</i>
1.	Path Diagram of Final Model - Democracies Only.....	149

## Introduction

In the context of political terrorism, the development of theory has been characteristically limited and uneven. The paucity of formal models and/or empirical treatments can be attributed to the conceptual complexity of terrorism. At the broadest level, conceptual distinctions must be made between *political* terrorism and other forms of terrorism. Political terrorism itself may be anti-state or state oriented, domestic or international. The motivational context of political terrorism is varied, primarily according to ethnic nationalism or religious or secular (i.e., fascism, communism, or anarchism) ideologies. More recently, specific issues such as pornography, abortion, and the environmental movement have also served as motivations for terrorism. Given the complicated and variegated nature of political terrorism, many theoretical approaches have avoided attempts at comprehensive explanation. The few "models" that do exist have principally consisted of lists of variables, without any relational specifications toward one another. None have been formalized in the sense of being operationalized and subjected to statistical analyses. Using a modified version of the model developed by Corrado and Tompkins (1992) and maximum likelihood estimation techniques contained in the *Count* statistical package, this thesis represents a preliminary attempt to address and rectify the lacunae regarding the empirical assessments of political terrorism, particularly as it related to the domestic, anti-state context in Western Europe.

Before a phenomenon such as political terrorism may be modeled, the relevant literature must be reviewed. Chapter One examines "theories" of terrorism within a multi-level framework. Corrado and Tompkins (1992) and Crenshaw (1981) have developed an essentially tripartite analytic classifications consisting of

first, the macro-structural level; second, the middle-organizational level; and third, the micro-individual level. Although most of the theories demonstrate a bias toward one of these three level, few attempts at synthetic theories that incorporate the different levels of analysis have been made. One of the more elaborate of these attempts (Corrado and Tompkins, 1992) is introduced and detailed as the theoretical basis for the thesis.

Advancing from these theoretical bases requires that ideas be operationally defined as testable variables. Chapter Two is dedicated to the operational explication of an empirically testable theoretical model. Political terrorism is reconceptualized as a dependent variable, while groups of social structural, economic, political structural and political cultural variables are presented as independent variables. As well, Chapter Two provides a series of hypotheses concerning the relationship of each of these independent variables and political terrorism. These "bivariate relationships" later serve as initial indicators of the efficacy of the chosen independent variables. Finally, Chapter Two introduces a distinction between two political structural contexts, democracies and non-democracies, that is maintained throughout the thesis.

Because it is relatively new, the *event count* technique, as presented by King, is detailed in Chapter Three. More specifically, Chapter Three details the development of a statistical procedure referred to as the *Generalized Event Count Regression Model*, which is asserted to be superior to traditional ordinary least squares regression for the type of data presented in the thesis. The chapter also contains a discussion of maximum likelihood theory, the statistical theory upon which generalized event count regression models are premised. This examination sets the stage for the results presented in Chapters Five and Six.

Before presenting the results of empirical modeling, however, the dependent variable of political terrorism must be examined in more detail. Chapter Four analyzes political terrorism from two perspectives. First, aggregate levels of political terrorism between the years of 1965 and 1990 are reviewed. Second, the analysis drops a level and examines trends in political terrorism within 12 Western European countries: Belgium, Denmark, France, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, the United Kingdom, and West Germany. In these analyses, political terrorism demonstrated substantial variation, both between countries and over time.

Chapter Five details the methodology used in the derivation of the models and reports the significant research findings. First, bivariate relationships are reproduced to allow for hypothesis testing. The bivariate relationships indicated that, for both the democratic and non-democratic contexts, many of the independent variables chosen for the development of a theoretical model are causally relevant to political terrorism, all other things being equal. With one exception, all of the variables behaved in the hypothesized fashion, and many were statistically significant. Subsequent model estimation indicated that unemployment, inflation, immigration, life satisfaction, and religious fragmentation were significant causal variables in both contexts. For all cases, ethnolinguistic fragmentation was also significant, while the democratic cases only model also included political mobilization and postmaterial values. Chapter Five concludes with a discussion of why particular variables survived the final models, while others dropped out.

Finally, Chapter Six performs a series of tests on the final model variables (from the democracies only context) in an attempt to assess their validity. Three findings are especially significant. First, the apparent serial correlation, or time

dependency across years was accounted for by the independent variables. Second, the independent variables were able to account for significant within-country effects. Third, the independent variables were not as effective in accounting for effects across countries. Ultimately, testing revealed that, with the exception of religious fragmentation, the variables in the final model were valid and to some degree causally related to terrorism. However, the structural variables considered by the thesis provide, not unexpectedly, only a partial solution. Variables from other levels must be incorporated before more comprehensive modeling is possible.

To conclude this introduction, I would like to acknowledge the tremendous debt owed to my supervisory committee. Dr. Ray Corrado has been a mentor for many years now, and this thesis could not have been completed without his theoretical insights and guidance, or without his seemingly endless patience. This thesis would also have been impossible without the contributions of Dr. Paul Warwick and Dr. Bill Glackman. Both gave more than generously with their limited time, and the methodological guidance they provided was invaluable. Thank you both. Finally, I would like to offer my sincere thanks to my family and friends, for their encouragement and understanding. Without your support, this thesis could never have been.

## Chapter One

### **Multi-level Theoretical Perspectives of Anti-State Political Terrorism and the Search for an Integrative Theory**

There are few formal models of anti-state terrorism. One reason is the inherent difficulty of integrating multi-level analytic variables in a predictive or causal chain. No theories of anti-state terrorism can exclude historical variables, economic factors, political structures and policies, cultural dimensions, and personal motives. In addition to the broad range of nomothetic variables, there are numerous idiographic incidents which further complicate the exploration of a formal model. Initially, the literature on terrorism consisted primarily of historical reviews identifying the periods which supposedly demonstrated the beginning of the dynamics leading up to contemporary terrorism. Laqueur (1977), for example, asserts that the French Revolution was a critical turning point since it involved terrorism as a policy or technique of governance which was copied in various forms throughout the 19th and 20th centuries. Similarly, the political turmoil in Czarist Russia at the turn of the 19th century marked the vicious relationship between state and anti-state terrorism, i.e., assassinations, terrorist bombings, secret police torture including both anti-Czarist ideological groups and state police set the stage for the revolutionary changes of the early 20th century. There are more contemporary historical turning points as well that have been posited as effecting anti-state terrorism, including the civil rights movement in the U.S. in the 1960s and the anti-Vietnam war student movements throughout industrial countries.

Essentially, there are two key assertions made by theorists such as Wilkinson (1977) and Gurr (1970) about these historical periods. First, specific events such as the British military intervention into Northern Ireland to separate the violent

Catholic and Protestant para-military groups are themselves causal agents in promoting anti-state terrorism. Second, a culture of political violence surrounds these events, i.e., these events both reflect the breakdown of non-violent or civil cultures and stimulate the cycle of anti-state and state terrorism which perpetuates and strengthens violent political cultures. Political culture, therefore, is seen as an important variable in explaining terrorism. The expectations and consequent relative deprivations experienced by individuals belonging to various interest groups, classes, and ethnic groups motivate individuals to commit terrorism.

This complex linkage between specific historical events, political culture and individual motivation explains partly why there have been few attempts to develop a formal model of anti-state terrorism. Another complicating hindrance to model building and evaluation is the numerous structural economic and political variables that further expand the above causal chain. Huntington (1968), Moore (1966) and the more specifically focused work of Hechter (1975) assert that there are identifiable political economic structures that cause political violence, including anti-state terrorism. Transition periods are the most likely to promote violence, e.g., the shift from monarchies/aristocracies to pluralistic democracies and empires to nation-states, as well as the shift from agrarian to industrial economies and manufacturing to service economies. The dislocation of individuals and groups culminating in new losers and winners politically and/or economically results in frustration, anger, and violence. In effect, there is a political economy variable that can increase or decrease anti-state terrorism depending on the amount of dislocation. In other words, it is possible to argue that the enormous economic success of the European Economic Community until the recent recession explains partly why anti-state terrorism declined in the late 1990s, while the absorption of



East Germany and Eastern European refugees in the midst of the worst recession since the Great Depression has resulted in the dramatic increase in anti-state terrorism in Western Europe and especially Germany.

Beyond the macro political and economic structural variables there are specific policy and counterinsurgency organizations that have a visibly direct connection to anti-state terrorism. Political compromises or acceding to political demands obviously can dramatically reduce and even eliminate political violence. The impact of amnesty laws and effective police strategies can also effect reductions. The arrest of an anti-state terrorist group's leader (i.e., Renato Curccio of the Red Brigades in Italy) is generally held to be critical toward effecting the demise of an organization.

Finally, throughout the late 1970s and early 1980s one of the most contentious debates in the literature on anti-state terrorism was the importance of individual level variables involving motivation. There were strongly opposed assertions about the importance of mental disorders in explaining why some individuals choose to become terrorists. The competing roles of ideology, ethnic identity, and nationalism were fundamental to this debate. Yet with little or no valid empirical data available, this debate rests largely on anecdotal evidence, biographies and autobiographies, and journalistic interviews. While no theorist denied that choice is involved, the exact impact of political cultural values and personality factors remains unresolved.

In reviewing the literature on anti-state terrorism, it is not surprising that the above inclusivity of variables might best explain why there have been few attempts to explicate a formal model. Theorists such as Wilkinson (1977), Crenshaw (1981), and the collaborative efforts of Schmid et al. (1988) have developed list of variables and have arranged them in a loose causal chain. Targ (1988) produced a more

systematic Marxist model. Yet none of the above lists or models have been operationalized and empirically assessed.

In addition to the problems posed by the inclusivity of variables, terrorism presents considerable conceptual difficulties. As a concept, terrorism has been controversial, marked by problems with conceptual clarity, precision and universality. It should come as no surprise, therefore, that the development of theories of terrorism can be characterized as uneven and quite limited in empirical assessments. Addressing conceptual issues has predominated much of the literature on political terrorism:

To discuss terrorism - causes, consequences and possible remedies - conceptualization, typologies, and an effort to place the phenomenon of terrorism inside a theory of the world system are indispensable (Galtung, 1988:51).

More specifically, these conceptual difficulties have resulted in the paucity of causal models amenable to quantitative analyses. It is evident that any formal modeling is dependent upon first addressing the concept of political terrorism. It will be maintained that it is necessary to narrow the literature review to a more limited phenomenon, specifically *political* terrorism, i.e., conceptually separate from acts of terror which are not distinctively politically motivated or related to an explicit political context. In addition, the literature review is restricted to *anti-state* groups. Focusing on one major form of political terrorism is more likely to diminish the inherent difficulty in overcoming both the conceptually too broad range of terrorist acts and the multiple etiological models developed to explain them. A key objective of this review also is to identify the variables that will allow for an empirical assessment based on probabilistic criteria rather than the more exacting experimental or deterministic criteria.

## **Analytic Levels and Theoretical Considerations**

A consensus is evident in the literature on political terrorism that while individuals, usually operating in group structures, commit these acts, explanations of why they occur are based not only individual motivations, but also on organizational and societal factors. Crenshaw (1981:380) identified three levels of causation: situational variables; strategy of the terrorist organization; and individual participation. These distinctions are parallel to Corrado and Tompkins' (1992) framework of societal (macro)-level, organizational (middle)-level and individual (micro)-level perspectives. Usually, however, most scholars emphasize one of these levels in their theories. Given the enormous number of variables and their complex multivariate relationships, this is understandable. Models which attempt to address the interaction of three levels, either theoretically or empirically, are, not unexpectedly, rare. When a cross-level approach is attempted, often it is not explicated in a manner that allows for any systematic empirical assessments:

In general, propositions about terrorism lack logical comparability, specification of the relationship of variables to each, and a rank-ordering of variables in terms of explanatory power (Crenshaw, 1981:380).

Again, a major objective of this thesis is to present a model, outlined in Chapter Two, that will undergo quantitative analysis to assess its ability to predict anti-state political terrorism.

One of the most controversial debates on anti-state terrorism is manifest at the level of individual motivations. The juxtaposition of individual pathology explanation and rational choice theory is the basis of this dichotomy. Essentially,

this debate encompasses classical versus positivist notions of free will versus determinism and the roots of human agency.

### **Individual Level Perspectives**

The works of Cooper represent some of the earliest instrumental theorizing within the psychological/psychiatric episteme. In *What is a Terrorist: A Psychological Perspective* (1977), Cooper initially recognizes some of the methodological limitations presented by individual level analysis which is predicated upon personality or motivational constructs:

In-depth studies of terrorists, their personalities and motivation are extremely difficult to conduct . . . What we know about the terrorist, his objectives, what he is doing and why he is doing it lacks, therefore, contemporaneity. Most writings of this sort are by or about retired terrorists. They are reconstructions colored, by and large, with the success or failure of their terrorist activities and distorted by the view from the prospect or perspective attained at the time of writing . . . that they are partisan, perhaps untruthful, and self-serving, is not surprising and almost too obvious to warrant reminder to the careful examiner (17).

As well, Cooper recognizes the danger of generalization in an area where very few case histories are available for study. Still, it is clear from the outset that he prefers the utility of an apolitical, astructural approach firmly grounded in the deterministic rhetoric of fundamental ambivalence, personal internal struggles and constitutional weaknesses.

Behind the artificial front put up by the terrorist there is a man or a woman *driven* to terrible, desperate things by *forces* too strong to understand and too unruly to permit of calm and rational management once they are set in train (Emphasis added) (18).

Cooper obviously rejects rational choice assumptions of free will, asserting instead that personality, specifically aberrant personality types, is the key to explaining political terrorism.

For Cooper, the essence of the terrorist is his/her psychological affinity with bullies and torturers. Extreme callousness, essential depersonalization, calculated indifference and the ability to justify or rationalize comprise the distinctive personalities of the terrorist and the torturer; both, he claims, are motivated by a deep-seated, pathological fear which is subsequently projected upon others. By extension, the parallels between terrorists and torturers is further manifested in the context of those who cannot control their own intense fears seek to unleash uncontrollable fear upon others for the sense of power and relief which this process generates. As further evidence of this kinship, Cooper cites the inability to distinguish clearly between the inculcation of fear on the one hand and respect on the other:

(T)he bully and the torturer seek respect for those qualities and attributes which they patently do not possess, imaginary intellectual attainments, academic degrees, wealth, connections and influence . . . He [the torturer] is beset by an oppressive, near-boiling hostility stemming from an internal inadequacy which is denied through the violence projected on others. The torturer takes refuge in zealotry or fanaticism to cover his own inadequacy (1977:25).

The motivational/causal context expresses the need for personality reinforcement, legitimacy and self-respect. For terrorists, political success alone can confer the ex-post facto legitimacy that is necessary for their self-esteem. Self-esteem is also central to Kaplan's (1978) hypotheses regarding the psychodynamics of terrorism. He too argues that the intransigence of terrorists is the result of pursuing of absolute

ends, reflecting a lack of self-esteem that underlies actions which provide terrorists with a renewed sense of masculinity (Post, 1984).

In a subsequent work, Cooper (1978) utilizes the relatively new and controversial construct of "psychopathy" to explain terrorism. He asserts that psychopathy is a purposive defense mechanism employed to confront the fear of failure. The parallel between psychopaths and terrorism is made across several indices, including innate self-righteousness, extravagant theatrics, peculiarly slanted morality, and the development of "a distinctively personal code of conduct, substantially out of tune with that of the rest of society" (1978:256). Central, therefore, to Cooper's theory, formulated in even stronger tones than in his previous work, is the correlation between terrorism and mental disorders. However, his causal assertions are purely inferential and weakly defended logically and empirically. Since, as he acknowledges, most psychopaths do not become terrorists, and not all terrorists are psychopaths, Cooper is relying only on case studies to infer causal relationships.

In contrast, Possony has developed a more systematic framework involving the variability of violent predisposition, emulation and psychological epidemics.

Beyond being wrong, exaggerated, misunderstood, torn out of context, illogical, etc., such ideas frequently turn 'crazy' by degenerating into delusions and illusions. Additionally, the operational notions may be impractical, or be little more than symbolic substitutions for effective alternatives. In due time, the dominant thoughts may become 'intensely crazy', not chiefly because logic is shattered and intent becomes exclusively symbolic, but because the top idea is reduced to a point where apperception and the sense of reality are lost; and because the 'flag idea' is elaborated, repeated, manipulated, dogmatized and progressively radicalized compulsively. In the end, mental stenosis emerges and is associated with complex phantasmagorias. The action theories elaborated on this basis are associated with, and lead to violence and magic (1980:91).

For Possony, it is the psychological dynamic that is the key, rather than personality, i.e., it is the descent from idealistic ideas to cognitive disorders to "craziness".

Terrorism arises periodically when the persons who are predisposed to violent action are stimulated more strongly than before; when increasing numbers of action groups are constituted, held together, and capable of executing series of operations, the result is a terrorism epidemic (1980:92). Clearly, Possony recognizes the importance of the organizational dynamic of the terrorist group. He asserts that the mobilization of 'disturbers' is predicated upon a number of extraneous antecedent support factors such as the propagation and production of political excitements; sympathetic public opinion; tangible assistance; and ineffectual government counteractions. Still, the primary cause of terrorist epidemics is individual psychological motivation. The organizational variables and antecedent factors are facilitative preconditions; they are necessary, but not sufficient.

Post (1984) extends the individual-group interaction dynamic. Post maintains that there are individual-level distinctions (i.e. - the political goals of individuals, such as anarchistic ideologues versus nationalist successionists) that interact with distinctive organizational dynamics. Concerning 'anarchic-ideologues', Post relies on both Schmidtchen's discovery of a definitive pattern of incomplete family structure among left-wing terrorists within the German terrorist context and Suellwold's subsequent social psychological approach based on clinical observations.

(Suellwold) describes a pattern where terrorists make a complete break with their previous social surroundings, values, and norms. While they develop strong positive feelings for their group, the hatred for the enveloping larger group, for society, is total . . . (S)he suggests

that the need to sustain membership in such a group . . . represents a prolongation of unresolved adolescent conflicts, and that this strong need to affiliate with a group springs from insufficient socialization in incomplete families: the group becomes a substitute for the family (Post, 1984:244-245).

Despite the importance of the group, however, Suellwold maintains that two personality types are particularly attracted to terrorist groups. The first type is Eysenck's extreme extroverts; self-centered, stimulus seeking individuals with little regard for the feelings of others. The second type exhibits neurotic hostility syndrome; individuals who are suspicious, aggressive, hyper-sensitive and perpetually defensive. The narcissistic personality joins terrorist groups in order to achieve stimulation, while the hostile paranoid is able to project his/her own hostility onto the political environment. Terrorism affords both types the opportunity to express their anti-social personality disorders.

Schmidtchen and Suellwold's work is closely paralleled by Bollinger, who identified similar histories of childhood deprivation and narcissistic wounds in left-wing terrorists and their link to certain personality attributes and group behavior. Self-esteem deficiencies and inadequately integrated personalities are again predominant, as is Cooper's identification of the importance of projection.

Loners, alienated individuals who did not fit, these individuals projected onto society the blame for their own inadequacies. For these alienated individuals from the margins of society, joining a terrorist group represented the first real sense of belonging after a lifetime of rejection, and the terrorist group was to become the family the never had (Bollinger, in Post, 1984:246).

In contrast, Ferracuti (1983) found, at least in the Italian context, that right-wing terrorists demonstrated significant psychiatric symptomology, yet left-wing terrorists were generally free of psychopathology. These finds suggest that Bollinger



and Cooper are overinclusive in their assignment of mental disorders to terrorist generally.

According to Post, Clark's (1983) study of ETA 'nationalist-secessionists' revealed that the process of joining an ethnic-nationalist group was very similar. ETA members are largely marginalized social outcasts who exaggerate their political identity to achieve a commensurate psycho-social identity. Post (1984:247) asserts that the need to "resolve a *split* and be at one with oneself and with society . . . is an important bridging concept which helps explain the similarity in behavior of terrorists in groups of widely different espoused motivations and composition." 'Nationalist-secessionists' are characterized by a split derived from within society regarding the self and political identity, while 'anarchic-ideologues' are instead split within the self. The psychological dimensions of these splits have significant implications for the creation and sustenance of terrorist group dynamics. Groups serve both the espoused goal of the group and the individual need for belonging.

Bion's explains the group/individual dynamic as well, but he claims that, irrespective of the mental state of group members, groups do not behave consistently in terms of goals. Rather, groups embody certain psychological attractions that are intensely compelling for the marginalized and alienated:

Especially for those individuals with damaged self-esteem and weak ego boundaries, there is a tendency to merge themselves in the group. In a figurative manner, we can consider the development of a group mind or group ego. Moreover, insofar as psychopathologically scarred individuals have deficits in their super-ego formation, for them especially the group ethos becomes the repository of standards (Bion, in Post, 1984:250).

The dynamic evolves further when the values and norms of the group can be sequentially idealized and internalized. Galanter (1979, 1980, 1984) observed such a

pattern among the marginalized individuals who joined cults, while Zawodny (1970) described the pattern among the Polish underground during World War II. Terrorist groups, therefore, provide a parallel opportunity.

Despite the reference to group dynamics, Post ultimately maintains that psychological determinants are the key causal variables. Post is explicit and intransigent in his refutation of the propositions that terrorists resort to and engage in acts of violence as a willful, intentional choice, selected from a range of perceptual alternatives. Instead, he contends that

political terrorists are driven to commit acts of violence as a consequence of psychological forces, and that their special psychology is constructed to rationalized acts they are psychologically compelled to commit . . . (T)he principal argument . . . is that individuals are drawn to the path of terrorism specifically in order to commit acts of violence, and that their special logic, which is grounded in their psychology and reflected in their rhetoric, becomes the justification for their violent acts (1990:25).

In contrast, from a logistical organizational perspective, terrorism is best understood as an expression of political strategy involving willful choices. Similar to Possony, Post clearly remains committed to the psychological variables over organizational dynamics.

Consistent with the complex nature of political terrorism, individual level theories are not exhaustively or exclusively psychological. Hubbard's (1978) physiological explanation begins with the body's consistent production of three substances when subjected to stress: acetylcholin, enorepinephrine, and endorphins. He speculates that terrorist violence is quite likely rooted not in the psychology but in the physiology of the terrorist, and that terrorism may, at least partially, be the result of "stereotyped, agitated tissue response to stress."

Utilizing a more epidemiological approach, Oots and Wiegele (1985) apply physiological tenets to diffusion theories. Proceeding from the basic premise that terrorist behavior may be expeditiously imitated, Oots and Wiegele essentially combine classical aggression and media arousal theory in a rather cursory and rudimentary fashion to conclude that *potential* terrorists have a predisposition or attitudinal preference for violent situations, and that media presentations of terrorist events arouse them in a way conducive to the acceptance, facilitation and perpetuation of violence.

What takes place among potential terrorists is collective learning wherein large numbers of susceptible individuals learn simultaneously, either directly or vicariously . . . . An environment which causes susceptible individuals to become repeatedly aroused may set up a climate of frustration and anxiety. This frustration is released by the commission of a terrorist act (1985:12).

Finally, the personal pathways model represents an attempt to integrate sociological and psychological perspectives. Shaw (1986) hypothesizes a common personal development path for terrorists comprised of four components; early socialization processes, narcissistic injuries, personal connections to terrorist group members, and escalatory events. First, early socialization by parents and prominent others to values emphasizing social action and ideologically consistent with a terrorist cause may be important in the evolution of ideological terrorists (Knutson, 1979). Second, narcissistic injuries consisting of any event critically affecting his self-esteem (Kohut, 1987), particularly disruptions in family life and/or important life setbacks or failures which serve to divert the individual from traditional societal roles, are not uncommon psychological experiences for terrorists. Third, personal connections to terrorist group members occur. Finally, escalatory events include any acts of provocation, often confrontation with authority in the form of the police.

Operationally, the first two components provide facilitative context, while the final two act as activating or precipitating mechanisms.

The personal pathways model suggests that terrorists come from a selected, at-risk population, who have suffered from early damage to their self-esteem. According to Shaw, there is an intimate correlation between early socialization and these narcissistic injuries:

Their subsequent political activities may be consistent with the liberal social philosophies of their families, but may go beyond their perception of the contradiction in their family's beliefs and lack of social action. Family political philosophies may also serve to sensitize these persons to the economic and political tensions inherent throughout modern society. As a group, they appear to have been unsuccessful in obtaining a desired traditional place in society, which has contributed to their frustration (1986:365).

As well, Shaw identifies incomplete or fragmented psychological identities (analogous to those described by Post) as critical. The final stage, usually provoked by more violent political activity, motivates the immediate decision to join a terrorist group. The dominance of the group dynamic occurs with the individual subjugating his or her motivations to group imperatives regarding the use of violent means or terrorist attacks.

Given their substantial theoretical, conceptual and methodological difficulties, it is hardly surprising that individual level theories of terrorism have been subject to widespread skepticism and criticism. Concern regarding validity and generalizability has been noted even by proponents such as Cooper (1977) and Shaw (1986), who acknowledge that highly selective samples or case studies are methodologically inadequate. Oots and Wiegale admit that psychiatric methods often are impressionistic and idiographic, and that the relevant literature "does not contain any full-scale, quantitative studies from which to develop general theories

of terrorism" (1985:2). Post (1984) observes that the psychology of terrorism is poorly understood, and that preceding explanatory efforts are characteristically descriptive and speculative.

In his personal pathways model, Shaw presents an alternative to the psychopathology model because of his view that this perspective of "political terrorism not only rests on questionable methodological grounds, (but) its promulgation may dangerously obscure the sources and nature of this increasingly important phenomena" (1986:359). More generally, the theoretical and ideological biases introduced by attributional processes without actual clinical diagnosis raise serious validity issues. However, these methodological restrictions fail to dissuade proponents of this approach from claiming substantive and even causal associations. For example, Post's (1984) stated link between certain personality attributes and group behavior is at least partially derived from 'rich clinical impressions' based on a study population not susceptible to either clinical assessments, statistical analysis or generalization because of insufficient size.

In addition, reviews of existing clinical data challenge the validity of the mental disorder view of terrorists. Ferracuti's (1983) study of psychopathology among Italy's numerous left-wing terrorists, and Knutson's (1979) similar assessment for terrorists in the U.S., found little indication of significant psychopathology in the motivational orientation of terrorists. Finally, and most convincingly, Wilfried Rasch (1979) found no evidence to support the assertion that significant numbers of the notorious Baader-Meinhof Group were mentally disordered. Rasch conducted extensive clinical interviews with eleven of this group's leaders and member held in a West German prison, and concluded that,

with one exception, the BMG were remarkably free of any disorders. To the contrary, he found that they were bright and articulate political idealists.

However, the most comprehensive critique of the mental disorder perspective is raised by Corrado (1981), who reviewed the predominant mental disorder hypotheses regarding sociopathy or psychopathy, narcissism, and physiological disorders. The most common mental disorder attribution of the motivations of political terrorism centers on anti-social personality disorders, usually sociopathy or psychopathy. Given that sociopathic inferences are largely drawn from indirect sources such as biographies, autobiographies, media interviews, and the assertions of fellow terrorists, Corrado concludes that pejorative attributional biases characterizes much of the research:

Pearce bases his inferences of sociopathy on the obvious brutality and horror of terrorist violence and the assumption that rational persons are normally incapable of committing such acts without feeling enormous guilt and remorse . . . (I)t appears then, in the absence of any clinical observations, that the diagnostic inference of superego lacunae is a political value assessment rather than a valid inference of sociopathy (1981:297).

Similarly, Cooper (1977), while recognizing the lack of clinical evidence, nonetheless is himself guilty of elevating "points of coincidence" up to assertions of inferential validity. Ultimately, the absence of statistical data indicating the proportionate distribution of sociopaths within terrorist organizations relative to the general population suggests that the validity of the relationship between sociopathy and terrorism is speculative and can be neither claimed nor denied with any confidence.

Narcissism is another commonly asserted anti-social personality disorder supposedly causing individuals to employ political terrorism. Whether the propositional referent is the narcissist personality (Morf, 1970) or the narcissist

culture (Lasch, 1979), there is little systematic evidence available to assess its impact. Most importantly, without appropriate clinical samples from all relevant political terrorist groups, it is impossible to make the necessary comparison to the proportional presence of this disorder within the general population. Causal inferences must include this fundamental comparison (Corrado, 1981).

Physiologically based mental disorders also have been asserted to be the cause of political terrorism. While physiological impairments have been identified in the criminological literature in conjunction with personality characteristics of criminals, the causal connection has never been established. Yet Hubbard (1978) confidently asserts that his confidential data powerfully demonstrates the causal connection between inner ear dysfunction and terrorism (Corrado, 1981). Hubbard and others have yet to address adequately the numerous validity issues raised by the mental disorder perspective. Given the extent of these and other criticisms, it is hardly surprising that individual pathology perspectives have been convincingly challenged by rationalist-idealist theories of individual motivations to engage in political terrorism.

The most theoretically explicated perspective focuses on the concept of relative deprivation. For Gurr (1970), most forms of civil conflict, including political terrorism, involve perceptions of "relative deprivation", operationalized as the perceived discrepancy between value expectations and value capabilities. Often theorists have provided the historical, economic, and political contexts in which relative deprivation perceptions are most likely to occur. Davies (1962) postulated a "J-Curve", where revolutions were more likely to occur when a prolonged period of economic growth and social development was followed by a short period of sharp reversal. Johnson (1966) maintained that revolution was derived from systemic

disequilibrium where traditional relationships in a society where undergoing radical restructuring. Macro economic and political situational factors are seen as central to the determination of civil conflict. There is substantial historical evidence that political terrorism does covary with these macro and related middle levels of disorder, even though there have been no systematic empirical assessments. Lacquer (1977) and other theorists rely heavily on the historical events preceding periods of political terrorism to assert a causal connection. For example, most historically oriented theorists trace the etiology of contemporary terrorism to the French Revolution of 1789, where terrorism was explicitly introduced as a policy by the revolutionary government.

Individual motivations are generally viewed along a continuum ranging from mentally disordered to normally adjusted personalities. Hacker's (1976) typology of crazies, criminals, and crusaders and Goldaber's (1979) distinction between idealist protesters, ideological zealots, and terrorist extremists reflect this continuum. According to the rational idealist perspective however, political terrorists are not characteristically suffering from mental disorders. Rather, motivation is situated in values or ideologies that justify terrorism as a legitimate political strategy. Yet the effort continues to identify a personality profile(s) of terrorists. Laqueur (1977) denies the efficacy of search for a "terrorist personality", but nonetheless claims that terrorists are fanatics and that fanaticism frequently makes for cruelty and sadism. Wilkinson (1977) maintains that we can discount the crude hypothesis of a "terrorist personality", but also admits that we do not really understand much about the motivations of terrorists.

J. Bowyer-Bell's rejection of pathology in the evolution of terrorist acts is more typical of the rational idealist perspective (Corrado, 1981:305). Bowyer-Bell



(1975) suggests that ideological commitment and expressions of nationalism motivate even the most savage of terrorist acts. Furthermore, he argues that there is a consistent history of idealists who commit atrocities in order to gain highly improbable political goals and who, when success occurs, cease to be conceptualized as "weird" political terrorists and instead become widely acclaimed as political leaders. This process was common throughout the second half of the 20th century, as former colonies became independent countries led by former terrorists. In effect, the rational-idealistic perspective is based on the assertion that there are "objective" macro and middle level variables and distinctive events that justify why individuals are motivated to engage in terrorism to obtain rational or "non-crazy" political objectives.

### **Organizational Level Perspectives**

Crenshaw (1985) has made significant contributions toward understanding the organizational dynamic of terrorism and providing a link between individual and organizational-level perspectives. Conceptually, terrorist acts are decisions made by individuals who are members of identifiable, organizations. The group context is the central analytic unit. The relevance of other variables, including psychological profiles and ideology, is considered only with reference to group dynamics. Similarly, the perception and interpretation of social conditions or broad structural variables are processed through the decision making context of the political organization.

(F)ocusing on organizational processes offers a way of integrating the variables of ideology, individual motivation, and social conditions into explanations of how terrorist campaigns get started and of why they continue despite the deployment of the government's superior powers of coercion against them (Crenshaw, 1985:472).

Terrorism may be motivated as much by the nonpolitical imperatives of organizational survival or competitive rivalry as by political ends and is the outcome of the internal organizational dynamic, a decision-making process that amalgamates collectively held values and goals to environmental perceptions.

Like Wilson (1973), Crenshaw posits that the fundamental purpose of any organization is maintenance or survival. Distinct from an organization's ideological purpose there exist alternative motivations such as the opportunity for action, the need to belong, and the desire for social status. Wilson asserts that "all conspiratorial organizations tend over time to substitute group solidarity for political purpose as the dominant incentive" (1973:50). In this context, terrorism becomes self-sustaining, with the group acting to maintain itself as opposed to instigating political change. Crenshaw indicates that the persistence of terrorism despite operational gains, as evidenced in the cases of the IRA and the ETA, is explained by this model. From this theoretical perspective, terrorist groups appear to be largely self-sustaining. "The organizational process approach to interpreting terrorist behavior assumes a complexity of motivation well beyond the strategy of challenging governments to effect radical change" (Crenshaw, 1985:487).

In later works, Crenshaw (1990) maintains her organizational bias while further underscoring her contention that the terrorism is the expression of political strategy, i.e., a logical process, willfully chosen by the organization rather than the unintended outcome of psychological or social factors.

The resistance organization has before it a set of alternatives defined by the situation and by the objectives and resources of the group. The reasoning behind terrorism takes into account the balance of power behind challengers and authorities, a balance that depends on the amount of popular support the resistance can mobilize (Crenshaw, 1990:20).

Terrorism, therefore, is seen as an efficacious method chosen among a range of potential options. The collective rationality of terrorism is assumed as the reasonable and calculated response to given historical circumstances.

### **Structural Level Perspectives**

The final level of inquiry focuses on macro level, structural variables. It is at this level that the causation versus facilitation debate is the most contentious. At the previous two levels, causation was more immediate within various theoretical frameworks. In contrast, at the macro level most variables are, as Crenshaw asserts, more likely to be considered as preconditions. They do not directly cause terrorism, but rather, they are the necessary facilitating circumstances within which terrorism is most likely to occur. Still, several macro variables, to be discussed below, have been hypothesized as causally linked to terrorism. Given the paucity of integrative models in this area, the initial focus will be on identifying the variables, including political culture, social structure, economics, media relations, international interference, domestic interference (military), ideology and ethnic nationalism, most commonly found in the literature. Finally, the few "models" will be examined. Of course, the ultimate goal is to delineate a comprehensive structural model.

Interestingly, original attempts to link multiple levels focused on the sociological profiles of terrorists. Russell and Miller (1977) reviewed the literature on revolutionary violence and terrorism and concluded that: first, the structural

origins of terrorism are primarily urban in nature, as distinct from the primarily rural genesis of revolutionary violence; second, terrorists were drawn from predominantly middle- and upper-class backgrounds. Though terrorists were members of the existing dominant social and economic systems, they were seen as frustrated in their efforts to use these systems as vehicles for upward social and economic mobility. Often politically liberal initially, terrorists were formerly advocates of incremental and non-violent social and political change; and third, terrorists were well educated from university backgrounds, including graduate and postgraduate degrees. The university was the organizational context where extreme ideologies were learned and served both to articulate frustrations, and recruit terrorists. Three types of ideologies were identified in the context of contemporary terrorists: Anarchism, Marxism-Leninism, and Nationalism. Of these three factors, Russell and Miller viewed political ideology or philosophy as potentially causal, while the others were seen as facilitative preconditions.

The urban context has become a standard context for many anti-state terrorist models. What is the relationship between terrorism and the urban setting? Why is contemporary terrorism predominantly urban? Is there something in the structure of cities that produces or facilitates this form of political behavior? Grabowsky (1988) postulates a series of characteristics that are critical to answering these questions. The urban context consists of large and dense populations that are heterogeneous both ethnically and in class. Anonymity is also important.

Other common socio-economic conditions are important, especially the juxtaposition of great wealth and abject poverty. As well, the socially dislocative effects of urban migration fosters dissident in general and aids terrorist recruitment. Grabowsky (1988) also argues that it is university students who learn fundamental

principles of social justice and radical or revolutionary ideologies. Furthermore the urban context provides easily available weaponry and logistical support (Ross, 1993). The physical geography of cities is well-suited to hit-and-run terrorist tactics, providing an abundance of varied targets, particularly critical systems such as transportation, water, power which are vulnerable to bombings and which increase the impact of dramatic and disruptive acts of terrorism. Finally, the generation of publicity and enhancement of fear is more effectively accomplished in cities, where terrorists can reach more people with greater efficacy. Succinctly, in comparison with rural areas and operations, the urban setting provides terrorists with numerous logistical advantages and facilitates terrorist action in ways not previously available.

Broad structural factors that cause asymmetrical power relations are seen as critical to terrorism. Galtung (1988) asserts that anti-state terrorism is the weapon of the weak against the strong state. Structural violence is identified as the penetration/co-optation of socio-economic systems in a manner that results in "violence" against less politically powerful citizens. Situations of great power differential and disparity are therefore seen as conducive to terrorism. In effect, terrorism is a logical choice when oppositions have political goals and when the power ratio of government to challenger is high (Crenshaw, 1981:387).

Gurr (1990), carries the power differential theme further, asserting that political terrorism in democratic societies almost invariably emerge out of larger conflicts, and that they reflect the political beliefs and aspirations of a larger or dominant segment of society. Recognition of the changing nature of the relationship between violent activists and their community of support is essential to understanding the onset, persistence and decline of terrorist movements.

This thesis implies, that analysis of the ideologies and psychological traits of violent activists and of the sociodynamics of terrorist groups is incomplete unless we understand their reciprocal relations with larger publics (Gurr, 1990:86).

Gurr's proposition that violent activism requires a climate of acceptance of unconventional means of political action among a support group again is posited only within the context of democratic societies. The support group is any social segment whose members seek a particular kind of social change. There are two main routes by which such groups come to accept extreme means: radicalization and reaction. Radicalization refers to a process in which the group has been mobilized in pursuit of a social or political objective, but has failed to make enough progress toward the objective to satisfy all activists. This is the kind of situation in which modeling or imitative behavior occurs. Impatience and frustration provide an expressive motivation and rationalistic grounds. The choice is made, and justified, as a means to the original ends of political reform. And the dynamics of the process are such that the terrorists believe that they enjoy the support of some larger community in revolt. Reaction is an analytically distinct process in which members of a political group resort to terrorism in response to threatening social change or intervention by authorities, and is not as relevant as radicalization (Gurr, 1990).

For Gurr, then, understanding the process that leads to episodes of terrorism in Western democracies requires an analysis first, of the political circumstances that create the political beliefs that encourage extremists, and second, of the political support context that facilitates the actualization of terrorist action.

Ideology has also been seen as a major cause of terrorism. Given the drastic increases in incidences of left- and right-wing ideological terrorism in the 1970s, it is not at all surprising that this concept has become a primary focus of theories of

terrorism. O'Sullivan contends that it is very difficult to extricate ideology from the conceptualization of political terrorism:

It is this ideological aspect which is the key, in particular, to the vital distinction which must be made between 'terror' and 'terrorizing', on the one hand, and 'terrorism' on the other. Terror refers to a psychological state - the state, that is, of extreme fear and anxiety. The addition of an 'ism', however, lifts the concept out of the realm of psychology and relocated it in the sphere of beliefs and ideas (1986:5).

Wilkinson (1977) further advances that political terrorism cannot be understood outside the context of the development of ideologies, beliefs and life-styles that lead logically to individuals choosing to commit terrorism. Terrorism, according to this approach, is essentially the result of more contemporary ideological politics. For Wilkinson, it is this relationship between terrorism and ideological politics that distinguishes current terrorism from its earlier manifestations. He argues that the liberal-democratic tradition is analytically critical to understanding the emergence of left/right-wing fanaticism.

Since the late 18th century emergence of the doctrine of popular sovereignty dictates that power has only been considered legitimate if it is conferred "from below", or by the majority of citizens (O'Sullivan, 1986). A consequence is that any one who wishes to defy the government, provided that he or she claims to be a truer representative of the popular will than the established authority. Terrorist actions are often legitimated as expressions of people oppressed by an illegitimate elite. For O'Sullivan (1986), the "new ideological style" has deprived not only the word democracy, but also the word liberty, of any clear connection with the rule of law. Liberty, he argues, has become intimately connected with personal autonomy and self-realization. The purely subjective meaning of liberty becomes sanctioned by ideological politics.

For theorists such as O'Sullivan (1986) and Wilkinson (1977), this new political style has gradually destroyed the old liberal democratic conventions which drastically limited the use of violence in Western political life. Instead of these limits, terrorist acts can now be perpetrated, since there is no act for which the modern ideologies such as fascism, communism, anarchism, and nationalism cannot provide a moral defense. Political terrorism flourishes in the context of the decline in the legitimacy of liberal-democratic ideology.

In addition to liberal democratic ideology, acts of extreme terroristic violence in contemporary industrialized societies have been related to a revolt against the anonymity of the bureaucratic state, against the "Rule of Nobody" (Arendt, 1970). The bureaucratic state fails to provide an identifiable villain. A slightly different perspective on this same theme is presented by the theory of blocked societies or the "lack of alternatives" thesis. Bonanate (1979), Hyams (1975), and Crenshaw (1978) all propose that terrorism is likely caused by the inability of governments to produce substantive social or political change. In this theoretical vein, Gross (1972) identifies distinctive models which distinguished between oppression and anomie as the impetus for terrorist violence in autocratic and democratic societies respectively.

Communication theory has also been increasingly prominent as an explanatory perspective. For most theorists, communication functions have become elemental components in the conceptualization and definition of terrorism. Crenshaw (1978) claimed that the most basic rationale for terrorism is recognition or attention. Bowyer-Bell (1974) also noted the advertising function of terrorism, while Jenkins (1981) introduced the terrorism-as-theater concept. The media, therefore, is posited as a permissive cause which has made terrorism an attractive strategy and contributed to its spread to liberal-democratic societies (Clutterbuck, 1990). Ross



and Gurr (1987) suggests that individuals choose terrorism over conventional methods of political participation because conventional tactics do not work. Without sufficient popular support, group access to the public agenda setting machinations of bureaucratic society is restrictively limited. Terrorism, on the other hand, is a dramatic method of calling attention to radical demands and interests.

The transnational flow of information further extends the connection between communication and terrorism. According to Redlick (1979), terrorism is caused by the transnational spread of ideology and methodology. The communicable nature of terrorism is generally referred to in the literature as the diffusion or contagion effect. Pitcher, Hamblin and Miller (1978), Midlarsky, Crenshaw and Yoshida (1980) and Heyman and Mickolus (1981) in particular have tried to demonstrate statistically that terrorism "spreads" from one environment to another, and that this contagion effect is responsible for increases in terrorism. However, the contagion explanation of terrorism has several conceptual problem. Most importantly, it diminishes contextual variables and ignores structural factors. Contagion is a powerful source of ideas, but it is insufficient to explain terrorism.

This review of the literature on terrorism clearly indicates that comprehensive theorizing, necessary for adequate model building, has yet to be accomplished. Etiological theory in this context is limited and has not produced formal propositions that have been operationalized and tested empirically. As in many other branches of the social sciences, theories in the more rigorous sense, with prognostic power, are nonexistent (Schmid et. al., 1988).

A causal model can be expected to illuminate the more systematic "sources" of the phenomenon, especially if crucial intervening variable clusters or levels are explicitly incorporated into the research design (Hopple, 1982). The studies which

have attempted to develop explanatory or causal accounts of terrorism have generally produced list of variables, as opposed to systematic "models". The remainder of this chapter reviews the most prominent attempts at model building in the literature on terrorism, and introduce the model which will serve as the theoretical basis for the thesis.

### **Causal Modeling Approaches**

Even though basic theoretical variables appear throughout his discussion, Zimmermann (1987) maintains that it is impossible to develop substantial theoretical models. Instead, his stated goal is to emphasize those variables that might be crucial in explaining the selection of violence as a strategy of political opposition. In sum, he proposes that even though we can list a number of variables that are probably crucial for an understanding of the impact of violence as a strategy of political opposition, carefully planned multivariate strategies focusing both on the group level as well as the systemic level are still lacking. This strategy of listing characteristics or situations is prevalent in much of the theoretical literature on terrorism.

Zimmermann (1987) contends that violence is used by opposition groups as they become weaker in comparison to their government opponents. One of the roots of modern European terrorism lies in the frustrations on the part of radical student groups that developed as their envisioned social revolution failed to materialize in the late 1960s and early 1970s. Initially, Zimmermann is concerned first, with the conditions that led to the use of violence by ethnic separatist groups; second, with factors that led to a decline of regime legitimacy, and a subsequent gain in

legitimacy on the part of these terrorist organizations; and third, patterns of social recruitment.

(V)iolence is used by lower-class organizations, which for various historical and contemporary political reasons operate largely uncontrolled by more moderate middle-class organizations. Other means of achieving political goals have failed, leading to political repression or resistance by other social groups. Consequently, (perceived) blocked political opportunities, a lack of political control and a moderating influence on the part of the middle-class ethnic groups all lead to the adoption of violence as a political strategy (1987:334).

Zimmermann's (1987) subsequent consideration of ideological variables leads him to conclude that where political participation is ineffective, or simply reinforces the system, ideological terrorism is likely to occur.

Other variables cited for their explanatory power include the decline in regime legitimacy and collapse of state monopoly on violence, as well as the efficacy of political violence. Zimmermann (1987) asserts that, in general, the stronger the ideological commitment, the greater the deviations from "objective" rational choice calculations. In addition to ideological commitment, the aggregate amount of political violence present in a polity is also a crucial factor. If violence is generally accepted, it is more likely to be utilized as a strategy.

Zimmermann (1987) maintains that the structure of the political system in authoritarian systems lack the openness to absorb critical protest, and that these systems possessed no assimilative strategies. Where channels for political protest are blocked or nonexistent, terrorism is more likely. Zimmermann suggests that the most important variables concern the political opportunity structure, since it serves as a filter between the mobilization of the terrorist movement, its choice of strategies, and its capacity to change the social environment. Political opportunity

structure is defined by three indicators: first, the openness of the government institutions to the movement's demands; second, the existence of a period of electoral instability; and third, the presence of influential allies and supporters of the movement.

Access to fair elections as one means of affecting desired political and social changes are particularly relevant, keeping in mind that there is a curvilinear relationship between degree of political opportunity and movement mobilization. Issues of power relations, including decline of regime trust variables, also come under political opportunity structures. Economic crises or political corruption frequently are conducive to the development of political distrust, as are significant or sustained amounts of existing political violence.

Rather than developing a theoretical model, Zimmermann instead lists ten scenarios under which political opposition groups might turn to violence. They are:

1. The denial of nationalism or ethnic self-identity;
2. Conditions of foreign occupation;
3. Outside economic, military and ideological support;
4. Political repression on the part of the government;
5. The breakdown of the state monopoly of violence;
6. The breakdown of national consensus;
7. Economic, social, and political grievances, commensurate with other factors;
8. Situational diffusion effects;
9. Misconceived ideological analysis of political reality; and
10. When the behavior of political elites grossly violates standards of conduct.

While Zimmermann's orientation highlights many important variables, he specifically avoids integrative considerations. Limited to a listing of potentially terrorism-producing situations, his approach fails to advance significantly the

theoretical understanding of terrorism. In order to explain terrorism adequately, a more holistic perspective is required. One of the earliest attempts to derive a more synthesized, comprehensive account of terrorism was developed by Crenshaw (1981). In response to Laqueur's (1977) dismissal of explanations that try to take into account more than a single case as "exceedingly vague or altogether wrong", Crenshaw acknowledges that

Even the most persuasive of statements about terrorism are not cast in the form of testable propositions, nor are they broadly comparative in origin or intent. Many are partial analyses, limited in scope. A narrow historical or geographical focus is also common. In general, propositions about terrorism lack logical comparability, specification of the relationship of variables to each other, and a rank-ordering of variables in terms of explanatory power (1981:380).

In an attempt to overcome these difficulties, Crenshaw (1981) analyzes terrorism across three levels. Terrorism is approached as a form of political behavior resulting from the deliberate choice by a rational actor operating in a terrorist organization. Crenshaw also contends, however, that a comprehensive explanation must also 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 others. Finally, Crenshaw maintains that it is also important to consider the psychological variables that may encourage or inhibit individual participation in terrorist actions.

Analytic distinctions between different kinds of factors are now standard for sociological explications of terrorism. Crenshaw (1981) defines *preconditions* as factors that set the stage for terrorism over the long run, and *precipitants* as specific events that immediately precede the occurrence of terrorism. Preconditions are further divided into *permissive* factors, which provide the opportunity for terrorism

to happen, and *situations* that directly inspire and motivate terrorist campaigns. Crenshaw asserted that precipitants are essentially the direct causes of terrorism.

Modernization, and with it urbanization, has produced an interrelated set of factors that were significant permissive causes of terrorism, as increased complexity on all levels of society and economy created opportunities and vulnerabilities. Social facilitation is also an important permissive factor. This concept refers to social habits and historical traditions that sanction the use of violence against the government, making it morally and politically justifiable, the traditional use of force, or attitudes and beliefs that condone terrorism. The government's inability or unwillingness to prevent terrorism is the most salient political factor in the category of permissive causes, while the absence of effective security measures is a necessary cause.

For Crenshaw (1981) direct causes are those background conditions that positively encourage resistance to the state. These instigating circumstances go beyond merely creating an environment in which terrorism is possible; they provide motivation and direction for the terrorist movement. The first direct cause is the existence of concrete grievances among an identifiable subgroup of a larger population. This is a necessary, but not a sufficient, cause of terrorism. The essential ingredient, in addition to real deprivation, is the *perception* on the part of the deprived that the condition is unjust or discriminatory. The second direct cause is the lack of opportunity for political participation. The last category of situational factors are referred to by Crenshaw as precipitating events. Generally, precipitating events involve situational responses to particular government actions.

In this context, terrorism is conceptualized as a rational political choice. As purposeful activity, terrorism is the result of an organization's decision that it is a politically useful means to oppose the government. Collectively logical, the terrorist

group's reasons for resorting to terrorism constitute an important factor in the process of causation:

(T)errorism is an attractive strategy to groups of different ideological persuasions who challenge the state's authority. Groups who want to dramatize a cause, to demoralize a government, to gain popular support, to provoke regime violence, to inspire followers, or to dominate a wider resistance movement, who are weak vis-à-vis the regime, and who are impatient to act, often find terrorism a reasonable choice (Crenshaw, 1981:385).

In relation to individual motivation and participation, terrorism is neither an automatic reaction to conditions nor a purely calculated strategy. No single motivation or personality can be valid for all circumstances. Still, the outstanding common characteristic of terrorists is their normality. Again, Crenshaw looks at individual factors as they relate to the group. Terrorism is not always a reflection of mass discontent or deep cleavages in society, but rather, often represents the disaffection of a fragment of the society. Terrorism is a rational response to a perceived absence of choice, in light of all of the relevant environmental considerations.

A more systematic empirical and normative assessment of violent political actors, particularly terrorists, requires an analysis of the societal structures in which they operate. Targ (1988) identifies the sociostructural context in which revolutionary acts of political terrorism are most likely to occur, positing that terrorist acts occur where there is no social basis for revolutionary movements. Targ hypothesizes that terrorist acts are more likely to occur in preindustrial and postindustrial societies rather than industrial ones, because industrial societies have the potential for building mass based revolutionary or reformist movements,

whereas pre and postindustrial societies lack the class and occupational prerequisites for building such a movement. Targ asserts that terrorism is a form of political action in historical settings not conducive to mass action for systematic transformation. Revolutionary terrorism is social, not individual, pathological behavior in that it occurs in social structures and historical settings where the forces for social change are at their weakest. Terrorism is inversely related to the revolutionary potential of the people. In effect, terrorism is asserted to occur where "revolution" cannot.

According to Targ (1988), previous conceptualizations of terrorism suffer from three major limitations. First, they do not account for the broad sociostructural features of societies in which terrorism occurs. Sociostructural features include the nature of the class system and the relationships classes have to means of production; the level of industrialization; the social relations of production; and the level of organization and consciousness among workers in a given society. Second, to psychologize about terrorism is to ignore the objective reasons for terrorist acts, while to rationalize is to ignore the sociostructural parameters that impinge upon revolutionary action. Finally, theories of political terrorism are often ahistorical. Terrorism must be understood in broadly historical and sociostructural terms.

Drawing from an explicitly Marxist framework of social change, Targ (1988) contends that the most fundamental forces conditioning political action are societal structures. The first, and most critical, of these social structures are occupational structures. Occupational structures refer to the extent to which the organization of work is socialized, as in industrial capitalism, and/or individuated, as in peasant agriculture or postindustrial service employment. The second social structure concerns the character of ruling class control of the means of production,



particularly as it relates to the dispersal of power versus an integrated bourgeoisie. The ruling class is less visible in postindustrial society, thus vitiating the emergence of a distinctive class with clearly coherent revolutionary goals. The character and level of exploitation differentially manifested in pre- and postindustrial structures yields different behavioral results than industrial structures. The final sociostructural factor, the ideological structure of society, asserts that supernatural and hedonistic/scientist cosmologies are qualitatively different from modern ideologies based on conflict and competition.

The second set of factors that Targ (1988) maintains affects the frequency of terrorism are revolutionary organization variables. If revolutionary movements or class based electoral movements represent an aggregate response that limits terrorism, this suggests the importance of variables such as the level of class consciousness, size of revolutionary movements, and level of radical party organization. These are largely determined by the structural properties of the societies in which they occur and represent intervening links between structure and the nature of behavioral outcomes.

Tactical variables involve the rational calculation of costs and benefits from electoral activities, demonstrations, underground propagandizing or revolutionary civil war in comparison to terrorism. Targ (1988) proposes that tactical variables logically follow from the structural antecedents, and that psychological variables largely involve conscious and emotive commitment to certain kinds of action.

Targ (1988) hypothesizes an inverse relationship between revolutionary potential for social change, which can occur only in certain kinds of societies, and the occurrence of terrorism. Terrorist acts protesting exploitation are more likely to occur in precapitalist and early capitalist phases of societal development rather than

during a phase of mature capitalism because a mass movement based upon the consciousness and organization of workers has not occurred. The antecedent conditions necessary for a successful revolution are a revolutionary party and a revolutionary class. Targ suggests that fundamental transformations dramatically affect the possibilities for revolutionary action for social changes:

The social context of postindustrialism inhibits class consciousness, reduces people's perceptions of shared exploitative experiences, and impairs the formulation of radical or revolutionary movements for social change. It is proposed here that terrorist acts become permanent features of the social landscape. Structural attributes of postindustrialism coupled with individuated and antimonian ideological patterns reduce the possibilities for social action. Hence aberrant social action is manifested in terrorism (1988:142).

Ultimately, Targ's propositions can be reduced to one assertion, that there is a curvilinear relationship between predicted levels of political terrorism and societal development, distinguished as preindustrial, industrial, and postindustrial. Whereas industrial society is structurally conducive to revolutions, pre- and post-industrial societies are not. Because they are not conducive to mass social revolutionary movements, pre and postindustrial societies instead experience elevated incidence of terrorism.

While Targ's approach is more systematic than Crenshaw's, it is too ideologically biased. A more normative orientation is necessary in order to achieve some generalizability. More importantly, both of these contributions demonstrate the nebulous and amorphous nature of variable construction that characterizes many of the attempts to model political terrorism. Both Targ and Crenshaw emphasize conceptual imperatives over operational clarity. In contrast, the modeling approach of Corrado and Tompkins (1992) represents the most complete attempt in the literature. While Corrado and Tompkins are careful to maintain

conceptual integrity, they present a series of variables which are amenable to operationalization and empirical testing. The remainder of this chapter introduces Corrado and Tompkins' theoretical orientation, while Chapter Two presents the operationalizations of the model.

### **Corrado and Tompkins' Model**

In accordance with Crenshaw (1981), Corrado and Tompkins (1992) present a conceptual approach consisting of three analytic levels: macro-structural, middle-organizational, and micro-individual. Within this framework, ten independent variables are asserted to influence the dependent variable of anti-state political terrorism. Moreover, each of the independent variables is presented as a hypotheses amenable to empirical testing. The ten variables, with their attendant hypotheses, are presented below.

#### *Macro or Structural Level Variables*

The first three variables presented by Corrado and Tompkins (1992) refer to economic constructs. The first, *economic structures*, refers to the general style of economic distribution and consumption in a society, specifically focusing on whether the society is agrarian, industrial or advanced industrial. This variable reflects Huntington's (1968) proposition that transition periods inevitably produce social unrest and Gurr's (1970) relative deprivation hypothesis. Corrado and Tompkins hypothesize that, generally speaking, the greater the discrepancy between economic goals and means in society, the greater the likelihood of terrorism. The second economic variable, the *distribution of wealth*, is concerned with

the degree to which elites dominant the available capital in a country. Corrado and Tompkins posit that if the distribution of wealth is equitable, anti-state terrorism is less likely to occur. Finally, Corrado and Tompkins raise the issue of *economic dependence*, noting that where a country is economically dependent, negative social conditions and domestic tension are likely to result. Consequently, it is maintained that higher levels of economic dependency are associated with higher levels of anti-state terrorism.

The fourth variable presented by Corrado and Tompkins (1992), the *structure of government*, suggests that anti-state terrorism is more prevalent in advanced industrial countries because liberal-democracies, with their affluence and freedom, create conditions favorable to the emergence of terrorism (see also Laqueur, 1977; Wilkinson, 1977). Corrado and Tompkins hypothesize that, given the presence of other facilitating factors, anti-state terrorism will be greater in advanced industrial liberal-democracies. The government also plays an important role in what Corrado and Tompkins identify as *events and conflicts*. Terrorism is more likely to occur where the state is identified as being more oppressive or repressive, as well as during periods of widespread civil conflict.

The sixth and seventh macro-structural variables are *ethnicity* and *ideology*. Corrado and Tompkins (1992) note that ethnic identity can be a powerful political motivator, especially when combined with nationalist sentiment. It is hypothesized that sustained terrorism is more likely where the degree of ethnic solidarity is higher. Finally, modern ideologies can provide an important impetus and motivation for political action. Corrado and Tompkins assert that anti-state terrorism will be highest where the level of ideological commitment among individuals who oppose the government is greatest.

### *Middle or Organizational Level Variables*

Two organizational variables are identified by Corrado and Tompkins (1992) as being important to anti-state terrorism. The first, *counter-insurgency measures*, recognizes that the manner in which the state reacts to the terrorist threat has critical implications for the continuation or cessation of a terrorist campaign. It is hypothesized that if the state lacks a coherent and effective counter-insurgency program, the likelihood of sustained anti-state terrorism increases. The second mid-level variable refers to the structure of the *terrorist organization*. Positing that terrorist groups may employ a variety of organizational structures including cell or paramilitary features, Corrado and Tompkins hypothesized that anti-state terrorism is more likely to be sustained where more complex and hierarchical organizational structures are used by the terrorist group.

### *Micro or Individual Level Variables*

The range of potential motivational factors is referred to as *rational motives*. Corrado and Tompkins maintain that structural and organizational factors are, by themselves, insufficient to sustain terrorist campaigns. Rather, "terrorism is employed by individuals who make a decision to achieve a political objective" (1992:49). Consequently, they hypothesize that terrorism is more likely to occur where a greater number of individuals estimate that terrorism is the more effective than alternatives in achieving a desired political objective.

The approach presented by Corrado and Tompkins is more systematic than others that have been presented in the literature on terrorism. While maintaining the conceptual clarity of Crenshaw, this approach further presents variables that can be

operationalized and tested. In a modified form, the model presented by Corrado and Tompkins serves as the theoretical basis for this thesis. In subsequent chapters, the modified model will be estimated using maximum likelihood analysis and tested using a variety of statistical techniques. More immediately, the following chapter operationalizes the variables in the modified model.

## Chapter Two

### A Multi-Variate, Macro-Structural Theoretical Model

A review of the relevant literature on political terrorism clearly illustrates a lack of integrative theoretical development. Given the diversity and variability attributed to political terrorism, it is difficult to imagine how the analytic simplicity of univariate or unimodal approaches could be very effective in offering any hope of comprehensive understanding. Rather, a multi-variate approach, such as the model presented by Corrado & Tompkins, is required. Since this model represents the most comprehensive attempt in the literature, a modified version will be the theoretical basis for this thesis. In order to evaluate an etiological model empirically, all of the variables must first be quantified, and the hypothesized relationships between political terrorism and each of the independent variables must be specified in advance. This chapter constitutes the first step, involving the operationalization of the dependent variable, political terrorism, and the independent variables which comprise the modified model.

#### **The Dependent Variable: Political Terrorism**

The lack of conceptual precision and clarity regarding political terrorism has been well documented (Crenshaw, 1972; Gibbs, 1989). The term "terrorism" is subject to continuously shifting definitional contexts and may be afforded largely disparate meanings depending on the given situation. On one hand, Chomsky (1987) and Herman (1986) have gone so far as assert that terrorism is whatever those countries who have the most power (i.e. - the United States, Western European governments, Israel) say it is. On the other hand, very few "terrorist" groups accept

this ascribed status. In a review of the relevant literature, Schmid and Jongman (1988) found more than one hundred distinct conceptualizations of political terrorism. As a result of this apparently intractable definitional debate, theoretical development in this area has been greatly hindered. Ideological and/or subjective definitions of terrorism too often narrow the range of potential terrorist phenomena. Most importantly, therefore, from the perspective of general theory, causal approaches lacking generalizability are of less utility. One man's terrorist is not necessarily another man's freedom fighter, and falling back on this time worn aphorism as a way of trying to avoid difficult ontological issues serves only to further exacerbate the theoretical quagmire that terrorism now finds itself in. While an "objective" or unequivocal definition may be unattainable, to forego the attempt simultaneously involves abandoning the general theoretical context.

Given the variegated nature of terrorism, the most appropriate approach toward constructing a "universal" definition involves identifying those elements which are shared by several orientations. These consistent elements must first, differentiate political terrorism from other forms of political conflict, and second, distinguish terrorism from other forms of violence. The most important facet of political terrorism is of course violence. But it is specific, *systematic* violence that separates terrorism: terrorist events are not characterized by spontaneity, and victims are not chosen at random. Rather, terrorist actions are planned and deliberate, resulting in either physical, psychological, or emotional damage to the victim. However, it is important to note that the immediate victim is not, from a strategic point of view, the intended victim. Instead, terrorist violence is intended to cause fear and anxiety amongst an audience that is distinct from the immediate victim, and to elicit a response from some third party, usually the government. This



communicative strategy has given rise to a whole subdiscipline concerned with the role of the mass media in terrorism (Alexander, 1977; 1979; 1980).

The third important aspect of terrorism is that it is *politically motivated*. Although the meaning of "politics" is itself a matter of contention, its purpose here is to distinguish terrorism from violence that is motivated by purely material or economic objectives. In practice, however, this is the most difficult of the definitional criteria to establish. While the Baader-Meinhof Group committed numerous acts that clearly fit the definition, they also were responsible for a number of bank robberies used to finance their operation. These latter acts do not constitute terrorism. Other examples are even more difficult. The Red Brigades commonly used kidnapping as a terrorist tactic. However, these kidnappings also allowed for the extortion of large sums of money. Because the political element is present, these cases are still regarded as terrorism. Finally, the Medellin drug cartel may be viewed as a terrorist organization because it attempted to gain political as well as economic power. Difficult cases such as these necessitated the creation of the data base which will be discussed shortly. The nature of terrorist events must be determined situationally, on a case-by-case basis.

A further defining feature of terrorism is its secrecy: terrorist operations are characteristically perpetrated in a *clandestine* manner. Given their subordinate positions of power in relation to the established authority, clandestine operations are necessary for organizational survival. Indeed, this realization leads to the final definitional element, which distinguishes terrorism from conventional military conflict. Again, terrorist groups are normally not in a position to confront the forces of the government directly. While terrorism may be viewed as a specific strategy in the war, particularly in guerrilla warfare, it has its own unique operational

parameters. So, as presented by Corrado & Tompkins (1992:13), political terrorism is defined by the following elements:

1. It is an act that involves systematic violence.
2. There is an intention to cause extreme fear in an audience that is distinct from the immediate victim of the violence.
3. The act is politically motivated.
4. The perpetrators usually operate in a clandestine manner.
5. It is usually distinct from conventional military conflict.

It is important to note that this definition intentionally nomothetic, and that it could be used to identify instances of both state and anti-state terrorism. However, only domestic anti-state terrorism will be examined in this thesis. In order to assess empirically several of the hypotheses in the modified Corrado and Tompkins model, the first step involved operationalizing this concept as the dependent variable.

The operational definition consists of the number of *domestic anti-state* terrorist events recorded in each of the following countries for every year between 1965 and 1990: Belgium, Denmark, France, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, the United Kingdom, and West Germany. Currently, there is no adequate single source of domestic terrorist events. Official statistics often appear to overestimate the incidence of terrorism, while simultaneously failing to address relevant definitional issues (where such definitions even exist). Additionally, there is evidence of substantial statistical discrepancy between various researchers on a country basis. Finally, existing databases such as the *World Handbook of Political and Social Indicators* (Taylor, 1983), while presenting measures of riots and armed attacks, fail to contain specific measures of political terrorism.

Part of the research, therefore, involved the creation a new database concerning the number of domestic anti-state terrorist events. Because information on many of the Western European countries is difficult to obtain, the decision was made to employ publicly available sources that gave enough information about incidents to allow the coder to make definitional determinations. The best data sources are *Keesing's Contemporary Archives* (1965-1992), *Facts on File* (1965-1992), and the *New York Times Index* (1965-1992).

Since sub-headings such as terrorism, civil strife, or internal security did not materialize until the early to mid-70s, the database was created through the year-by-year examination of each country, beginning with *Keesing's*. Next, the same procedure was followed with *Facts on File*, paying particular attention to specific areas of concern presented by the *Keesing's* data. Finally, the *New York Times Index* was employed when both of the previous sources were vague about specifics. While the *New York Times* is indexed by both *Keesing's* and *Facts on File*, some of the detail is sometimes lost in the indices. This is particularly the situation with *Facts on File*, which has a very abbreviated format in comparison to *Keesing's*, although the latter has adopted a very similar format over the past few years.

Although some studies (Jackman and Boyd, 1979) maintain that the cost-benefit ratio of utilizing multiple sources may be unjustifiably high and that increasing coverage beyond two sources is not likely to result in substantive changes to the "overall picture", warnings regarding the dangers of inadequate source coverage are still very relevant (Azar, Cohen, Jukam and McCormick, 1972). It was for this reason that the data base was constructed using three sources. Furthermore, the reliance on global, as opposed to regional, data sources should not necessarily or inevitably raise substantive concerns about reliability, as has been

suggested (Doran, Pendley, and Antunes, 1973). Given that the events in question are "newsworthy" by their very nature, and that there is no evidence of "systematic" case exclusion, it seems reasonable to conclude that the coverage is adequate and that the measurement of terrorist events is reliable.

### **Independent Variables: Corrado & Tompkins Revisited**

An empirical assessment of Corrado & Tompkins' full theoretical model is beyond the scope of this thesis. Instead, this analysis will concentrate on the macro-level structural causes of political terrorism. Of the ten variables advanced by Corrado & Tompkins, seven have been identified as macro-structural in nature. While *counter-insurgency measures* and *terrorist organizational characteristics* are mid-level or organizational approaches, *rational motives* are micro-level, individual orientations. Mid and micro-level variables are omitted from further discussion. Because it is more relevant to second and third world contexts, *economic dependence* is excluded as well. The *events and conflicts* variable, while theoretically important, is too difficult to operationalize in a manner that would allow it to be utilized in the statistical approach employed in this thesis. As a result, it too has been deleted. Finally, the *Distribution of Wealth* has been excluded because severe comparability problems with regards to current data sources (See Muller, 1985; 1988. Also Weede, 1981; Bollen and Jackman, 1985; and Mahler, 1989). In the interest of conceptual clarity, the remaining variables have been reorganized into a revised typology, consisting of four main categories: social structure, economic structure, political structure, and political culture.

**Social structure** encompasses *ethnicity* as well as two new variables: religion and immigration. **Economic structure** does not examine the issue of *relative deprivation* directly, but rather, analyzes three conceptually related indices of aggregate economic performance and well-being: unemployment, gross domestic product, and inflation. **Political structure** includes a measure for *democracy*, but also introduces measures of party polarization, fragmentation, and stability. Finally, **political culture** is included in the model.

**Political culture** refers generally to a complex of attitudinal dispositions which are held to characterize and differentiate polities. Certain attitudinal profiles are hypothesized to have a significant influence over manifest behavior, particularly political behavior. *Ideological orientation* is but one attitudinal variables. Other political culture variables attempt to assess attitudes concerning life satisfaction, democracy satisfaction, political mobilization, social change, interpersonal trust, and materialist/post-materialist values. It will be argued that these attitudinal variables intervene between structural variables and political terrorism. The remainder of this chapter is dedicated to the brief theoretical explication and operational definition of each of independent variables, which are summarized in Table 1 on the following page. As well, the hypothesized relationships between each of the independent variables and terrorism, *all other things being equal*, is considered.

### **Social structure**

The relationship between macro-social factors and domestic political terrorism has too often been characterized by the "fishing expedition" approach to hypothesis formation. In contrast to these "everything-including-the-kitchen-sink"

formulations, the socio-structural variables included herein analyze the issue of diversity.

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**Table 1**  
**Summary of Independent Covariates**

**Independent Variables**

**Social Structure**

**Ethnicity**  
**Religion**  
**Immigration**

**Economic Structure**

**Domestic Production**  
**Inflation**  
**Unemployment**

**Political Structure**

**Democracy**  
**Voter Turnout**  
**Fractionalization**  
**Polarization**  
**Durability**

**Political Culture**

**Life Satisfaction**  
**Interpersonal Trust**  
**Social Change**  
**Political Satisfaction**  
**Political Mobilization**  
**Ideology**  
**Postmaterial Values**

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The theoretical association between political stability and population homogeneity is well established. Taylor and Hudson maintained that "German princes of the sixteenth century sought to stabilize Central Europe by declaring

some realms fully Catholic and some fully Protestant" (1972:214). Furthermore, they claim that "in the nineteenth and twentieth centuries, the concept of a homogenous nation-state was and is a powerful force of irredentism, the dissolution of empires, and the unification of states" (1972:215). The dissolution of the Soviet Union, the atrocities of the former Yugoslavia, and the implementation of majority rule in South Africa reveal the reciprocity between social heterogeneity and political violence, especially all forms of terrorism. As perhaps the two most conspicuous potential causes of social cleavage, ethnolinguistic and religious discrepancies are particularly important. These variables are discussed in the next section. Sources are included in Appendix A.

### *Ethnolinguistic Fragmentation*

Nationalism in general, and ethnic nationalism in particular, are hardly novel or recent phenomena. However, one might argue that it was not until the mid 1960s that minority status groups began the systematic utilization of political terrorism as a primary means of potentially influencing domestic power relations and policy in Western Europe. Today, ethnic nationalism is arguably the most important impetus for terrorism, having demonstrated greater persistence than the classic ideologies, such as fascism and communism (Corrado and Evans, 1988). The presence and sustenance of two of largest terrorist groups, the ETA in Spain and the IRA in Northern Ireland and Great Britain is directly attributable to the militant expression of ethnic-national sentiment.

Using the method originally suggested by Greenberg (1956), the ethnolinguistic fragmentation index (ELFI) measures ethnic/linguistic heterogeneity

as a function of the of the proportions of the total population accounted for by the various ethnolinguistic groups:

$$ELFI = 1 - \sum (P_i)^2$$

where  $P_i$  = the proportion of total population in the  $i$ th ethnolinguistic group. The proportional term is subtracted from one for conceptual consistency. Because it is based on a squared product, the proportional term itself actually increases as heterogeneity decreases. As a consequence, the relationship between the ethnolinguistic fragmentation index and political terrorism is hypothesized to be positive in nature.

Hypothesis: Increased levels of ethnolinguistic fragmentation will engender increased levels of political terrorism.

### *Religious Fragmentation*

In contemporary Western Europe, religious affiliation is not the socially and/or politically divisive cleavage that it was previously. Instead, a broader form of nationalism has become prominent. Nonetheless, some of the more important political parties, including the former Christian Democrats in Italy and the Christian Democratic Union in Germany, represent, albeit in declining intensity, the relevance of religious fragmentation. In contrast, religion appears to have increased in importance in the context of international terrorism (Rapoport, 1984; 1987; 1988; 1990). For example, the escalation of terrorist activities by Islamic fundamentalists has had a drastic impact in the Middle East, North Africa, Asia, and, to a lesser extent, in Western Europe and the United States. However, in certain countries,



such as the United Kingdom, traditional religious fragmentation remains critical to understanding domestic anti-state terrorism.

But while religious association remains linked to political action, the hypothesis presented here intentionally avoids addressing the issue of whether particular religions such as Catholicism or Protestantism are specifically linked to political terrorism in Western Europe. Instead, the focus is on religious fragmentation in general. The longitudinal data presented by Barrett (1982) clearly demonstrates that proportional changes in specific religious affiliation have not been particularly significant. In contrast, increasing polarization is evident in Western European countries in the juxtaposition of religious versus non-religious/atheist identification, with the latter showing discernible aggregate (numeric) gains against the former.

The religious fragmentation index (RFI) is the methodological equivalent of the ethnolinguistic fragmentation index introduced earlier, such that

$$RFI = 1 - \sum (P_i)^2$$

where  $P_i$  = the proportion of total population in the  $i$ th religious group. With this specification, the index allows for the measurement of shifts in affiliation. Given that it is more sensitive to proportionately larger changes, however, it is more likely to reflect the substantive realignment of religious and non-religious identification.

Hypothesis: Increases in the level of religious fragmentation are associated with increases in the level of political terrorism.

## *Immigration*

It is entirely possible that there exists a threshold effect whereby some minority groups, often through immigration, come to have within their ranks enough persons of similar extreme political values to initiate political terrorism. The process of individual members coming together, often in response to or defiance of real or perceived imbalances in power, access, and/or equality, is not dissimilar to what happens with ethnic national terrorism. Conceptually, the only difference is that the Basques of Spain, for example, have a long historical connection to their area which is inconsistent with the application of the term "foreigners". And while political terrorism by immigrants directed against the domestic government remains largely unrealized, its potential has already been exhibited in the Netherlands. In December, 1975, and again in May, 1977, a group of South Moulaccan youths initiated political terrorism not in response to the domestic situation, but rather, in response to a foreign policy issue involving the control of their homeland (South Moulacca) by Indonesia (Yaeger, 1990). Nonetheless, these terrorist acts represented an attempt by an immigrant minority group to exert control on domestic government policy.

The unsettling effect of immigration on the majority in Western Europe is well documented. The acceptance and integration of migrant workers and political refugees has become one of the major challenges confronting the advanced industrial democracies of Western Europe (Layton-Henry, 1990) Indeed, many groups are afforded outgroup status when their numbers are sufficient to constitute a visible minority. Without dwelling for too long on the controversial aspects of racism, it seems obvious that racial tensions contribute significantly to political violence generally. This effect is exacerbated where the minority group in question

does not have any traditional connection to the majority. For example, the resurrection of neo-fascism in Germany has primarily taken the form of terrorist acts perpetrated against Turkish and Armenian immigrants.

Since it seems reasonable to predict that attention to or reaction by immigrant groups will vary in accordance to their proportional concentration in the nation as a whole, immigration is operationalized as the proportion of new immigrants entering into a country in a given year to the population.

$$\text{Immigration} = \frac{\text{\# of New Immigrants}}{\text{Population}}$$

This annual examination of changes in immigration is more dynamic than the ethnolinguistic fragmentation index. As the ELFI is a more long term index, calculated using census data, short-term changes in ethnic composition which are not enduring will be smoothed out. However, short-term fluctuations, depending on their magnitude, may be of considerable significance and effect. This measure of immigration can be more responsive to sudden variations in trends.

Hypothesis: There is a positive correlation between the rate of immigration and political terrorism.

### **Economic Structure**

Economic considerations are increasingly occupying a pivotal role in the analysis of political violence and terrorism. This interdependency of politics and economics has been explored in the literature on state terrorism (Mason and Krane,

1989). Economic approaches have found particular application in Latin America (Pion-Berlin, 1983; Petras, 1986; Remmer, 1991). Surprisingly, however, explicitly economic variables have been conspicuously absent from the vast majority of causal models as they apply to *developed* countries. The aggregate economic indicators here, it is argued, are as relevant to advanced industrial economies as they are to those that are less developed.

Although all of the nations currently under consideration are post- or advanced-industrial, their corresponding key economic indicators are quite varied. There are several aggregate economic indices, including gross domestic product, unemployment, and inflation, that individually and collectively disclose important information regarding the context within which decisions concerning political action are made. Economics and relative deprivation have been posited as major causes of terrorism (Gurr, 1970). Unfortunately, it is not possible with the thesis data to assess directly the importance of relative deprivation. Instead, an indirect approach is utilized. While economic conditions still obviously engender subjective speculation (especially where issues of ethnicity or religion are simultaneously involved), indicators such as unemployment and inflation are more amenable to objective evaluations. As such, they will be considered in their own right.

Because of their inclusiveness and reliability, the economic data were subjected to the most intricate measurement techniques: eight different operational variations were derived for each variable. The unemployment rate was the best operationalization for unemployment. But for Gross Domestic Product and inflation, it was found that lagging the rate by one year showed stronger relationships with terrorism. Appendix B provides sources and a brief discussion of

the procedure used to select the most appropriate derivation for each variable. For the following explications, only the final versions of the variable will be discussed.

### *Gross Domestic Product*

Gross Domestic Product, or GDP, is commonly used as a measure for inter-temporal comparisons of economic development at the national level. As well, it is often utilized as the most appropriate economic indicator for measuring the aggregate final results of economic activity (United Nations, 1988). Comprised of five main components, including the consumption of the population, collective consumption of government, gross fixed capital formation, and the balance of imports and exports, the GDP in real terms is generally accepted as the quantification of the overall economic performance of a country. In essence, GDP is indicative of the overall health of the economy.

GDP is the broadest of the economic considerations. Whereas the remaining variables reflect more specific economic indicators, the potential effects of GDP are clearly more diffuse. Still, this variable addresses the fundamental question of whether general economic performance is correlated with political terrorism. While perhaps not immediate, the effects of economic trends on political issues relevant to terrorism will eventually be translated into attitudinal dispositions, positive or negative depending on the nature of the economic trends. Sustained economic decline undoubtedly enhances the probability of political terrorism. Even if individuals are unable to point to specific indicators such as unemployment or rising prices, they may still come to maintain cynical attitudes about "the economy" generally. It is debatable whether evaluations of the economy are derived from objective indices or from subjective interpretations based on personal experience.

Given this assumption about the centrality of economics in relation to the human condition, subjective economic assessment may be a decisive factor in both attitude formation and behavioral inclination. In Corrado's earlier work on political terrorism (with Evans, 1988), he argues that the support base for recruiting, financing and otherwise sustaining political terrorism is dependent on both general economic growth and perceptions of relative economic advantage.

Hypothesis: There is a negative association between change in GDP and the incidence of political terrorism.

### *Inflation*

One of the "twin evils" of macroeconomics, inflation is essentially a sustained and continual rise in the weighted average of all prices (Miller & Pulsinelli, 1983). Because prices are expressed in terms of money, inflation implies a depreciation in the value of money in terms of goods and services (Kreinin, 1983). The most commonly used indicator of inflation is the Consumer Price Index, or CPI. The CPI is calculated for a specified "basket" of goods and services that is representative of the purchases of a particular population group (Forster and Tisdell, 1986), where each of the goods and services is assigned a weight according to its relative importance in that basket. So while GDP is an aggregate measure of capital availability, CPI is an indicator of the relative purchasing power of that money.

The fundamental indictment of inflation is the capricious manner in which its "victims" are selected (Baumol and Blinder, 1988). Inflation redistributes income in an arbitrary way that purportedly hurts lower income individuals the most since it reduces fixed-income persons' purchasing power the most. As low-income groups are often coincidental with certain ethnic groups and/or geographic areas, both

ethnic nationalists and radical ideologists typically claim that inflation is another manifestation of subjugation. Those who utilize terrorism can argue that the elites need to be overthrown to right this form of economic inequality. The decreasing relative purchasing power of money likely has a decidedly negative impact on the general standard of living and economic well-being. Political terrorism is more likely to arise where the purchasing power of an individual's income is consistently eroded.

Hypothesis: There is a positive relationship between inflation, as measured by the CPI, and political terrorism.

### *Unemployment*

When individuals are unemployed, the economy is producing fewer goods and services than it could if all individuals who wanted to work were able to secure suitable jobs. Thus, unemployment imposes a socio-economic cost in terms of foregone commodities (Forster and Tisdell, 1986) and wasted resources. The other "twin evil", unemployment is the most immediate and visible economic indicator presented; the lagged effects involved with both GDP and CPI are not as relevant regarding unemployment.

With the advent of unemployment insurance and other social welfare programs, the economic consequences of temporary unemployment are not as dire as they once were for most people. There are psychological consequences, however, which appear to have remained significant. "A worker forced into idleness endures a psychological cost that is no less real than our inability to measure it" (Baumol and Blinder, 1988). In the advanced industrial societies found in Western Europe, studies indicate that unemployment can damage an individual's confidence and

self-image, leading to stress and even physiological maladies (Miller and Pulsinelli, 1983). High unemployment has also been linked to certain types of crimes, divorces and suicides (Baumol and Blinder, 1988). Where the responsibility for unemployment is attributed by the individual to the government, political terrorism again is an option for those who believe that only radical political change can effect unemployment within either a class, low income group, ethnic group, or some combination of these groups.

Hypothesis: As the rate of unemployment escalates, so too will the incidence of political terrorism.

Taken together, Gross Domestic Product, Consumer Price Index and Unemployment constitute the central economic structure variables. But these variables are the necessary, and not sufficient, causes of political terrorism. In effect, without a negative economic structure, it is difficult to persuade individuals to support and/or engage in political terrorism in any sustained manner. Other macro variables necessary for political terrorism include those drawn from the political structure.

### **Political Structure**

Similar to social structure, there exists a wide array of potential political-structural variables that could reasonably be incorporated into causal modeling attempts. In contrast to social structure, however, these variables are rarely considered in etiological treatments of political terrorism. Ironically, the centrality of the *political structural* context for the etiology of political terrorism is largely ignored



empirically, particularly with regards to liberal pluralist democratic contexts. Yet democracy itself has garnered considerable theoretical concern as a key independent variable, with many authors trying to reconcile the inherent contradiction of terrorism in Western democracies. The need to participate in violent extra-governmental opposition when such systems ostensibly function in the most inclusive manner appears to be a paradox.

Is there something endemic to the political structures of particular democracies that makes them more or less susceptible to political terrorism? It will be hypothesized that, within the liberal democratic context, governmental instability is an important condition in the facilitation of terrorism. Utilizing data from *The International Almanac of Electoral History* (Mackie and Rose, 1991) and Warwick (1992a, 1992b, 1992c), the following political structural covariates are designed to assess two questions: first, is there a difference between democracies and non-democracies with regard to facilitating terrorism; and second, are there specific characteristics, related to regime stability in democracies, that account for between-nation differences in levels of terrorism.

### *Democracy*

Although it would seem reasonable to expect more anti-state terrorism in autocratic or totalitarian, as opposed to democratic, regimes, this supposition is not supported empirically. Instead, it appears that the repressive nature of the former, the very characteristic which should make these regimes more susceptible to terrorism, actually precludes any organized expression of oppositional opinion (Gurr, 1990). On the other hand, that political terrorism is more prevalent in liberal democracies poses a difficult paradox. Terrorism is intolerable in a democratic

society where grievances are heard and alternatives presented, and where the potential for peaceful change is, at the very least, implicit (Homer, 1988). Moreover, terrorism is considered to be wrong because "minorities in a democratic society, as long as their freedom to dissent is largely protected, do not have the right to impose their will on the majority through violence" (Howe, 1976:60). Yet despite the especially reprehensible nature of terrorism in democracies, several theorists (Laqueur, 1977; Wilkinson, 1977) maintain that rights and freedoms regularly associated with a functioning democracy in fact create conditions favorable to the development of political terrorism.

Developing this argument further, O'Sullivan (1986) has proposed that the roots of terrorism lie concealed at the very heart of the democratic tradition. It is not simply that democracies are more permissive societies in general, although Wilkinson is probably correct in identifying the subjective meanings of liberty and justice as important facilitating conditions. Rather, O'Sullivan convincingly argues that the "new ideological style" which characterizes contemporary democracies is intimately connected with terrorism. Under the new ideological style, notions of political legitimacy has been divorced from the rule of law, and the doctrine of popular sovereignty has been adopted as a justification that has gradually destroyed most of the old conventions which once surrounded the use of violence in Western political life. The "subjective meaning of liberty" has become synonymous with "personal autonomy" and "self-realization", detached from previous connections with the rule of law. Terrorism may be rationalized by any group on the basis that they are, in comparison to the government, the more appropriate representatives of the popular will. Terrorism has become prevalent in the modern liberal democratic tradition as a result of the postulates of this new ideological style.

Currently, all of the countries represented in the thesis are democracies, and no countries have been included as controls. However, the political histories of Portugal (until 1975), Spain (until 1977), and Greece (1967-1974) all include periods of non-democratic rule which may serve as a comparative context. While number of years is relatively small (28 total), and any conclusions based upon them necessarily tentative, preliminary testing of the hypothesis is nonetheless possible. Because some of the attitudinal covariates which will be introduced later in this chapter (specifically political satisfaction, political mobilization, and postmaterial values) and all of the remaining political structure covariates are only relevant for operative democracies, the first version of the model will be derived using a "dummy variable" measure for democracy across all cases.<sup>1</sup> A subsequent model will be estimated using just democratic cases, introducing the system-sensitive covariates which were withheld from the original.

Hypothesis: Political terrorism will be greater in democratic societies, in contrast to non-democratic regimes.

### *Turnout*

Following standard convention, turnout is both defined and operationalized as the number of votes cast as a percentage of the total electorate. While measuring turnout is relatively straightforward, its theoretical implications are the subject of considerable controversy. There are two commonly advanced hypotheses concerning the explanation of levels of voter turnout. Lipset (1960) maintained that voter malaise or "non-voting" in Western democracies reflected systemic *stability*.

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<sup>1</sup> A 'dummy variable' is a dichotomized treatment where the variables measures either the presence or absence of the trait in question.

This theoretical premise rests on the assumption that low turnout is indicative of the electorate's general satisfaction with the current state of affairs and that, as a corollary, high turnout corresponds to elevated levels of political cleavage and/or conflict. Alternatively, Key (cited in Dittrich & Johansen, 1983) posited that "significant levels of non-voting imply the underrepresentation in government of socially and economically disadvantaged groups." With reference to political terrorism, Key's interpretation is probably more relevant in that it more accurately reflects the electoral process in Western democracies regarding why individuals are likely to give up on the electoral process and turn to violence.

Implicit in Lipset's orientation is a faith that citizens believe that participatory voting can and will result in substantial change(s) where the electorate is unsatisfied. If, on the other hand, minority populations lack *effective* representation, the motivation to participate is negated by the lack of prospective systemic reciprocity. As opposed to reflecting voter satisfaction, non-voting is more apt to indicate perceived unresponsiveness of the political system for certain segments of the electorate.

Hypothesis: There is a negative association between voter turnout and political terrorism.

### *Polarization*

Polarization in the present context refers to political extremism and the relative support for radical or "anti-system" parties. Several authors, including Huntington (1968), Duverger (1954), and Sartori (1976) have noted the potential danger that extremism poses to democracies.

Extremism, the promise of radical change in the social, economic and political fabric, is threatening to democratic stability. It may imply a commitment to alter the democratic rules. Or it may lead other groups to abandon their support of democracy in fear of the extremist policies (Powell, 1982:93).

Even where extremist parties lack sufficient support to come to power, they still often *destabilize* effective government and complicate the process of legitimate social change. By extension, it logically follows that increased levels of extremist party support should be correlated with increased levels of extra-systemic political agitation, including political terrorism.

Powell (1982) has drawn a distinction between "contenders" and "protest parties" premised on the notion of participatory longevity. Powell defines extremist contenders as

parties that promise radical changes, gain sufficient voting support to be perceived as serious contenders for political power, and hold a relatively stable base of organization and citizen commitment (1982:93).

Extremist parties are sustained movements which demonstrate a sincere expectation of taking or sharing power.<sup>2</sup> In contrast, a protest party is

a party representing relatively diffuse protest against the present society, either from the right or from the left. Often these are parties of 'surge and decline' whose support rests on sudden, intense citizen dissatisfaction, but which fall apart in subsequent campaigns, as they have no sustaining base of support (1982:93).

As opposed to extremist contenders, protest parties generally have no real expectation of power.<sup>3</sup> For the purposes of this thesis, polarization is measured in

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<sup>2</sup> Powell cites the Communist parties of Italy, France and Finland as examples.

<sup>3</sup> Powell cites the "Poujadist" party of France in the mid-50s.

reference to both extremist contenders and protest parties. The parties chosen here are the same as those used by Warwick (1992a, 1992b, 1992c) in his series of articles on coalition governments.

Hypothesis: There is a positive relationship between polarization and political terrorism.

### *Fractionalization*

The literature concerning fractionalization is deeply divided on the issue of whether or not a large number of parties are intrinsically *destabilizing* to the political system (Duverger, 1954; Nilson, 1974; Lijphart, 1968). But while the theoretical debate remains unresolved, the need for operationalization has inspired the creation of a number of sophisticated indices for measuring the "effective" number of parties.

Conceptually, the effective number of parties is "the number of hypothetical *equal-size* parties that would have the same total effect on fractionalization of the system as have the actual parties of *unequal* size. Operationally, several such indices of fractionalization have been proposed. The Herfindahl-Hirschman concentration index (HHCI) is similar to the fractionalization measures introduced for ethnolinguistic and religious fragmentation.

$$\text{HHCI} = \sum (P_i)^2$$

where  $P_i$  = fractional share of seats of the  $i$ th party.

Rae and Taylor (1970) derived the more intuitively interpretable method by subtracting HHCI from one.

$$\text{Rae and Taylor Fractionalization} = 1 - \sum (P_i)^2$$

The Rae and Taylor scale was more interpretable with ethnolinguistic and religious diversity because it ranged from zero to one and was consistent with probability interpretation. However, it does not seem to mean as much as a measure of the effective number of parties, since we know that this number will, in democracies, always be larger than 1 (it is rare that, in a true democracy, one party wins all of the vote). Laakso and Taagepera (1979) consequently proposed a further derivation

$$\text{Effective Number of Parties} = \frac{1}{\sum (P_i)^2}$$

This index produces measures which are consistent with the conceptual definition provided above and therefore more easily interpretable. This measure also appears to be more appropriate than entropy-based measures such as Kesselman's (1966) "index of multipartyism" or Wildgen's (1971) "index of hyperfractionalization", which have been found to be oversensitive to the smallest components of a system.

According to Laakso & Taagepera (1979:24), "fluctuation in effective number of parties expresses instability of the party system". It has already been hypothesized that socio-structural diversification is positively correlated with terrorism. What remains uncertain is whether there exists a causal association between the instability of the party system and political terrorism. If the effective number of parties is reconceptualized as an issue of representation, then the relationship between this index and political terrorism may in fact be negative. Increases in the effective number of parties may indicate either the existence of a

number of largely redundant parties, or the existence of representation on a larger number of potential issues. While the myth of democracy defends the viability of pluralist systems, minority populations (in the generic sense) often are not afforded what they would characterize as effective access. A larger number of effective parties might serve to ameliorate perceptual or substantive concerns and offer credibility to the pluralist argument. So while social fragmentation may have decidedly negative consequences, political fractionalization is not necessarily analogous. A distinction must be drawn between "party system instability" and "governmental instability"; the former is apparently correlated the effective number of parties, whereas the latter unequivocally is not (Laakso & Taagepera, 1979). Whether political terrorism is endemic to government instability will be further examined shortly.

Hypothesis: There is an inverse relationship between the number of effective parties which characterize a given polity and political terrorism.

### *Durability*

Similar to polarization and fractionalization, durability is related to political terrorism to the extent that it produces governmental instability, assuming of course that such *instability* is itself correlated with terrorism. Whereas polarization and fractionalization address the implications of extremist parties and the number of effective parties respectively, durability attempts to assess whether the mean duration of past governments is correlated with the incidence of political terrorism.

As with fractionalization, the distinction between party system instability and governmental instability is informative. While shorter mean government durations are *prima facie* evidence of the latter, however, durability also appears to



be qualitatively different than fractionalization. Relative to fractionalization, durability seems to bridge the conceptual gap, moving beyond party system instability to governmental instability. Consequently, the dynamic between durability and political terrorism is hypothesized to be different from that which is assumed to characterize fractionalization and terrorism. Although the potentially negative consequences of party system instability resulting from fractionalization are theoretically offset by increasing representation, the governmental instability attributable to the lack of durability has no correspondent mitigating condition. In effect, government instability aggravates political volatility and enhances the probability and likelihood of political terrorism.

The measure of durability utilized here was derived by Warwick (1992a, 1992b, 1992c) for his series of articles on coalition governments. Operationally, durability or past instability is a cumulative measure. Using the government immediately preceding 1965 as the initial reference point, the tenure of all subsequent governments is recorded in days and then converted to years. This figure is then divided by the total number of governments minus one (representing the current government). The resulting measure is a running average of the length cabinet duration, in years.

$$\text{Durability} = \frac{\text{Total Number of Days in Government} / 365.25}{\text{Total Number of Governments} - 1}$$

Larger durability values are indicative of increased stability.

Hypothesis: Durability is negatively related to political terrorism.

Collectively, these social, economic and political structural variables are hypothesized to provide the context within which political terrorism is most likely to occur in Western Europe. However, this thesis also posits that structural antecedents are not directly responsible for the behavioral outcome of terrorism. Instead, it will be maintained that attitudinal precepts, formally referred to as political culture, function as links between structure and terrorism. The relationship between structure and culture will be examined further in Chapter Five. The following operationalizations represent the essential attitudinal constructs, as they relate to terrorism.

### **Political Culture**

Originally presented by Gabriel Almond (1956), the concept of political culture has developed into a conceptual umbrella encompassing a wide variety of theoretical and methodological approaches and perspectives. This ambiguity has had a pronounced, detrimental effect on the conceptual clarity of political culture. Lane (1992:363) has commented that "(a) major difficulty in achieving a clear overview of the field of political culture has been the fundamental failure to settle on an operational definition of the internal structure of political culture, that is, of the variables of which it is composed". Those attempts which do exist are characteristically simplistic (Almond & Verba, 1963) or have not been adequately integrated at the theoretical level (Pye and Verba, 1965). Despite these shortcomings, however, the concept of political culture has enjoyed a renaissance since the late 1980s, in large part resulting from the effort of Ronald Inglehart.

Political culture reemerged as a tenable analytic construct as a result of the perceived imbalance caused by the increasingly myopic concentration and reliance on rational choice models based on economic variables. While Inglehart recognizes the significant contributions of rational choice models, he maintains that cultural factors have been deemphasized to an unrealistic degree. "Thus, rational choice models have fruitfully analyzed the relationships between economics and politics, but left unexplored the linkages that culture has with both politics and economics" (Inglehart, 1990:15). Economics, Inglehart argues, provides only partial answers to political questions. Different societies are also characterized to very different degrees by enduring cultural attributes that can have substantial political consequences concerning, for example, the viability of democratic institutions. As such, political culture is an essential supplement to rational choice approaches.

Culture, according to Inglehart, "is a system of attitudes, values and knowledge that is widely shared within a society and transmitted from generation to generation" (1990:18). As opposed to human nature, which is biologically innate and universal, culture is learned and therefore variable. The more central an aspect of culture is, the more resilient to change it is likely to be. In contrast to the rational choice theory, the political culture approach suggests that an individual's situational responses are shaped by cross-culturally and subculturally varied subjective orientations, and that these variegated subjective orientations reflect differences in socialization experiences.

'Cultural' men process experience into action through general cognitive, affective and evaluative predispositions; the patterns of such predispositions vary from society to society, from social segment to social segment; they do not vary because objective social situations or structures vary but because of culturally determined learning; early

learning conditions later learning and learning involves a process of seeking coherence in dispositions (Eckstein, 1988:792).

An important postulate of this thesis contends that political culture functions as an intervening variable, providing the bridge between objective structural conditions (social, economic and political) and subjective responses. If terrorism is nothing more than a particular, albeit illegitimate, form of political action, it logically follows that specific patterns of attitudes, values, and beliefs are necessary before situational contexts may be translated into substantive behavior. The following constructs, derived from the Eurobarometer surveys administered in European Community countries since 1973, are hypothesized to be part of a syndrome of attitudes which have a direct influence on the persistence of stable democracy and the incidence of political terrorism. More specific information regarding methods and procedures is provided in Appendix C.

### *Life Satisfaction*

Subjective well-being, or life satisfaction, is one the most basic and central attitudinal variables, influenced less by the short-term fluctuations in the political or economic spheres. Generally, life satisfaction is unrelated to any *specific* aspect of society. This is not to suggest that life satisfaction is not influenced by other considerations. Economic security, for example, tends to enhance the prevailing sense of life satisfaction in a given society. Rather, it is meant to point out that life satisfaction is very diffuse, and that it tends to reflect the sum of satisfactions across a variety of domains (Andrews and Withey, 1976). Generally, subjective well-being reflects a balance between one's aspiration level and one's perceived situation (Inglehart, 1990:212; Campbell, Converse and Rodgers, 1976).

Because it is so diffuse and relatively less susceptible to short-term fluctuations, life satisfaction represents an enduring, long-term commitment to social institutions generally. But life satisfaction also demonstrates remarkably stable cross-cultural differences; rank orderings show that the relative positioning of different countries is quite consistent over time. If subject well-being is a function of aspiration levels and perceived situations, it appears that long periods of disappointed expectation have given rise to cynical attitudes that exhibit estimable constancy. As such, lower mean life satisfaction might provide or be indicative of a long-term situational orientation toward political instability and terrorism.

In conjunction with interpersonal trust and support for the existing social order, life satisfaction provides one of the dimensions of "civic culture" (Inglehart, 1990), a syndrome of positive attitudes which are linked with the viability of democratic institutions. If political terrorism is associated with the breakdown of democratic institutions, lower mean levels of life satisfaction should engender higher levels of terrorism.

Hypothesis: National mean levels of life satisfaction are negatively correlated with the incidence of political terrorism.

### *Interpersonal Trust*

A sense of interpersonal trust is another of the most basic attitudes, the second dimension of "civic culture". Similar to life satisfaction, interpersonal trust is crucial to democratic systems.

In *The Civic Culture*, Almond and Verba (1963) concluded that interpersonal trust is a prerequisite for the formation of secondary associations, which in turn is essential to effective political participation in any large democracy. A sense of trust is also required

for the functioning of the democratic rules of the game (Inglehart, 1990: 23).

By itself, interpersonal trust is insufficient to support stable mass democracy. However, a lack of interpersonal trust is certainly a threat to stable democracy.

Contextually, interpersonal trust is associated with life satisfaction, with both displaying significant long-term consistency within nations and distinctive intercultural variation between them. Because trust is cultural and not genetic, it is subject to change. Yet Inglehart (1990) has also demonstrated that relative levels of trust remain reasonably constant, despite the level of absolute changes which have occurred. Like life satisfaction, interpersonal trust seems to highlight propensities which may be more or less conducive to the occurrence of terrorist events.

Hypothesis: Political terrorism should vary inversely with national mean levels of interpersonal trust.

### *Social Change*

The extent to which individuals are committed to supporting the existing social order or favor revolutionary change will clearly have an impact on the manifestation of political action. Since political terrorism is more likely to occur where social discontent is already fomenting (Gurr, 1971), countries exhibiting inclinations toward revolutionary change are going to be susceptible to increased levels of violence. If stable democracy requires broad-based commitment to the existing social order, substantial levels of support for revolutionary change clearly diminishes the prospects of this being realized.

Of all the political cultural variables, social change has the most explicit behavioral component. Yet social change remains informed by the others, in essence symptomatic of latent attitudes that may be tapped simultaneously by addressing

the issue of action. Given a set of circumstances and corresponding attitudes, the social change variable poses the question "What is the appropriate response?" The manner in which that question is answered has profound repercussions for democratic stability, and consequently, political terrorism.

The final dimension of "civic culture", support for the existing social order, is clearly related to political polarization and the level of support for extremist parties. By definition, extremist parties are the principal medium through which negative attitudes towards the existing social order is translated into political action. Extremist parties, political instability, and political terrorism are the logical result where commitment to the prevailing social order is weakest.

Hypothesis: Mean levels of commitment to revolutionary change are positively associated with political terrorism.

#### *Political (Democratic) Satisfaction*

Not surprisingly, political satisfaction demonstrates considerably more short-term fluctuation than life satisfaction. Because of its explicit connection to the political system, political satisfaction operates as an indicator of government popularity, fluctuating monthly in response to prevailing economic conditions and political events (Inglehart, 1990). As well, ideological propensities are more apt to prevail here. Political satisfaction among those who identify with the Right tends to be greater when conservative governments are in office, whereas the Left are more satisfied politically with Leftist governments. However, as with life satisfaction, there is also substantial cultural consistency associated with political satisfaction; the publics of some countries are consistently more satisfied than others.

The consistency between life and political satisfaction raises the question of whether life satisfaction is related to stable democracy because of its similarity with political satisfaction. The answer, according to Inglehart, is a definitive "no". Democratic stability is contingent more upon enduring cultural traits such as life satisfaction (and interpersonal trust) than relatively fluctuating variables such as political satisfaction (1990). Still, short-term fluctuation in political satisfaction may be of considerable interest, for it may be specific economic or political events that precipitate acts of political terrorism. In the context of political terrorism, any form of significant instability, either short or long-term, could conceivably serve as an antecedent to terrorism.

Hypothesis: More political terrorism is likely to occur where mean political satisfaction is lower.

### *Political Mobilization*

Political mobilization represents a complex of closely affiliated concerns relating to party identification and political skills such as discussion and persuasion. The fundamental issue is the ability to participate in the political environment. Participation in the legitimate political structure requires prerequisite skills, and while Inglehart suggests that these skills are becoming more widely disseminated in advanced industrial democracies (1990), it seems apparent that participation in political terrorism indicates a dearth of (or at least a denial of the efficacy of) such skills. When Inglehart (1990) contends that it is difficult for isolated individuals to engage in effective political action, and that political participation is contingent upon and facilitated by the coordinating efforts of social networks, he obviously has *licit* political participation in mind.



In addition to participatory skills, some level of party identification is also necessary in order for legitimate political participation to be realized. Again, the distinction here is between conventional and nonconventional political involvement. Individuals who in fact possess the requisite political skill may still choose to participate in "extranormal" politics because they do identify with any of the available parties. In some cases, as Inglehart (1990) maintains, this may lead directly to the formation of what he refers to a "new social movements". Alternatively, this situation may instead precipitate terrorist movements.

Hypothesis: Acts of political terrorism will decrease concomitant with increases in political mobilization.

#### *Ideological Self-Placement*

The influence of ideology has already been touched upon indirectly in several contexts, including the rise of secular ideologies (religious fragmentation) and support for extremist parties (polarization). There is an undeniable connection between ideology and political terrorism generally. The variable presented here attempts to be more specific, to determine whether particular ideological orientations (conceptually dichotomized as the Right and the Left) function so as to predispose societies to political terrorism.

Theoretically, extremist ideological positions are inherently dangerous to democratic government, regardless of their particular orientation. But more precise discrimination between ideologies of the Right and Left *in practice* (i.e. - as it relates to political terrorism) reveals critical divergence between the two. Historically, the Right has tended to focus on other social groups. For example, in the 1970s, "Black Terrorism" in Italy consisted of political violence perpetrated primarily against

Leftists. And in the early 1990s, neo-fascist violence in Germany has primarily been concentrated against immigrant workers. Conversely, Leftist terrorism has traditionally been perpetrated against explicitly governmental interests. In its execution, Left violence appears to be directed against the social order generally, while Right violence seems only to target particular social segments. In comparative terms, the ideological precepts of the Left are apparently more change oriented, or "revolutionary", than are the ideological tenets of the Right. If this is in fact correct, societies more inclined toward a Leftist ideological position may engender more political terrorism. Because Inglehart's scale of ideological orientation runs from Left (1) to right (10), the direction of the relationship should be negative.

Hypothesis: Consistent with Leftist ideological orientations, there will be a negative correlation between ideology and political terrorism.

### *Postmaterial Values*

Far and away the most controversial aspect of Inglehart's approach to political culture, postmaterial values is his fundamental defining concept. The linchpin around which many of his arguments are based, Inglehart contends that advanced industrial societies are currently experiencing a significant rise in postmaterial values, and that this culture shift has, in turn, had a profound impact on both the prevailing social structure and on social change. While the concept of postmaterial values has sparked widespread methodological and theoretical debate, there is little doubt that it has become a central concept in the study of political culture. More importantly, if Inglehart's assertions are valid, postmaterial values could have a substantive influence on social change generally, and on political terrorism in particular.

Inglehart's theory of value change is derived from two key hypotheses:

1. A scarcity hypothesis. An individual's priorities reflect the socioeconomic environment: One places the greatest subjective value on things that are in relatively short supply.
2. A socialization hypothesis: The relationship between socioeconomic environment and value priorities is not one of immediate adjustment. A substantial time lag is involved because, to a large extent, one's basic values reflect the conditions that prevailed during one's pre-adult years.

The first hypothesis reflects the idea of Maslow's hierarchy of needs, which Inglehart dichotomizes in terms of "material" needs for physiological sustenance (food, shelter, physical protection) and non-physiological needs (esteem, freedom, self-expression and aesthetic satisfaction). The second hypothesis indicates that value change must be discerned by examining trends and long-term effects. In short, Inglehart postulates that "(t)he unprecedented economic and physical security of the postwar era has led to an intergenerational shift from Materialist to Postmaterialist values" (1990:103).

The consequences of this shift are pervasive, impacting many of the other attitudinal components such as satisfaction, ideology and political participation. Regarding the latter, Inglehart (1990) includes the transition from elite-directed to elite-directing politics and the formation of new social movements as the logical extensions of postmaterial values in the political arena. Material concerns, and therefore material societies, are not conducive to political terrorism; on the contrary, the probability of terrorism diminishes where material concerns about basic security issues are prevalent. Terrorism is more likely in societies where there are proportionately more individuals who are inclined toward postmaterial values. The very nature of postmaterial values, such as self-determination and political access, dictate a necessarily adversarial approach to current governmental systems and

structures. Terrorist are more apt to be drawn from the ranks of those who subscribe to this adversarial approach; where postmaterial values cannot be assimilated into by the dominant political order, their expression may take extrademocratic form.

Hypothesis: Political terrorism is bound to increase where postmaterial values are more pervasive.

A summary of operationalized measures is provided in Table 2 on the following page. Notice that a lagged measure of the dependent variable has been included as a control variable. This variable, DTE (lagged) will be used later as a test of the validity of the independent variables in the model. From these operationalizations, it should be possible to derive an empirical model and determine which of these variables, working in concert, produce the most appropriate estimate of the etiological context of political terrorism. *Count*, an innovative new statistical program developed by Gary King to estimate event count data using maximum likelihood techniques, is arguably the best analytic tool for this particular application. The following chapter provides a brief introduction to event count analytic and maximum likelihood techniques. Subsequent chapters present the results for several different types of analyses. Finally, the reliability and validity of the results are also tested.

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**Table 2**  
**Summary of Operationalized Independent Covariates**

Independent Variables	Operational Equivalent
<b>Social Structure</b>	
Ethnicity	Ethnolinguistic Fragmentation Index
Religion	Religious Fragmentation Index
Immigration	Immigration Rate
<b>Economic Structure</b>	
Domestic Production	Gross Domestic Product (lagged one year)
Inflation	Consumer Price Index (lagged one year)
Unemployment	Unemployment Rate
<b>Political Structure</b>	
Democracy	(dummy variable)
Turnout	Turnout
Fractionalization	Party System Fractionalization
Polarization	Anti-System Party Support
Durability	Government Durability
<b>Political Culture</b>	
Life Satisfaction	Life Satisfaction
Interpersonal Trust	Interpersonal Trust
Social Change	Social Change
Political Mobilization	Political Mobilization Index
Political Satisfaction	Democracy Satisfaction
Ideology	Left/Right Orientation
Postmaterial Values	Postmaterial Values Index
<b>Control Variable</b>	
Domestic Terrorist Events (lagged)	DTE (lagged)

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## Chapter Three

### Event Count Models and Maximum Likelihood Estimation

Event counts are dependent variables indicating the number of occurrences of a specified event in a fixed domain of either time or space (King, 1988). Consequently, event counts can only assume nonnegative integer values for each of  $n$  observations (King, 1989b). Event counts arise out of situations where underlying processes of interest, owing to their unobservability, are not amenable to measures that reflect their continuous nature. In the absence of appropriate continuous indicators, discrete measures of observable events recorded at the conclusion of equivalent duration observation periods are taken as operational representatives of the underlying process; these discrete measures of observable events are referred to as event counts. For example, annual counts of acts of domestic political terrorism perpetrated against the state in western European countries can be taken as (discrete) proxies, quantified representations of ongoing political power struggles for which there is no readily identifiable measure at the processural (continuous) level. The problem with the standard methodological approaches previously employed to analyze this type of data results from untenable assumptions (King, 1989a). In particular, linear regression assumes that continuous processes generate observations that are similarly continuous, incorrectly in this context. Given this problem, and related vicissitudes, King has developed statistical models for estimating event count data as alternatives to linear regression derived from maximum likelihood and probability distribution theories. This chapter outlines and explicates the development of event count models.

*Ordinary Least Squares Regression, Logarithmic Transformations, and Event Counts*

The genesis of distinctive statistical methods for event counts may be attributed to inefficiencies and inconsistencies realized through the application of inferential statistical techniques designed for continuous, interval level dependent variables. Conceptually, event count generating processes such as domestic political terrorism are consistent with the assumption of continuity. However, the only available operational measures of this process are what Maddala (1988) refers to as "noncategorical discrete variables". That it is inappropriate to apply interval level measures to such variables is axiomatic, for reasons not confined to the subtleties and nuances of statistical theory. The practical consequences of utilizing misspecified methods are manifest as well. Of the methods which assume processural continuity (including bivariate correlations and factor analysis) ordinary least squares (OLS) regression has most commonly been applied to event counts. Accordingly, the requisite critique of such methods begins with reference to their inadequacy.

Immediately problematic is the OLS assumption of relational linearity given by

$$E(y|X) = X\beta = \beta_0 + \beta_1X_1 + \beta_2X_2 + \dots \quad (1)$$

King (1988:845-846) notes that this functional form is implausible: first, because it can result in predicted event counts which are negative and therefore nonsensical;<sup>1</sup> and second, because "it makes the unrealistic assumption that the difference

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<sup>1</sup> Negative fitted values can be forced to zero in "truncated linear models", but King (1988) maintains that this makes unrealistic assumptions at and near the cutoff point.

between zero and one event occurring in a particular time interval is the same as the difference between, say, 20 and 21 events." The most significant problem is that while OLS is an *unbiased* estimator of a *linear* conditional expectation function (King, 1988:846), the conditional expectation function of event count data may not be linear or even approximately linear. If the true relationship is not necessarily linear, employing methods which assume such is unwarranted and unreasonable. Substantively biased conclusions result, producing coefficients with the wrong size and, often, the wrong sign.<sup>2</sup> Ultimately, OLS estimates are very imprecise, rendering empirical analyses inconclusive at best.

Ordinary least squares also suffers from statistical *inefficiency*, particularly because it fails to take heteroskedasticity into account. Heteroskedasticity refers to the situation where the error terms (residuals) do not have a constant variance. In order to address this concern, researchers have often opted to take the natural log of  $y_t$  (the realized number of events) and regress it on the same set of independent variables (also specified as regressing the natural log of  $y$  on  $X$ ). These logged ordinary least squares regression (LOLS) models have merely introduced additional complications, without any attendant benefits or increases in efficacy.

Given that logging  $y$  changes the linear model by discounting large values of  $y$  (King, 1988), this would at least seem to be a more plausible functional form specification. However, the log of zero is not defined, and the conditional expectation of  $\ln(y_i)$ <sup>3</sup> is approximately negative infinity and meaningless in this context (King, 1988). Ad hoc procedures such as adding some arbitrary small constant to  $y_i$  do succeed in constraining finite expected values, but serious bias

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<sup>2</sup> Remember that negative numbers are nonsensical in an event count model.

<sup>3</sup> Given  $X$  and  $y_i \sim \text{Poisson}(\lambda_i)$ .



may still be present. No general procedure exists to avoid biases in LOLS models. Instead, King (1988) introduced an alternative method by deducing an exponential Poisson regression (EPR) model from a Poisson process interpretation of the event count data generation process.

### *The Standard Poisson Distribution*

The starting point for alternative event count models is the basic Poisson distribution. The rationale for using a Poisson distribution is relatively straightforward; because the Poisson distribution models random occurrences of events, it is applicable in a wide variety of theoretical situations, including acts of political terrorism. One need only assume that acts of terrorism are essentially random in order to meet the statistical assumptions of Poisson. The Poisson distribution also exhibits very useful mathematical properties. Because this distribution, like event counts themselves, can only assume the values of non-negative integers (Martin, 1992), it seems well suited to event count estimation. The probability density of the Poisson distribution is given by

$$\Pr(Y_i = y_i) = [\exp(-\lambda_i)](\lambda_i)^{y_i} / y_i! \quad (2)$$

Where  $Y_i$  is the dependent variable of interest (i.e. the "real" value);  
 $y_i$  is the realized value of the random variable; and  
 $\lambda_i$  is the rate of event occurrence.

In its standard form, this is a one-parameter distribution with mean and variance of  $Y_i$  equal to  $\lambda_i$  (Cameron & Trivedi, 1986). Exogenous variables (independent, explanatory variables) are incorporated by specifying the  $\lambda_i$  parameter as

$$\lambda_i = \exp(x_i \beta) \quad (3)$$

where  $\beta$  is the vector of effect coefficient on the vector  $x_i$  of independent variables.

Unfortunately, the practical utility of applying the Poisson distribution is restricted by a series of *a priori* assumptions which seem to be regularly violated in the "real world" context of event counts. The following section introduces the assumptions required of the Poisson distribution, and the concept of a Poisson regression model. Later, revised models are offered as alternatives in those situations where Poisson assumptions do not hold or are untenable.

#### *Event Count Data Generation and a Poisson Regression Model*

Poisson processes are stochastic in nature, modeled on the assumption of *randomness* in the sense that given a short interval of time,  $\Delta t$ , the probability of one additional count (event) is *independent* of past and present numbers of events. The principle of *independence* dictates that within a discrete time period, the probability of an event occurring at time  $t + 1$ , given what has already transpired up to time  $t$ , is independent of all previous and current events. The assumption of independence has been described as follows:

"This assumption basically implies that during the observation period the expected rate of occurrence of the next event either remains constant (and equal to  $\theta$ , or least does not change in response to the number of observed events, and that the random error around  $\theta$  at one instant in time is uncorrelated with the random error at the next point in time." (King, 1988:840).

The data generation for event counts also adheres to the principle of *homogeneity* or *constancy*, which requires the rate of event occurrence,  $\lambda_t$ , to be constant over the entire observation period  $t$ . In the vernacular of estimation theory, the probable or

likely rate of event occurrence should remain constant from one observation period to the next. In order to derive a specific probability distribution, three technical assumptions are also necessary: first, more than one event cannot occur simultaneously; second, zero events have occurred at the start of the period; and third, the duration  $t_i$  of each observation period  $i$  is equivalent. From these principles about the process generating a single event count, a formal probability distribution describing the probability of any number of events occurring is derived; specifically, this data generation process of  $n$  event counts constitutes a Poisson distribution. Thus, the Poisson regression model forms the initial basis for King's alternative event count methodology.

Event count regression models combine standard regression concepts with Poisson process models. Because the unobserved, nonrandom variable of interest,  $\lambda_t$ , is unmeasurable, we assume that the process under analysis within each observation period is characterized by the principles of independence and homogeneity and extract event counts at the end of each period. By making these assumptions, the count of events occurring within observation period  $t$ , designated by  $Y_t$ , may be described by a Poisson distribution with mean  $E(Y_t) = \lambda_t$ . Finally, recalling equation three (3), the underlying continuous process must be specified as a function of measured explanatory variables:

$$E(Y_t) = \lambda_t = \exp(x_t \beta) \quad (4)$$

where  $x_t$  is a vector of  $k$  explanatory variables and  $\beta$  is  $k \times 1$  parameter vector indicating the influence of each explanatory variable on  $\lambda_t$  (King, 1989a: 128). The exponentiated functional form is utilized because  $\lambda_t$  must always be positive; thus, King refers to this as the exponential Poisson regression model (EPR).

### *Probability, Inference, and Likelihood Theory*

Although  $\lambda_t$  represents the intensity of an unobservable process, it is nonetheless possible to estimate  $\beta$ , the effect of the explanatory variables on the dependent variable, by using the technique of maximum likelihood. Maximum likelihood estimation is derived directly from a model of statistical inference referred to more generally as simple likelihood, which is itself conceptually related to traditional probability theory. Probabilities can be summarized in the form of:

$$\Pr(y | M) \equiv \Pr(\text{data} | \text{model}) \quad (5)$$

where  $y$  is the observed or realized data and  $M$  summarizes all of the features of the proposed statistical model (King, 1989c). *Conditional probability* statements such as these, read as "the probability of the data  $y$  given the model  $M$ ", describe the uncertainty of an observed event (the data  $y$ ) given a previously specified set of assumptions about the world (the model  $M$ ). Probability is a model of uncertainty where, once a set of assumptions (the model) is considered to be certain (fixed), the degree of uncertainty regarding any number of hypothetical statements may be assessed.

But while probability is a superior description of absolute uncertainty, it is patently inadequate as a model of inference (King, 1989c). In the probability statement presented in equation five (5), the model is assumed to be known and the data random. The difficulty arises in practice, where social system data already exists and must therefore be treated as given. Consequently, it would be preferable to reverse the original probability statement such that

$$\Pr(M | y) \equiv \Pr(\text{model} | \text{data}) \quad (6)$$

In this *inverse probability* statement, it is the data that are taken as given, and the probability is a measurement of the absolute uncertainty of various hypothetical models (King, 1989c: 16). Unfortunately, as appealing as inverse probability would be theoretically, an appropriate calculus for inverse probability has yet to be derived, and indeed appears to be inherently unmeasurable.<sup>4</sup> Thus, likelihood may be conceptualized as a substitute for inverse probability; it is exceptionally distinct only in that it is a measure of *relative* uncertainty, in contrast to the *absolute* uncertainty that inverse probability would produce. The distinction is critical, however, in that it allows for the uncertainty of various potential models to be evaluated *relative* to one another.

#### *Maximum Likelihood Estimation*

Maximum likelihood estimation is based the concept of a probability distribution in that its calculation is opposite to that used to produce measures of absolute uncertainty, or *probabilities*. Discrete probability distributions permit us to compute the uncertainty involved in the outcome of an experiment concerning, for example, the number of times that a particular number will appear as a result of a given number of rolls of a die. Given some predetermined parameter ( $p = .167$ , except in Las Vegas), the absolute uncertainty associated with any potential outcome, identified as a "probability" ranging in value from zero (0) to one (1), may be derived.

In contrast, inference or estimation presumes a particular experimental outcome (for example, rolling a six on three consecutive turns) and calculates the uncertainty associated with a specified parameter value. So where as the probability

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<sup>4</sup> See King, 1989c, pages 17-21 for a full discussion and proof.

distribution calculation cited above was contingent upon some predetermined parameter (recall  $p = .167$ ), here  $p = ?$ , and the calculation corresponds to the *relative probabilities* of varied values of the parameter  $p$  having produced the actually observed data. Assuming proportionality to the probability distribution  $Pr(y|p)$ , this calculation is defined as the *likelihood function*. Constraining  $y$  to the observed data and substituting hypothetical values for the  $\beta$  parameters causes the value of the likelihood to fluctuate. The *maximum likelihood* function corresponds to those  $\beta$  values having the highest relative likelihood of having generated the observed data.

In order for likelihood to stand as a model of inference, some attenuation of the original  $M$  (*model*) is required. In particular, the original model must be dichotomized.  $M^*$  is the given part of the model.  $\theta$  is the focus of the uncertainty about which an inference is to be made, or the effect parameter (usually the effect  $\beta$  and ancillary  $\alpha$  parameters) and  $\bar{\theta}$  is the hypothetical parameter value. Subsequent to this new specification, the *likelihood* that a proposed model (summarized by the hypothetical parameter value  $\theta$ ) produced the realized data, given  $M^*$ , is denoted by  $L(\theta | y, M^*)$ ; the *likelihood axiom* defines this concept in the following manner:

$$\begin{aligned}
 L(\bar{\theta} | y, M^*) & \equiv L(\bar{\theta} | y) & (7) \\
 & = k(y)Pr(y | \bar{\theta}) \\
 & \propto Pr(y | \bar{\theta})^5
 \end{aligned}$$

where  $M^*$  is suppressed since it appears in all subsequent expressions; and  $k(y)$  is an unknown function of the data that is treated as an unknown positive constant (King, 1989c: 22).

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<sup>5</sup> This third line is just a more convenient way of expressing line two without the constant  $k$ , which remains the same for all possible hypothetical values of  $\theta$  for a given set of observed data, but, because it is a function of  $y$ , changes as  $y$  changes (King, 1989c: 22).

For continuous data, the underlying probability is replaced by a density

$$\begin{aligned} L(\bar{\theta} | y, M^*) & \equiv L(\bar{\theta} | y) \\ & = k(y)f(y | \bar{\theta}) \\ & \propto f(y | \bar{\theta}) \end{aligned} \tag{8}$$

The complete *likelihood function* illustrated in equation (8) is a summary estimator of  $\theta$  which permits the testing of various alternative hypotheses by producing a numeric value ( $L(\bar{\theta} | y)$ ), interpreted as the likelihood of a hypothetical model having generated the data<sup>6</sup> (King, 1989c). In contrast to relatively comparable probability values which range from zero (0) to one (1), however, the range of likelihood estimates is not similarly constrained. Instead, it depends upon the value of  $k$ , which in turn is dependent on the data itself. Any range of outcome values is possible, so that a single likelihood estimate has no absolute referent; alternative model likelihoods are comparable where the calculations are derived from common data. Fortunately, the maximum value of the likelihood function does provide a more natural interpretation, specifying that statistical model with the maximum relative likelihood of having generated the realized data (King, 1989c). Derived directly from the likelihood function, maximum likelihood estimation is a theory of point estimation which, although it occasionally provides inadequate summaries of a comprehensive likelihood function, is a widely utilized comparative method.

Insofar as King's original exponential Poisson regression model addresses the flaws inherent in applying continuous data methods to discrete event counts, it clearly represents an improvement over ordinary least squares and logged

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<sup>6</sup> Given  $M^*$ .

ordinary least squares regression methods. However, the restrictive nature of the attendant assumptions of the basic Poisson model require that further derivation is necessary in order to achieve a more generalized event count model.

*The Event Count Data Generation Process and Stochastic Assumptions Revisited*

King's original EPR model was derived from a stochastic specification of the event count data generation process which assumed *independence* and *homogeneity* (*constancy*). Unfortunately, there are many instances (political terrorism being one of them) in political science where either or both of these assumptions is patently implausible. Several authors, with varying degrees of success, have investigated possible contagion effects of political terrorism, positing that the spread of information and media communication provide potential terrorist groups a variety of ideological predispositions and means (Weimann & Brosius, 1988; Hopple, 1982; Heyman, 1980; Midlarsky, Crenshaw and Yoshida, 1980). It seems at least plausible that successful (in the sense of achieving some level of political power or legitimacy) terrorist campaigns would breed imitation. Contagion of this sort clearly violates the assumption of independence.

In practice, homogeneity may be equally as problematic. Given plethora of structural variables hypothesized as etiological factors in political terrorism, it would appear to be manifestly unrealistic to assume situational or contextual constancy. The mutability and volatility of historical, political, economic and social variables is in and of itself prima facie evidence that the probability of incidence fluctuates over time.

The concern for King's EPR model rests with the fact that the assumptions of independence and homogeneity, as they relate to the unobserved process generating



the observed event counts, have discernibly negative consequences for variance specification. Under the Poisson distribution, the variance of  $Y_i$  is equal to its expected value

$$V(Y_i) = E(Y_i) = \lambda_i \quad (9)$$

However, if the assumptions regarding the underlying event count generating process are invalid then the Poisson distribution does not result, and the subsequent variance will not be equal to the mean (King, 1989b). The Poisson-based regression model will still yield consistent estimates, but the standard errors will be inconsistent and the estimates will be inefficient. Consequently, a more versatile event count model is required, one that is not reliant on the assumptions of independence and homogeneity.

### *Compound Poisson Models*

Initially, the most obvious way to relax the restriction presented by equation (9), is to allow for unexplained randomness in  $\lambda_i$  through the incorporation of a purely stochastic component into equation (3) so that

$$\lambda_i = \exp(x_i \beta) + \varepsilon_i \quad (10)$$

where  $\varepsilon_i$  is the error term, reflecting a specification error such as unobserved omitted exogenous variables or merely inherent randomness (Cameron & Trivedi, 1986). This new stochastic expression, defined as a compound Poisson distribution, is a natural generalization of the basic Poisson models whose precise form depends upon the particular specification of  $\varepsilon_i$ . However, there is an unknown degree of

arbitrariness present here where the parametric form of  $\varepsilon_i$  cannot be deduced from fundamental considerations. Consequently, this compound Poisson solution introduces concerns regarding model misspecification. Rather than representing a definitive response to the issues raised by the basic Poisson model, compound Poisson distributions instead are simply indicative of an appropriate direction.

The essential issue to be resolved concerns how to address the contexts of over- and underdispersion resulting from heterogeneity and dependence without subjecting the model selection process to vagaries of personal choice. A genuinely generalized event count model should permit model specification where the appropriate distribution choice is not a salient concern. In other words, a truly general event count model would allow for over- or underdispersion to be generated by the functional specification of the model itself, as opposed to having to choose from theoretically competing distributions in order to satisfy the stochastic error component. Before examining King's generalized event count model, it is first necessary to introduce the concept of a dispersion parameter, as well as investigate more closely distributional over- and underdispersion.

#### *Preliminaries to a Generalized Event Count Model*

In contrast to equation (9), consider the more generalized variance function

$$V(Y_i) = \lambda_i \sigma^2 \quad (11)$$

where  $\lambda_i > 0$  and  $\sigma^2 > 0$ ;  $\sigma^2$  is called the *dispersion parameter*. For a case of Poisson dispersion, where individual events are independent with homogenous rates of occurrence,  $\sigma^2 = 1$  and  $V(Y_i) = \lambda_i$ ; alternative assumptions result in more varied values for  $\sigma^2$ , which may be greater or less than one (1). For increased semantic

clarity, situations where  $\sigma^2 > 1$  are referred to as *overdispersed*, while instances where  $0 < \sigma^2 < 1$  are said to be *underdispersed*. A *generalized* model in the truest sense should be able to manage adroitly both situations, as well as those where prior explication of the dispersion parameter is inconclusive and therefore unknown.

Generally, *overdispersion* corresponds to the situation where the realization of one event renders the next event more likely to occur; with *underdispersion*, the subsequent event is less likely to occur. The situation where violations of the dependency or constancy assumptions are manifest *between* observation units may be identified by lagging the dependent variable as an independent variable. However, analogous methods of detecting subterranean phenomena operating *within* observation periods are unavailable. In theory, the dispersion parameter functions to illuminate and address this context of within-unit dependence or heterogeneity.

Overdispersion may result where individual units within an observation domain are heterogeneous, causing  $\lambda_i$  to vary more across the individual units. The model for addressing overdispersed event counts resulting from heterogeneous processes involves omitting the constancy assumption for  $\lambda_i$ , assuming rather that  $\lambda_i$  is a random variable. Under the condition of heterogeneity, the construction of a stochastic model instead requires an assumption regarding how  $\lambda_i$  is distributed across observations units within each observation period to be made. That is, the researcher must specify, for example, how the rate of events of political terrorism ( $\lambda_i$ ) is distributed across western European countries (observation units) for each year (observation period). Generally, it is assumed that  $\lambda_i$  follows a gamma distribution, under which the random variable takes only nonnegative real numbers and is assumed to have a mean  $E(\lambda_i) \equiv \Phi_i$  and a variance  $V(\lambda_i) \equiv \sigma^2$ . A new

distribution, called the *negative binomial*, is subsequently derived by combining this new principle (where  $\lambda_i$  follows a gamma distribution) with the three technical assumptions required for the Poisson distribution.<sup>7</sup> Ultimately, the result is a probability distribution with an additional parameter. Modeling for the expected number of event counts

$$E(Y_i) = \lambda_i = \exp(x_i \beta) \quad (12)$$

remains unchanged, but the variance now exceeds the mean since

$$V(Y_i) = \lambda_i \sigma^2 = \exp(x_i \beta) \sigma^2 \quad (13)$$

and  $\sigma^2 > 1$ . This distribution approximates the Poisson distribution as  $\sigma^2$  approaches one. However, increasing *heterogeneity* within each observation results in larger amounts of overdispersion in the counts, evident by values of  $\sigma^2$  that are larger than one.

In contrast to heterogeneity, *contagion* occurs when the expected number events at one time is dependent on the realized number of events at some previous time (King, 1989b:768). Similar to heterogeneity, contagion is an unobserved, within-observation process that also results in overdispersion. But whereas heterogeneity is modeled on a gamma distribution, contagion is modeled on one of two entirely different distributions.<sup>8</sup> Fortunately, a limiting form of both of these distributions is the *negative binomial*, the same distribution derived for heterogeneous event count processes. Consequently, in cases of overdispersion resulting from *either* contagion *or* heterogeneity, a negative binomial maximum

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<sup>7</sup> See page 89.

<sup>8</sup> The contagious Polya-Eggenberger distribution or Neyman's contagious distribution.

likelihood solution will yield efficient and consistent parameter estimates. While the log-likelihood is maximized with respect to  $\beta$  for both the Poisson regression model and the negative binomial maximum likelihood solution,  $\sigma^2$  (the dispersion parameter) is only maximized for the latter.

Situations of *underdispersion*, though far less frequent in the political context, must similarly be addressed. Underdispersed data would most often be generated by *negative contagion* processes. For example, it is possible to conceive of some threshold effect where the occurrence of one more act of political terrorism would make future events less likely. But while the process of negative contagion can result in underdispersed event counts and a binomial probability distribution (as was the case with overdispersion), this approach here has the serious limitation of producing potentially invalid probability distributions.<sup>9</sup> Instead, a new probability distribution, the *continuous parameter binomial*, or *cpb*, (King, 1989b) must be defined in order to resolve this obstacle.

The most salient feature of the *cpb* is that, by definition, the random event count variable is now constrained to a theoretical maximum. Negative contagion is implicitly defined for those situations where the initial events reduce the probability of future events, thus also reducing the maximum number of events that could occur in the period (King, 1989b:771). Maximizing the log-likelihood function for *cpb* provides optimal model estimates for  $\beta$  and  $\sigma^2$  in circumstances of underdispersion caused by negative contagion.

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<sup>9</sup> King (1989b:770) provides an elaborate illustration of this point, which is well beyond the scope of this discussion

### *The Generalized Event Count Model*

Specific usage of any of the models presented above, including the exponential Poisson regression, negative binomial or continuous parameter binomial is clearly contingent upon some *a priori* assumption concerning the type of dispersion present. This was similarly the case for the compound Poisson model. All of these strategies, while situationally effective, introduce another potential source of estimation error. Misspecification of the constituent model may potentially result in inconsistent and inefficient estimates; greater efficacy would be achieved through a probability distribution that allowed for smoother transition between different situations.

In developing a generalized estimator, King (1989b) derives a new probability with the now familiar parameters  $\lambda_i$  and  $\sigma^2$ . Rather than being restricted to a narrow range, however,  $\sigma^2$  may now assume any value greater than zero; depending on the range of the dispersion parameter, special cases of this new distribution are realized. "Thus, when  $0 < \sigma^2 < 1$ , the generalized event count distribution (*gec*) produces the same probabilities as the continuous parameter binomial; when  $\sigma^2 = 1$ , probabilities are the same the Poisson; and, when  $\sigma^2 > 1$ , probabilities are the same as the negative binomial (772)." Consequently, the *gec* model is situationally more flexible and offers increased contextual utility.

Maintaining the standard functional specification

$$E(Y_i) = \lambda_i = \exp(x_i \beta) \quad (14)$$

allows for the formation of a likelihood function that may be maximized with respect to  $\sigma^2$  and  $\beta$  at the same time. The *gec* offers the advantage of eliminating prerequisite choices regarding underlying event count generating process. The

variety of processes previously addressed, including independence, contagion, negative contagion and heterogeneity, as well as other processes, produce particular dispersion patterns. From the realized event counts  $\sigma^2$  is estimated in concert with the effect parameter  $\beta$ . The mathematical derivation of the new probability distribution is well beyond the scope of this discussion. More important is the derivation of the more general maximum likelihood estimator.

Specified by the log-likelihood

$$\ln L(\beta, \sigma^2 | y) = \sum \{C_i - y_i \ln(\sigma^2) + \ln[\exp(x_i \beta) + (\sigma^2 - C)(j - 1)]\} \quad (15)$$

where

$$C_i = \begin{cases} -\exp(x_i \beta) & \text{for } \sigma^2 = 1. \\ -\exp(x_i \beta) \ln(\sigma^2) (\sigma^2 - 1)^{-1} & \text{for } \sigma^2 > 1. \\ -\exp(x_i \beta) \ln(\sigma^2) (\sigma^2 - 1)^{-1} - \ln(D_i) & \text{for } 0 < \sigma^2 < 1. \end{cases}$$

the maximum of this function produces  $\beta$  and  $\sigma^2$  values that have the highest relative likelihood of having generated the realized data.

### *Conclusion*

The genesis of a distinctive event count methodology resides in the recognition that purely continuous methods are inappropriate and inapplicable in this context; while event counts are conceptually continuous, they are quantifiable only as discrete measures. The introduction of the Poisson distribution and its operational relation to event counts reflects the premise that event counts are inherently random phenomena, the occurrence of which is made situationally more or less likely given a set of hypothetical exogenous variables collectively referred to

as a model. By employing maximum likelihood estimation, various aggregate specifications may be examined comparatively in order to sort out relative effects.

The move beyond the normal Poisson model is motivated by the practical realization that its restrictive assumptions regarding homogeneity and independence are routinely violated. But while alternative distributions provide contextually superior models, such methods are perilously contingent upon proper initial specification. This is problematic and potentially arbitrary where theoretical considerations do not suggest an appropriate underlying process. The search for a more generalized event count methodology is, in essence, a search for a methodology not predicated upon individual researcher choice.

Ultimately, the *generalized event count* method produces estimates for  $\beta$  and  $\sigma^2$  that are indistinguishable from results corresponding to the correct choice among the Poisson, continuous parameter binomial or negative binomial models, *without* having to specify an underlying dispersal pattern. Because the range and value of  $\sigma^2$  is estimated rather than assumed, concerns over the potential effects of misspecified models are avoided. Clearly, within the context of event count data, King's *generalized event count* model represents a significant improvement over more traditional estimation methods such as ordinary and logged ordinary least squares regression which have been incorrectly applied in the past. For this reason, the *generalized event count* models will be used in the development of empirical models in Chapter Five.



## Chapter Four

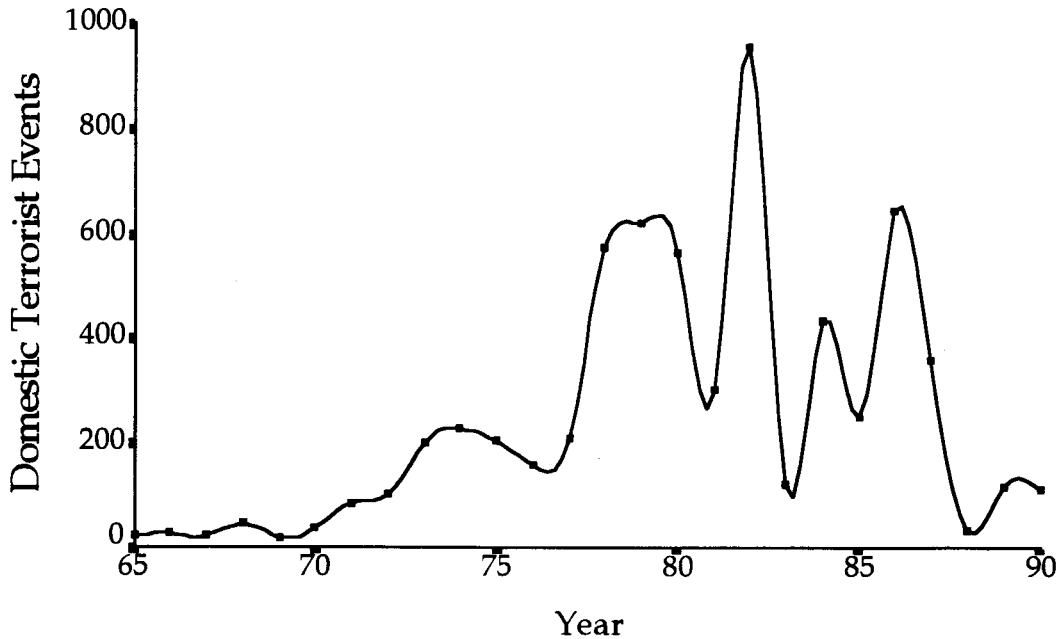
### Domestic Political Terrorism: An Overview of Historical Frequencies

While the concept of systematic terror had its genesis in the late 19th century in the writings of the Russian revolutionaries such as Nechaev and Bakunin (Laqueur, 1977), political terrorism in its current form did not become prevalent until the late 1960s. There is no definitively recognized event that marked the beginning of the contemporary period, although the 12 December 1969 bombing of a bank in Milan, Italy which killed or injured over 100 citizens is perhaps the most notable incident prior to 1970. Another important event in the chronology of terrorism occurred in Spain, where the murder of a chief inspector of the *Brigada Social* in 1968 marked the first execution by the *Euzkadi Ta Azkatasuna* (ETA). Finally, the student movement uprisings in 1968 set the state for the ideological terrorism that would follow in both West Germany and France. The purpose of this chapter is to explore the spatio-temporal context of terrorism in the twelve sample countries between 1965 and 1990.

#### Domestic Terrorist Events Over Time

Chart 1 shows the aggregate levels of domestic terrorist activity for the period in question. Prior to 1971, the level of terrorism was comparatively low, with the number of events never exceeding 50 for that period. Between 1965 and 1967, the vast majority of events (87%) occurred in Italy and may be attributed to the dispute over South Tirol, while many (79%) of the events recorded for 1968 were registered in France, the result of violence separatists from Brittany. In Greece, the "government" established by military coup in 1967 was confronted by oppositional

Chart 1  
Domestic Terrorist Event Frequencies, 1965 - 1990



groups such as the *Greek Democratic Movement*. This democratic resistance accounted for a significant proportion of terrorist incidents in 1969 (62%) as well as 1970 (26%). In the same year, "resistance" of another type was highlighted in Portugal, where an anticolonial group known as *Armed Revolutionary Action* (ARA) claimed responsibility for a series of bombings. The most prominent terrorist activity in 1970, however, were incidents attributed variously to left-wing and right-wing extremist in France (34%).

The number of recorded terrorist events increased dramatically in every year from 1971 to 1974, reflecting troubles on a variety of fronts. While Portugal experienced continuing anti-colonial protest until the overthrow of the civilian dictatorship in 1974, ETA executions began in earnest in Spain. Miscellaneous

Italian left-wing and right-wing terrorism persisted throughout the period. In West Germany, a substantial number of incidents were attributed to the *Rote Armee Fraktion* (Red Army Faction - RAF). The violence of Northern Ireland resulted in sporadic manifestations of Protestant/Catholic terrorism in Ireland and massive increases in *Irish Republic Army* (IRA) activity in the United Kingdom. Finally, in France, Corsican nationalists initiated limited bombings campaigns which would ultimately come to number well over one thousand.

The first decrease in the number of terrorist events in six years came in 1975, and was followed by a similar decline the following year before returning to previous levels in 1977. With the exception of one year in particular, however, the next decade saw unprecedented levels of terrorist violence. From 1978 to 1980, terrorist incidents numbered approximately 600 per year, with well over half the consequence of separatist violence in Brittany and Corsica. The origins of the left-wing extremists *Action Directe* (Direct Action - AD) may be traced back to this time (1979), as may those of the Popular Forces of the 25th of April (FP-25) in Portugal. A substantial proportion of terrorist events early on in this period occurred in Italy, due largely to intensified campaigns of shooting and kidnappings waged by the *Brigade Rosse* (Red Brigades - BR). At the same time, Spanish terrorism levels reached their zenith, the result of escalations in the anti-fascist operations of the First of October Anti-Fascist Resistance Group (GRAPO) in addition to sustained ETA activities. Terrorism also continued unabated in the United Kingdom over this period.

A significant drop in the rate of terrorism was realized in 1981, primarily the result of a truce agreed to by the Corsican Nation Liberation Front (FLNC). Although terrorism levels remained constant in Spain, notable decreases in

operations were recorded in both Italy and the United Kingdom. The cease-fire in France soon failed, however, and despite a further decrease in Italian activities, the largest annual event count was recorded in 1982. Almost 85% of the incidents in this year happened in France, with the majority of those attributable to the FLNC and other Corsican separatists. To further complicate matters, the Revolutionary Cells (RZ) emerged as the most active terrorist group in West Germany with a year long bombing campaign directed primarily at U.S. military targets.

The incidence of terrorism in 1983 was the lowest reported figure in a decade. While only a handful of events were recorded in West Germany, and Italy recorded the first year of zero terrorist operations in this series, the largest part of this drop can be credited to events in France. The FLNC and AD continued their activities, but the intensity of both appeared to subside considerably after the events that transpired during the preceding year. Unfortunately, the West German and French experiences were short-lived, and the number of terrorist events again rose dramatically in 1984. This discernible pattern of consecutive increases and decreases in the rate of terrorism, influence largely by events in France and West Germany, continued until 1988, when the lowest total for any year since 1970 was registered.

As was the case in 1981, a truce with Corsican separatists in France resulted in the substantial decrease in the number of events perpetrated in 1988. Not surprisingly, the truce eventually crumpled, and activities in France continued. At the same time, terrorist acts in West Germany has slowed to only a handful a year (although they had not become any less lethal). In Spain, the ETA maintained the same steady pace it had exhibited since the zenith in 1979, committing approximately 40 terrorist acts annually. The other notable, and particularly

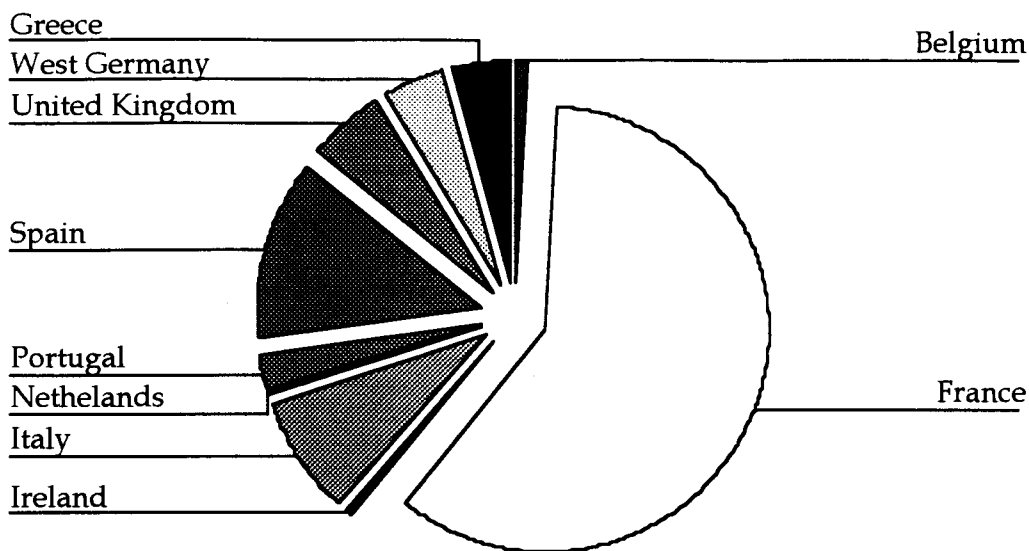
frightening, event recorded during this period occurred in the United Kingdom (1990), where IRA violence appears to be on the upswing.

From the preceding discussion, two general findings are apparent: first, there is remarkable variation in the aggregate number of terrorist events recorded annually in Western Europe; and second, this variability is similarly present at the national level. The remainder of the chapter describes the within-country variance of the dependent variable .

### **Domestic Terrorist Events by Nation**

The country-by-country distribution of aggregate terrorist events during the survey period is illustrated in Chart 2. As was the case with the annual figures, substantial variation is clearly evident. Despite this wide disparity, however, there seem to be "natural" subgroupings which form out of the data. For example, Ireland, Belgium, and Portugal have all experienced *moderately low* levels of terrorism, with annual event counts never exceeding 35 in a given year. In comparison, Greece, West Germany and the United Kingdom show *moderately high* levels of activity; all three of these countries show spikes in the range of 80 to 100 operations. Spain and Italy are classified as countries with a *high* rate of terrorism. Although the upper range of events for these countries is similar to those in the moderately high category, activity in the high countries is far more consistent. There is a unique category for France, which itself accounted for almost 60% of the events in the sample. Consequently, France is assigned to the *very high* category. In addition, there is a category for those countries demonstrating little or no terrorist activity:

**Chart 2**  
**National Distribution of Terrorist Events, 1965 - 1990**



Denmark, Luxembourg and the Netherlands. These nations merit a classification of *low*. The categories are somewhat arbitrary, of course, because they are ordinally defined. Nonetheless, they are utilized in order to provide a comparative perspective.

*Low Level Terrorism: Denmark, Luxembourg, and the Netherlands*

For the period in question, there were no reported incidents of terrorism in Denmark or Luxembourg. These countries are still important, however, because they provide an essential baseline referent. The same may be said of the Netherlands. With the exception of very sporadic activity between 1985 and 1987, the Netherlands was also void of terrorism. The juxtaposition of these three countries with the others allows for more confidence to be placed in the results of

model estimation, because the efficacy of the independent covariates across a wider range of potential situations is implicitly tested.

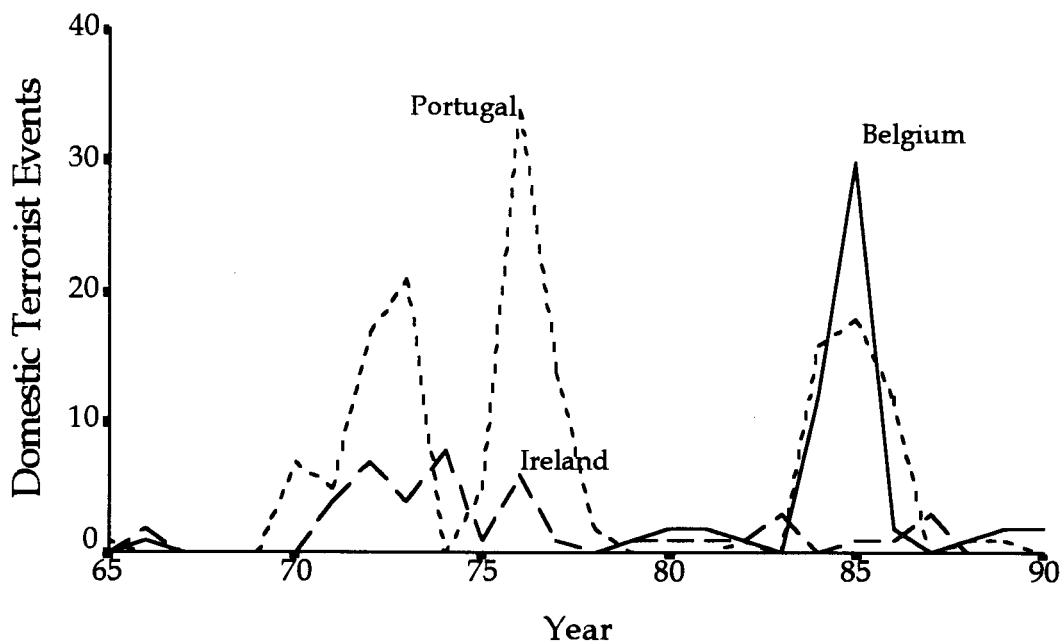
### *Moderately Low Level Terrorism: Belgium, Ireland, and Portugal*

The longitudinal distribution of terrorist events for these countries is provided in Chart 3. The following summaries are designed to highlight the significant elements and characteristics of terrorist activity unique to each nation, in order to better contextualize the dependent variable.

Terrorist violence in *Ireland* is generally attributable to the situation to the north. While the IRA normally confine their operations to either Northern Ireland or Great Britain, some spillover into the Republic is inevitable. In fact, many of the events occur at or near the border with Northern Ireland, often the eruption of tension between the IRA and the British military. On other occasions, the violence is far more serious. On 1 December 1972, 2 people were killed and another 127 were injured when two bombs exploded in the center of Dublin. These events followed by less than a week the bombing of a cinema in Dublin, in which 40 persons were injured. Not coincidentally, the bombs coincided with government debate to amendments to the *Offenses Against the State* bill. Further outrages occurred in May, 1974, when four bombs in Dublin and Monaghan killed 30 and injured over 150 more.

The period between 1974 and 1976 also witnessed the most aggressive campaign of assassination on the part of the IRA. The most notable of these events were the murders of Senator Billy Fox and Christopher Ewart-Biggs, the British ambassador to the Irish Republic, and the attempted assassination of Ian Taylor, an official with Scotland Yard. But the most spectacular incident occurred in 1980,

**Chart 3**  
**Domestic Political Terrorism in Ireland, Belgium and Portugal, 1965 - 1990**



when the Provisional IRA succeeded in killing Earl Mountbatten. As Chart 3 clearly demonstrates, terrorism in Ireland was relatively limited, but consistent until it disappeared in 1988. Although Ireland has experienced IRA-related violence, it has fortunately avoided becoming a central target. After extremely negative public reaction to the bombings in 1974 (see above), the IRA seemed to employ far more selective tactics that minimized the risk to civilians and innocent bystanders. A look ahead to Chart 4 indicates that the IRA may instead be focusing its extraterritorial activities on Great Britain.

In *Belgium*, political terrorism has been much more sporadic than in Ireland. On the other hand, Belgium also experienced a period of terrorist activity greater in intensity than anything experienced by the Irish. Very sporadic incidents began



with the attempted assassination of General Alexander Haig in 1979, but it was not until the emergence of the *Cellules combattantes communistes* (Fighting Communist Cells - CCC) that serious terrorist activity came to Belgium. The spike evident in Chart 3 corresponds to the height of CCC operations, from October, 1984 to the beginning of 1986, when they claimed responsibility for at least 28 events. Described as an ultra-Left organization (Jenkins, 1990), CCC primarily struck NATO installations, as well as European military and financial targets as part of a larger campaign carried out in conjunction with other Leftist groups such as AD and RAF. The CCC campaign effectively ended with arrest of leader Pierre Carette and three associates at Christmas, 1985, and the level of terrorism in Belgium was greatly diminished.

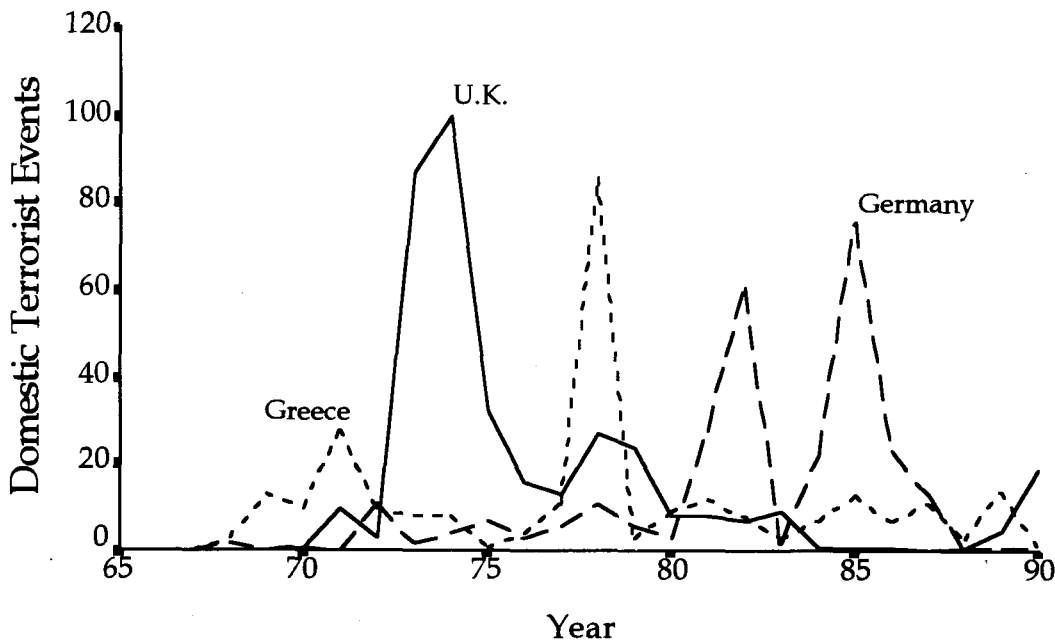
The other startling facet of Belgian terrorism concerns the so-called Barbant massacres. From 1982 to 1985, a group of "mad killers" (according to media accounts) undertook a series of armed robberies which involved excessive violence. Relatively small sums were taken, but many bystanders were indiscriminately murdered. Initially, interpretations of the Barbant incidents were divided. While authorities believed the group were just unusually brutal professional criminals, others asserted that the disproportionate violence indicated some political motive and was actually terrorist in nature. Speculation terminated in 1990 when a parliamentary inquiry confirmed the role of ultra-Rightist elements in the Barbant killings (Jenkins, 1990). The investigation further suggested a widespread plot involving collaboration between law enforcement officials, Right-wing paramilitaries and business leaders, and resulted in the disbanding of *Suret d'Etat*, the national intelligence agency.

The pattern of terrorist violence in *Portugal* is again different. As Chart 3 demonstrates, Portugal witnessed three distinct "waves" of terrorism. The first wave, was attributable at first to anti-colonial organizations and later to the democratic elections which took place in 1974. From 1970 to 1972 terrorism largely consisted of bombs set by groups protesting Portuguese colonial practices, particularly as they related to Africa. Armed Revolutionary Action (ARA) was the most prominent of these group. As this protest concluded, events surrounding the pending elections became the focus of terrorist activity in 1973. Although this too ceased after the bloodless coup on 25 April ended more than 40 years of civilian dictatorship, 1974 provided only a temporary respite; the next wave of terrorism began anew in the following year and continued until 1978. Anti-Leftist, anti-communist sentiment was the defining element of terrorism during this period, with several short-lived, rather inconsequential groups emerging and abruptly vanishing. The final period of terror coincided with the anti-NATO, anti-U.S. campaign being waged across Europe by various Left-wing extremists (see Belgium, above), led in Portugal by the Popular Force of the 25th of April (FP-25). The movement lost momentum and terminated by the end of 1986.

#### *Moderately High Level Terrorism: Greece, United Kingdom, and West Germany*

Terrorist activity in these countries has been considerably more severe, in terms of numbers of events and attendant casualties. What is striking about Chart 4 is the similarity it displays in comparison with Chart 3. Although there is a fundamental distinction based on magnitude and proportionality, the patterns evidenced in Chart 4 are not that unusual. As with the moderately low countries, Greece, the United Kingdom and West Germany also have experienced "waves" or

**Chart 4**  
**Domestic Political Terrorism in Greece, U.K. and West Germany, 1965 - 1990**



"spikes" of elevated intensity. The difference, of course, is the absolute values associated with these exceptional periods.

The origins of political terrorism in *Greece* may be traced to the military coup of 21 April 1967. Until the restoration of civilian rule and free elections in 1974, a number of pro-democracy resistance groups employed terrorist tactics in attempts to destabilize the military junta. None of these groups was singularly enduring, but the resistance movement generally was very persistent. The reinstatement of democracy ended resistance violence, but new sources of violence emerged shortly thereafter. In 1976 and 1977, periodic anti-U.S. bombing campaigns in protest of perceived C.I.A. influence highlighted terrorist operations in Greece. The height of Greek violence would come the following year, however, with the advent of Right-

wing extremism. A group known as the "Group of National Restoration" was particularly active in this regard. But like many of the organizations that preceded it, this group did not endure.

The one group which has demonstrated significant durability in Greece has been the Revolutionary Organization 17 November. In the absence of a single arrest, what little information that is known about the group has been gleaned from communiqués (Corsun, 1991). A violent Marxist/Leninist organization that is doctrinally anti-imperialist and anti-capitalist, 17 November is largely responsible for the trend line which has persisted in Greece even after the cessation of Right-wing violence in the late 1970s. Consistent with their ideology, 17 November has concentrated its attacks on U.S. and NATO objectives. Since their initial appearance with the assassination of U.S. Diplomat Richard Welch in 1975, this organization has also succeeded in murdering U.S. Navy Captain George Tsantes and U.S. Defense Attaché Navy Captain William Nordeen. Greek businessmen have also been targeted, including publisher Nikos Momferatos and steel magnate Demitrios Angelopoulos. In contrast to many of the other Left-wing terrorist groups in Europe, 17 November has actually intensified its activity in the late 1980s and has continued its operations into the 90s.

As was the case with Ireland, the vast majority of terrorism in the *United Kingdom* (specifically Great Britain) is perpetrated by the IRA. Unlike Ireland, IRA involvement in the U.K. has been substantial. Chart 4 reveals that IRA activities have been relatively low in the past decade, only flaring up again recently (1990). In the 1970s, however, the IRA presence was formidable, peaking at nearly 200 incidents in 1973/74. Although the Northern Ireland situation had been going on for some time, the first IRA attack in Britain did not occur until the Aldershot

bombing near London in 1971. The operational intensification in 1973 was apparently precipitated by a referendum aimed at determining whether Northern Ireland would remain part of the United Kingdom or join the Republic of Ireland. It was expected that the Protestants, who outnumbered the Catholic two to one, would preserve Ulster's ties to the U.K.

In contrast to many of the campaigns already examined, the IRA often offers no situational explications of its actions in Britain. Consequently, it is difficult to speculate as to which specific events, if any, may influence IRA operations. Owing in part to the size of the organization and in part to the degree of commitment to the cause, various operations on the part of authorities have been unsuccessful in curtailing IRA activities. It does not appear that the ebb and flow of IRA violence is overly contingent upon or determined by external circumstances. On the contrary, IRA violence seems to have an internal logic and a momentum which greatly complicates attempts at explanation. Conversely, trends in terrorist events in West Germany are generally more amenable to analysis. It is common for ideological groups, such as those which have dominated the landscape of violence in West Germany, to make explicit their operational rationale. In the West German context, this has translated into a wealth of knowledge and make situational postulating far more reasonable.

The first of the contemporary terrorist groups in *West Germany*, the Baader-Meinhof Gang, have taken on almost mythical proportions as one of the first of the ideological terrorist groups to emerge from the student protest movements of the late 1960s. The BMG began their operations on 3 April, 1968 with the bombing of two Frankfurt department stores. Following the liberation of Andreas Baader in 1970, the group changed its name to the Red Army Faction, in deference to the

Japanese group of the same name (Becker, 1981). Although their terrorist campaign was of relatively low intensity throughout the 1970s, the RAF gained notoriety for attacks on prominent persons. The president of Berlin's highest court, Gunter von Drenkmann, was slain in November, 1974. The following year, the RAF committed the first political kidnapping in post-World War II Germany with the abduction of Peter Lorenz, the leader of West Berlin's Christian Democratic Union. The escalation of RAF operations in 1977 saw the murders of chief federal prosecutor Siegfried Buback in April and banker Jurgen Ponto in July, culminating with the kidnapping and eventual execution of industrialist Hans Martin Schleyer in September. Terrorist activity dropped off toward the end of the decade, which saw the arrests, trials, and convictions of numerous RAF members. The decline was only temporary, however, and in the early 1980s saw two different threats emerge.

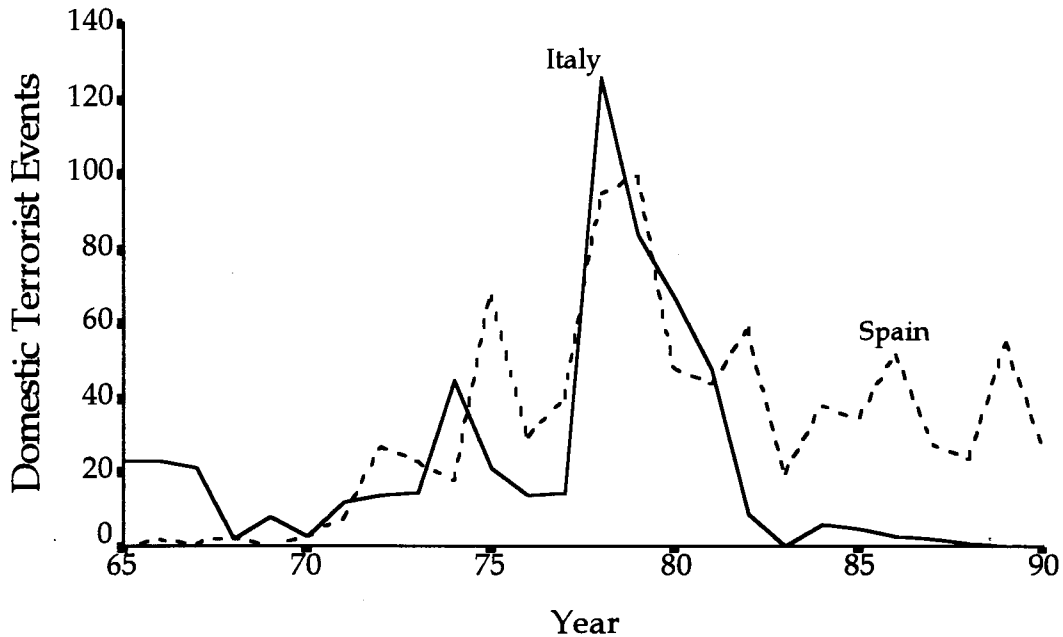
Although the Revolutionary Cells (RZ) came into existence in 1972-1973 (Schiller, 1987), they gained new prominence starting with the 1980 killing of Hans-Herbert Karry, the Minister of Finance for Hesse. Shortly thereafter, a group of former Maoist called Guerilla Diffusa emerged (Horchem, 1982). Together, these groups engaged in the most intense bombing campaigns in West Germany to date. U.S. military targets were predominantly targeted, in apparent protest over American presence in West Germany. A temporary respite in 1983 quickly dissipated the following year, with the level of terrorism beginning to rise again. The climax of this rise coincided with the return to the fore by the RAF, which undertook a massive bombing campaign against U.S. and NATO objectives in 1985. This campaign was part of the same concerted effort by Leftist terrorist groups that was occurring simultaneously in places such as Belgium and France. By the late 1980s, West German authorities had made substantial inroads in combating these

terrorist groups. But while the number of events fell significantly, the RAF seems to again be demonstrating a penchant for specific personal violence. Political aide Hans Tietmeyer was the victim of a shotgun attack in September, 1988, while the chairman of West Germany's largest bank, Alfred Herrhausen, was killed in a bomb blast two months later. Although the attempt on interior ministry state secretary Hans Neusel in 1990 marked the beginning of a long period of RAF operational inactivity, recent events would seem to indicate that their obituary (Pluschinsky, 1991) was somewhat premature.

### *High Level Terrorism: Italy and Spain*

Like West Germany, Italy has historically been plagued with ideological terrorism. Terrorism in Italy, however, is distinguished by its intensity: more groups, more events, and more deaths. As well, West Germany has never seen its top politicians targeted, as was the case in Italy when the Red Brigades kidnapped and later killed then former premier Aldo Moro in 1978. Similarly, Spain experienced the same form of sensational targeting with the assassination of Prime Minister Admiral Carrero Blanco in 1973. But that is where the similarity between Spain and Italy ends. Terrorism in Spain is definitively ethnic nationalist in nature. Outside of the Irish Republican Army, which is engaged in what might be most appropriately referred to as civil war, the ETA are the most lethal such movement in Western Europe. Ethnic nationals may be responsible for more incidents in France, but the ETA account for substantially more person injury and death. The juxtaposition of Italy and Spain provides a most telling picture of the terrorist dynamic as it reaches extreme proportions.

Chart 5  
Domestic Political Terrorism in Italy and Spain, 1965 - 1990



As mentioned earlier, one of the events often cited amongst the origin of contemporary terrorism was the bomb in Milan in 1969. Just as ethnic violence concern South Tirol was finally concluding, ideological terrorism was arriving in *Italy*. Like West Germany, terrorism grew out of student movements of late 1960s. But Italy underwent far more widespread and dramatic social upheaval, with riots, strikes, etc. Despite the social chaos that seemed to be everywhere, terrorism was initially confined to the conflict between Left and Right extremists. *Red* and *Black* terror, as it came to be known, was not directed against authorities until the state was forced to intervene. It was not until the appearance of the Red Brigades (BR) in 1974 terrorism became "institutionalized" in the practice of Italian politics.



The first recorded BR operation involved the kidnapping of Genoa's deputy public prosecutor 18 April 1974 and set off a wave of kidnappings that also included actions by the neo-fascist Black Order and Armed Proletarian Units (NAP). The pattern of operations continued through 1976, with members of the legal system (judges, prosecutors and police officers) the primary targets. In the most notable cases Judge Guiseppe Di Gennaro was kidnapped by NAP 6 May 1975, while Francesco Coco, the state prosecutor for Genoa, was killed by BR 8 June 1976. One month later, the death of Rome state prosecutor Vittorio Occorsio signaled the emergence of the neo-fascist *Ordine Nuovo* (New Order).

The height of terrorism in Italy came in March, 1978 when former premier Aldo Moro was kidnapped and eventually killed by BR. The year saw unprecedented violence against the police, court officials and businessmen. The wave of arrests in 1979-80 that resulted from the ensuing crackdown slowed down the incidence of terrorism, but the fatal shooting of Alfredo Albanese, head of antiterrorism for the Venice region cast doubt over speculation that the wave of arrests had destroyed the organization. Later in 1980, the ultraleft Front Line was also decimated by mass arrests that culminated with arrest of their leader in October. Following its initial appearance in 1977, Front Line had "picked up the slack" in the late 1970s while BR was involved in internal turmoil over philosophical direction.

A major blow was struck with the 4 April 1981 arrest of Mario Moretti, believed to be one of the leaders of BR. But the beginning of the end came at end of 1981 (17 December), with the kidnapping of U.S. Brig. Gen. James L. Dozier. Early in 1982 (28 January), the largest police effort in Italian history resulted in the liberation of Dozier. Subsequent arrests and the crackdown that followed in the next

few days (and continued throughout the year) all but destroyed the group. And although BR has not been completely eliminated, its operations since have only been sporadic. Similarly, spin-off groups spawned by BR, such as Italy's Fighting Communist Party, have never been able to reach the stature of their predecessor.

In contrast to Italy, the situation in *Spain* is far more straightforward. Spain experienced the same student unrest as Italy and West Germany, but their major terrorist group did not emerge from these social protests. Rather, the ETA (Basque Nation and Liberty), appeared in 1960, an ethnic nationalist group committed to securing an independent Basque state. Originally, the main activity of the ETA was to reawaken and promote the spirit of Basque nationalism. The slaying of Meliton Manzanas, the chief of the provincial police in Guipuzcoa on 5 August 1968 marked the beginning of the initial phase of ETA terrorism. The main targets of the ETA, according to the group itself, have been the "financial capitalist oligarchy" and the security forces, particularly the *Guardia Civil* (Pollack and Hunter, 1988). The first stage of ETA terrorism lasted until 1974, when the ETA divided into *ETA-Politico-Militar* (Political-Military) and *ETA-Militar* (Military). Through this separation, the stage was set for ETA-M, the more extremist, nationalist faction, to act autonomously from ETA-PM, the less extremist, ideological faction.

The second phase of ETA violence was precipitated by the death of General Franco. While the transition to democracy was relatively smooth for the legitimate political system, the ETA-M increased massively their scale of operations, their so-called "spiral of conflict". The apex of terrorism came in 1978-79, when a particularly vicious campaign against the *Guardia Civil* was exacerbated by the emergence of the anti-fascist First of October Anti-Fascist Resistance Group (GRAPO). The crescendo of violence prompted a renewed sense of urgency on the part of Spanish

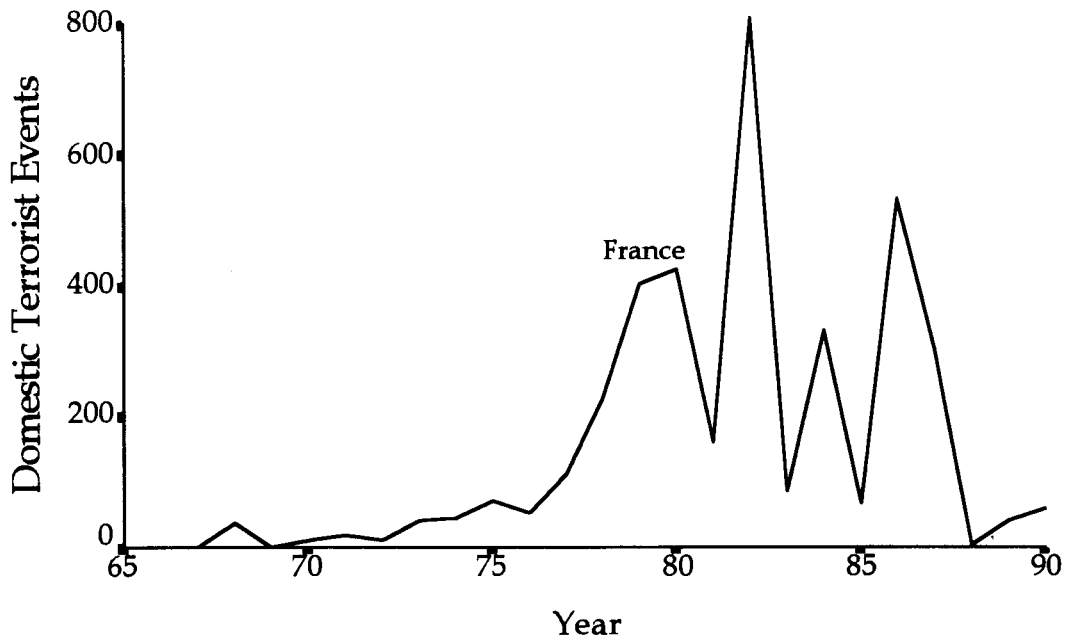
authorities. The second wave of terrorism concluded with massive crackdowns which resulted in numerous arrests and convictions, and at least marginally impaired ETA-M activities.

The third phase of ETA terrorism has been characterized by a steady level of operations that have been considerably less intense than those of the late 1970s. Like the IRA in the U.K., ETA operations do not appear to respond significantly to external influences. Authorities have been partially successful in keeping incidence down, and have made serious attempts to address some of the grievances cited by the ETA. But despite these efforts, ETA activity remains one of the most potent threats in Western Europe.

#### *Very High Level Terrorism: France*

From the earlier discussion of terrorism across years, it is obvious that *France* has suffered the worst of both worlds in the context of terrorism. No other country has had to deal with the combination of ethnic national and ideological terrorism on the same scale as the French. The earlier discussion of terrorism over time also demonstrated the dominating overall influence of the large number of events in France. Because of this strong longitudinal impact, the situation in France has already been discussed thoroughly. In particular, the contributions of Breton and Corsican nationals and *Action Directe*, the most important groups in France, have already been addressed. In order to avoid redundancy, the pattern of terrorism in France will not be reproduced here. Instead, the reader is urged to reexamine the first part of this chapter for the details of French terrorism.

Chart 6  
Domestic Political Terrorism in France, 1965 - 1990



### Conclusion

The most striking aspect of political terrorism, both over time and within countries, is its considerable variance. The countries of Western Europe run the gamut, from Denmark and Luxembourg, which have remained untouched by domestic terrorism, to France, which has experienced thousands of incidents. In countries such as Spain and the United Kingdom, ethnic nationalism is the primary motivator, while Italy and West Germany have suffered more from ideologically-based movements. Although some terrorist campaigns have been concerted efforts, such as the 1985 anti-U.S., anti-NATO bombings in France, Portugal, West Germany and Belgium, the dynamic of political terrorism is generally *appears* to be fairly unique from nation to nation. The challenge of the next chapter will be to

derive empirical models that can adequately explain the historical trends which have been identified here.

## Chapter Five

### Bivariate Relationships, Hypothesis Testing, and Empirical Model Development

Prior to developing a empirical model, it is first necessary to examine the statistical behavior of the individual covariates in relation to the dependent variable. The phrase "bivariate relationships" refers to the singular association between a given independent variable and the dependent variable of political terrorism. Although the interaction of causal variables in the process of model building causes the nature of relationships to change, the statistical significance of the bivariate relationships serves as a good indication of the potential viability of each of the covariates relative to one another. All other things being equal, bivariate relationships serve as the initial test of the hypotheses postulated in Chapter Two.

Bivariate relationships are derived in the same manner as larger theoretical models using *Count*. The only difference is that bivariate relationships are estimated using only one covariate at a time. The dependent variable remains the same in both instances. The statistical significance of a bivariate relationship is indicated by its "t-value". The t-value is computed by dividing the estimated coefficient of the parameter by its standard error. Using a two-tailed test, an absolute t-value of greater than 1.96 is necessary to achieve a significance level of  $\alpha = 0.05$ . All of the results presented herein therefore use  $|t| > 1.96$  as the standard level of significance.

For this chapter, two sets of bivariate relationships have been computed. The first set, presented in Table 3, represents the bivariate relationships for all cases, while the second set, shown in Table 5, is restricted to those cases and covariates corresponding to democracies only. Similarly, Tables 4 and 6 summarize the results

of the two models respectively. The statistical significance of the Democracy covariate illustrated in Table 3 would seem to indicate that there might be discernible differences between these two political contexts, and that establishing separate analytic frameworks is the most appropriate course of action. This convention will also be adhered to in the development of the empirical models.

## **Bivariate Results and Hypothesis Testing**

### *All Cases Model*

From Table 3 it is evident that the vast majority of the bivariate relationships in the *All Cases Model* (ACM) are statistically significant. Only Ethnolinguistic Fragmentation and Immigration have t-values less than 1.96, the latter falling short by only the slightest of margins. As well, with one very notable exception, the direction of the relationships (positive or negative sign) correspond with the posited hypotheses. The issue of significance will be addressed first, with hypothesis testing to follow.

The significance of the lagged measure of domestic terrorist events suggests that the phenomenon of terrorism displays considerable dependence across years. This may indicate that previous levels of terrorism are important determinants of current levels; alternatively, the relationship may actually be spurious, a proxy measure that may be accounted for by some other, more legitimate, causal variable. This issue will be explored further in Chapter Six. For now, it is simply important to note that there is evidence of significant serial correlation.

**Table 3**  
**Bivariate Relationships with Domestic Terrorist Events**  
**All Cases**

	Maximum Likelihood Coefficient		T-Value	Number of Cases
Domestic Terrorist Events (lagged)	0.0040	(0.0007)	5.67	312
<i>Social Structural</i>				
Ethnolinguistic Fragmentation Index	0.3829	(0.3805)	1.01	312
Religious Fragmentation Index	0.2784	(0.1351)	2.06	312
Immigration Rate	0.2749	(0.1435)	1.92	260
<i>Economic Structure</i>				
Gross Domestic Product (lagged)	-0.0627	(0.0181)	-3.46	312
Consumer Price Index (lagged)	0.0547	(0.0085)	6.44	312
Unemployment Rate	0.0548	(0.0125)	4.38	278
<i>Political Structure</i>				
Democracy	-0.3930	(0.1079)	-3.64	312
<i>Political Culture</i>				
Life Satisfaction	-1.0039	(0.1383)	-7.26	312
Interpersonal Trust	-1.2435	(0.3694)	-3.37	312
Social Change	2.9038	(0.2468)	11.77	312
Left/Right Orientation	-0.7628	(0.1043)	-7.31	312

*Note: Standard errors are in parentheses.*

Not surprisingly, the covariate measuring attitudes toward Social Change demonstrates the most significant bivariate relationship. Social Change is the most direct of all of the independent variables in the ACM, the only covariate to explicitly tap attitudes toward the existing social order. That the political culture covariates



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**Table 4**  
**Summary of Hypotheses for All Cases**

	Hypothesized Direction of Relationship	Confirmation
<i>Social Structural</i>		
Ethnolinguistic Fragmentation Index	Positive	✓
Religious Fragmentation Index	Positive	✓
Immigration Rate	Positive	✓
<i>Economic Structure</i>		
Gross Domestic Product (lagged)	Negative	✓
Consumer Price Index (lagged)	Positive	✓
Unemployment Rate	Positive	✓
<i>Political Structure</i>		
Democracy	Positive	x
<i>Political Culture</i>		
Life Satisfaction	Negative	✓
Interpersonal Trust	Negative	✓
Social Change	Positive	✓
Left/Right Orientation	Negative	✓

---

tap attitudes toward the existing social order. That the political culture covariates are, as a group, the most statistically significant accords with the theoretical premises of this thesis. In discussing political culture earlier, it was postulated that political culture represented the essential conduit between structural antecedents and facilitative attitudes and behaviors. The overall strength of political culture variables would seem to support this proposition, at least in principle.

As mentioned earlier, Table 4 indicates that only one hypothesized relationship is not confirmed for the ACM. Interestingly, the sign corresponding to

the Democracy covariate is negative, suggesting that there is an inverse relationship between democracy and terrorism. But while this finding is contrary to much of the theoretical literature on terrorism, it is still reasonable. It is conceivable that the oppressive nature of non-democratic regimes, which was assumed to preclude all forms of political dissent, is not enough to discourage potential terrorism. It should also be noted, however, that the number of non-democratic cases is comparatively small (28 cases from three countries), and that the standard warnings concerning the potential dangers inherent in basing conclusions on such a limited comparison group are warranted here. A much larger sampling of nondemocratic data points would clearly be required before any less equivocal statements could be advanced.

Given that the remainder of the covariates are theoretically consistent (that is, in the same direction as previously hypothesized) and that most of the covariates are statistically significant, the prospects for successful model development appear to be quite promising in the ACM context. The following section explores whether the same may be said of the democracies only situation.

#### *Democracies Only Model*

Because the *Democracies Only Model (DOM)* contains only 28 fewer cases than the full model, one would expect the results portrayed in Table 5 to closely resemble those from Table 3. And in fact, this is the case. Many of the *DOM* variables have significant t-values, and the direction of all of the covariates agree with the earlier hypotheses. There are some interesting differences too, again offering some credence to the view that the distinction between democracies and non-democracies may be important for terrorism. In light of the unanimous concurrence regarding

**Table 5**  
**Bivariate Relationships with Domestic Terrorist Events**  
**Democracies Only**

	Maximum Likelihood Coefficient	T-Value	Number of Cases
Domestic Terrorist Events (lagged)	0.0040 (0.0007)	5.68	284
<i>Social Structural</i>			
Ethnolinguistic Fragmentation Index	0.2137 (0.0320)	6.68	284
Religious Fragmentation Index	0.4994 (0.2171)	2.30	284
Immigration Rate	0.2070 (0.1542)	1.34	242
<i>Economic Structure</i>			
Gross Domestic Product (lagged)	-0.0882 (0.0344)	-2.56	284
Consumer Price Index (lagged)	0.0573 (0.0082)	6.99	284
Unemployment Rate	0.0621 (0.0142)	4.37	262
<i>Political Structure</i>			
Turnout	-0.0502 (0.0137)	-3.66	284
Party System Fragmentation	-0.3608 (0.0766)	-4.71	281
Anti-System Party Support	0.0305 (0.0043)	7.09	284
Government Durability	-0.0308 (0.7703)	-0.04	272
<i>Political Culture</i>			
Life Satisfaction	-1.7517 (1.4801)	-1.18	284
Interpersonal Trust	-1.4116 (0.0908)	-15.55	284
Social Change	3.3689 (0.4071)	8.28	284
Left/Right Orientation	-0.8709 (0.1185)	-7.35	284
Democracy Satisfaction	-1.1480 (0.0827)	-13.88	284
Political Mobilization Index	-0.2388 (0.4767)	-0.50	284
Postmaterial Values Index	0.0467 (0.2584)	0.18	284

*Note: Standard errors are in parentheses.*

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**Table 6**  
**Summary of Hypotheses for Democracies Only**

	Hypothesized Direction of Relationship	Confirmation
<i>Social Structural</i>		
Ethnolinguistic Fragmentation Index	Positive	✓
Religious Fragmentation Index	Positive	✓
Immigration Rate	Positive	✓
<i>Economic Structure</i>		
Gross Domestic Product (lagged)	Negative	✓
Consumer Price Index (lagged)	Positive	✓
Unemployment Rate	Positive	✓
<i>Political Structure</i>		
Turnout	Negative	✓
Party System Fragmentation	Negative	✓
Anti-System Party Support	Positive	✓
Government Durability	Negative	✓
<i>Political Culture</i>		
Life Satisfaction	Negative	✓
Interpersonal Trust	Negative	✓
Social Change	Positive	✓
Left/Right Orientation	Negative	✓
Democracy Satisfaction	Negative	✓
Political Mobilization Index	Negative	✓
Postmaterial Values Index	Positive	✓

---

the covariate directions and the hypotheses (Table 6), the focus here will be on significance.

The change in models from all cases to democracies only had a negligible effect on the lagged measure of domestic terrorist events: its t-value stayed virtually the same. Again, there is serial correlation here which has to be addressed. The other covariates which demonstrated impressive consistency across contexts were the economic indicators. In comparison to the economic variables, some of the covariates were far less stable.

It is evident in Table 5 that Life Satisfaction has changed dramatically, such that its t-value is no longer significant. This indicates that the dynamic between Life Satisfaction and political terrorism is very different for democracies and non-democracies. Given that people are apt to more satisfied generally under democratic rule, the fact that the direct influence of Life Satisfaction is less of an issue in the democratic context is not unexpected. Roughly the same rationale accounts for the shift in Social Change. Attitudes favorable to or supportive of extreme social change are likely to be more prevalent in non-democracies, where the prospects for legitimate social change are much more restricted. In contrast, explaining the transposition of Ethnolinguistic Fragmentation is more difficult. There is no compelling theoretical reason to explain why Ethnolinguistic Fragmentation suddenly becomes so significant when non-democratic cases are removed. Because this variable exhibits more apparently bizarre behavior during model development, it will be examined more closely later.

Another variable whose role has become more significant in the *DOM* is Interpersonal Trust. Trust is an important prerequisite in the development of political participation, in that it facilitates discussion, involvement and especially organization. Logically, its impact is bound to be greater where legitimate political

participation is permitted. So while Trust is significant in the ACM, it is far more important in democracies.

Table 5 also shows the t-values for seven variables that are only available in the context of democracies. Of the three new attitudinal covariates, only Political Satisfaction is significant. Neither Political Mobilization nor Postmaterial Values fared particularly well. Conversely, the political structural variables introduced for democracies produced considerably better results. Only the measure of government durability failed to achieve significance. The positive results demonstrated by the remaining political structure covariates, in conjunction with the overwhelming magnitude of Political Satisfaction would seem to at least partially confirm the importance of political variables in the etiology of terrorism.

As was the case with the All Cases Model, the prospects for successful model development in the Democracies Only Model appear to be promising. All of the covariates are theoretically consistent with their hypothesized relationships, and there are significant bivariate results for all four of the subcategories. The remainder of the chapter attempts to develop these significant bivariate relationships into multivariate models.

## **Model Development**

Owing to the near total dearth of empirically directed theory in the literature on terrorism, it was necessary to develop an appropriate methodological approach prior to proceeding with the *Count* analysis. While maximum likelihood is a powerful estimation technique in the context of event count data, it is not very amenable to "brute force" tactics in practice. Specifically, *Count* was found to be far

less effective when all of the covariates were "dumped" into a model simultaneously. As a result, it was decided that estimation would begin with models that included only those covariates demonstrating significant bivariate relationships. Because the interrelationship of variables in the process of model building can significantly alter how a variable performs, however, those variables that are not included or fall out during estimation will be retested as the model changes. This method should produce relatively efficient model estimations. The development of models is done in two parts. In keeping with the established practice, model development and estimation are carried out separately for both the All Cases and Democracies Only Models.

### *Methodology and Results*

The methodology relied upon to develop the empirical models is a iterative stepwise elimination approach. Initially, all of the variables with significant t-values (remember for  $\alpha = .05$ ,  $|t| > 1.96$ ) are estimated together in a model. At the conclusion of each run, the covariate with the lowest t-value is removed from the model. Variables with insignificant t-values are excluded because they are not contributing to the overall log-likelihood of the model. The model is then re-estimated. The procedure continues until all of the variables remaining in the model are significant. This model is referenced as the *Preliminary Model* (as in "preliminary" to the final model).

After derivation of the *Preliminary Model*, the variables which were not originally included (i.e. - those which were not significant) are introduced one at a time. Any variables that enter into this stage significantly on their own are then estimated together with the core variables from the *Preliminary Model*. The resultant

model is then subjected to the iterative stepwise elimination procedure, again until all of the remaining parameters are significant. This process of revision continues until all of the parameters in the model are significant, and none of the remaining covariates can enter into the model significantly. The final product is referred to, rather unimaginatively, as the *Final Model*.

---

**Table 7**  
**Generalized Event Count Regression Model**  
**Initial Model - All Cases**

Parameter	Estimate	S.E.	T-Value
beta0	2.1274	0.0165	128.66
Consumer Price Index (lagged)	0.0229	0.0075	3.04
Democracy	-0.6008	0.1054	-5.70
Domestic Terrorist Events (lagged)	0.0028	0.0006	4.38
<b>Gross Domestic Product (lagged)</b>	<b>-0.0343</b>	<b>0.0466</b>	<b>-0.73</b>
Unemployment Rate	0.0584	0.0112	5.23
Left/Right Orientation	-0.6405	0.0432	-14.81
Life Satisfaction	-1.4845	0.0712	-20.84
Religious Fragmentation Index	1.6168	0.0443	36.48
Social Change	1.3070	0.0693	18.86
Interpersonal Trust	0.8850	0.0656	13.49
gamma0	4.3644	0.1409	30.97

Model Log-Likelihood = 24361.00  
Number of Cases = 278

---



An initial model relevant for All Cases was constructed using the significant t-values from Table 3 as a referent. This initial model is reproduced in Table 7. The first and last parameters, which are designated beta0 and gamma0, are produced by the *Count* program. The first, beta0, is the parameter estimate for the intercept. The second parameter, gamma0, corresponds to the dispersion parameter discussed in Chapter Three. With this data set, gamma0 indicated that the *Generalized Event Count* procedure was correcting for overdispersion.

---

**Table 8**  
**Generalized Event Count Regression Model**  
**Preliminary Model - All Cases**

Parameter	Estimate	S.E.	T-Value
beta0	1.9405	0.0261	74.46
Consumer Price Index (lagged)	0.0290	0.0133	2.18
Democracy	-0.6970	0.0812	-8.58
Domestic Terrorist Events (lagged)	0.0029	0.0007	4.44
Unemployment Rate	0.0548	0.0184	2.98
Left/Right Orientation	-0.5348	0.0611	-8.75
Life Satisfaction	-1.1413	0.0689	-16.55
Religious Fragmentation Index	1.3965	0.0687	20.33
Social Change	0.6042	0.0655	9.22
gamma0	4.3971	0.1497	29.36

Model Log-Likelihood = 24357.86  
Number of Cases = 278

---

In this initial model, the GDP (lagged) variable had the lowest absolute t-value (0.73), and was therefore the first covariate to be discarded. Stepwise elimination continued until a model with eight variables remained. This is the *Preliminary Model*, as shown in Table 8. Notice that all of the variables are significant, as required by the methodology articulated above. Having reduced the initial model down to its significant elements, it was then necessary to introduce Ethnolinguistic Fragmentation and Immigration (which were not included initially because they were not significant) into the *Preliminary Model* individually.

---

**Table 9**  
**Generalized Event Count Regression Model**  
**Final Model - All Cases**

Parameter	Estimate	S.E.	T-Value
beta0	-7.0169	0.9754	-7.19
Consumer Price Index (lagged)	0.0723	0.0149	4.85
Ethnolinguistic Fragmentation Index	1.5956	0.6195	2.57
Immigration Rate	0.4899	0.1231	3.97
Unemployment Rate	0.0969	0.0188	5.15
Life Satisfaction	-3.3494	0.3489	-9.59
Religious Fragmentation Index	3.2850	0.5981	5.49
gamma0	4.3136	0.2235	19.29

Model Log-Likelihood = 24236.49  
Number of Cases = 235

---

Both Immigration and Ethnolinguistic Fragmentation entered into the *Preliminary Model*, which consequently consisted of ten independent variables. The least significant variable was removed, and iterative stepwise elimination continued again until only significant variables remained. As subsequent estimations revealed that no other covariates could significantly enter into this stage, this became the *Final Model*. This *Final Model* is detailed in Table 9. The results of this model, and the final model produced for the Democracies Only context, are discussed later in this chapter.

Given the potential for including political structural and political attitudinal covariates, the Democracies Only Model is by far the more interesting of the two. With the addition of seven new variables, it is also necessarily more complicated. Because the All Cases Model served as a practical example, the discussion here will be more brief. Elaboration will occur only where the *DOM* presented new challenges. The formulation of an empirical model for Democracies Only similarly began with estimating all of the significant covariates from Table 5 together in a single model. Stepwise elimination of variables with insignificant t-values proceeded until nine independent variables remained. This *Preliminary Model* is illustrated in Table 10.

The development of the *ACM* aptly demonstrated that variables producing insignificant bivariate relationships may still enter into the modeling process. Both Immigration and Ethnolinguistic Fragmentation were part of the final model for All Cases, even though initial indications suggested that they would not be factors in model development. In light of this finding, this same procedure of introducing the insignificant covariates was duplicated with the *DOM*. The following covariates each entered significantly: Immigration, Life Satisfaction, Government Durability

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**Table 10**  
**Generalized Event Count Regression Model**  
**Preliminary Model - Democracies Only**

Parameter	Estimate	S.E.	T-Value
beta0	4.1779	0.0237	176.63
Anti-System Party Support	0.0235	0.0050	4.69
Consumer Price Index (lagged)	0.0844	0.0086	9.84
Ethnolinguistic Fragmentation Index	3.6479	0.0457	79.87
Unemployment Rate	0.0583	0.0113	5.16
Left/ Right Orientation	-0.3353	0.0787	-4.26
Party System Fragmentation	-0.3533	0.0844	-4.18
Religious Fragmentation Index	2.9468	0.0596	49.45
Turnout	-0.0289	0.0074	-3.92
Interpersonal Trust	-0.5204	0.0751	-6.93
gamma0	4.2991	0.1588	27.07

Model Log-Likelihood = 23430.59  
Number of Cases = 259

---

and Political Mobilization. Again, the stepwise elimination procedure was run for the full set of variables.

Based on the previous results, methodological consistency dictated that the stepwise elimination and reintroduction test approach be repeated until no further variables could enter into the model. Further testing introduced one final variable: Postmaterial Values. Thus, the true *Final Model* is comprised of seven independent parameters, as illustrated in Table 11. Subsequent assessments of this model

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**Table 11**  
**Generalized Event Count Regression Model**  
**Final Model - Democracies Only**

Parameter	Estimate	S.E.	T-Value
beta0	-17.2662	1.5764	-10.95
Consumer Price Index (lagged)	0.0756	0.0129	5.85
Immigration Rate	0.4285	0.1169	3.66
Unemployment Rate	0.0576	0.0242	2.37
Life Satisfaction	-3.9739	0.3434	-11.57
Political Mobilization Index	-1.0409	0.1519	-6.85
Religious Fragmentation Index	3.1309	0.5779	5.41
Postmaterial Values Index	0.9490	0.4615	2.05
gamma0	4.1904	0.2178	19.23

Model Log-Likelihood = 23750.54  
Number of Cases = 220

---

revealed that none of the remaining covariates were capable of entering into this model, so the iterative process was complete.

### Discussion

Although much more extensive testing will be undertaken in the following chapter, the *Final Models* estimated for both All Cases and Democracies Only are encouraging for several reasons. First, in both *Final Models*, the control variable DTE (lagged) dropped out of the analysis. The elimination of the dependency across years indicates, at the very least, that the final parameters contained in the models

are sufficient to account for the serial correlation that appeared to characterize the dependent variable. Second, the *Final Models* for both contexts are very similar, which is to be expected given that democracies provide most of the cases. Furthermore, where they differ is primarily the result of the introduction of specific political covariates for Democracies Only. Finally, the covariates remaining in the *Final Models* are both theoretically and statistically consistent. There are identifiable reasons why some variables failed to survive. While the serial correlation issue will be dealt with in the following chapter, the issues of comparability and consistency comprise the rest of the present chapter.

Perhaps the most striking aspect of the *Final Models* is the fact that some covariates with very strong bivariate relationships did not survive, while other covariates with relatively weak bivariate relationships remained through to the end. More generally, the question of interest is why some variables survived while others did not. Two fundamental premises guide the discussion here. First, those variables which contribute significantly on their own are likely to be included in the final model. More precisely, those variables which contribute to the overall explanation of terrorism in a way that cannot be accounted for by any other variable will probably survive. Second, efficiency dictates that where a group of variables is accounting for the same behavior, there will be one variable that best summarizes the whole group. This is where the theoretical context is essential. Using correlation matrices and principal component factor analysis informed by a consistent theoretical framework, this discussion will provide evidence that there is a consistent logic to the construction of empirical models, and that there are specific reasons which account for the inclusion of some variables and the elimination of others.

Generally speaking, variables related to terrorism contribute uniquely to its explanation to the extent that they are relatively uncorrelated with any other parameter. Generally speaking, "uncorrelated" here refers to Pearson Correlation Coefficient less than 0.50. Three parameters with no correlations above 0.50, CPI (lagged), Unemployment (rate), and Immigration Rate, remained until the final model. In particular, this explains why Immigration Rate survived even though it had a weak bivariate relationship: it had something unique to contribute to the model. Immigration accounts for a part of the overall explanation that is not accounted for by any of the other variables.

One parameter, GDP (lagged), is more of a special case. Although it also is not significantly correlated with any other variable, further examination shows that GDP is most closely related to CPI (-0.31) and Unemployment Rate (-0.41). In fact, all other correlations with GDP are less than 0.30. A statistical explanation for the failure of GDP might suggest that any explanatory power it had to offer had been subsumed by the other two economic covariates. It appears that, between the two of them, CPI and Unemployment provide for all of the variance accounted for by economic factors, and that GDP is redundant. GDP did have the lowest t-value of the three economic indicators. A theoretical explanation might contend that GDP was eliminated because of its overly-broad nature. It is the least perceptible of the economic measures, and while it was significant on its own, it may be suppressed by more immediately apparent concerns such as prices and jobs.

The factor analytic solution of the *Final Model* for All Cases presented in Table 12 also helps to illustrate this point. The table shows GDP (lagged) loading on two factors, 3 and 5. Not coincidentally, Unemployment and Consumer Price Index similarly load on factors 3 and 5 respectively. These findings support the position

**Table 12**  
**Factor Matrix for Final Model - All Cases**

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	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Interpersonal Trust	.8828				
Left/Right Orientation	.8224				
Life Satisfaction	.6104		.5099		
Social Change	-.5280	.7079			
Ethnolinguistic Fragmentation		.9083			
Religious Fragmentation		-.7582			
Democracy			.7125		
Gross Domestic Product (lagged)			-.6951		.5242
Unemployment (rate)			.6546		
Immigration Rate				.8569	
Domestic Terrorist Events (lagged)				.7321	
Consumer Price Index (lagged)					-.8838

---

that GDP is being "covered" by the other economic covariates. As well, the factor matrix also suggests further potentially important relationships. In particular, the loadings for factors 1 and 2 begin to have implications for the political cultural and remaining social structural covariates.

The partial reproduction of the correlation matrix for the *Final Model* for All Cases in Table 13 shows a series of significant or near significant correlations between all of the political cultural variables. As one would expect, the political cultural variables all load together on a single factor (1) in Table 12. But only one of those variables survived through to the *Final Model*, suggesting that Life



Satisfaction functions as a proxy measure for all of the political cultural covariates. Whereas previously examined variables demonstrated unique variance, all of these variables appear to be sharing variance. In this instance, Life Satisfaction seems to subsume all of the other variables, such that they are related to terrorism only because they reflect Life Satisfaction. Once Life Satisfaction is introduced, its effect overwhelms all of the relationships to terrorism.

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**Table 13**  
**Correlation Coefficients for Final Model - All Cases**

	LS	TRUST	LRO	SC	RFI	ELFI
LS	1.0000					
TRUST	.4918	1.0000				
LRO	-.4466	-.6185	1.0000			
SC	.4086	.5296		1.0000		
RFI				-.4454	1.0000	
ELFI				.5031	-.5459	1.0000

---

The partial reproduction of the correlation matrix for the *Final Model* for All Cases in Table 13 also highlights significant relationships between Social Change and Ethnolinguistic and Religious Fragmentation. The relationships are confirmed by the loadings on factor 2 from Table 12. Here, the logic of plausible causal direction is patently clear, with structural elements preceding attitudinal responses. In this case, however, the comparison is theoretically biased. In order to be consistent with the postulates of this thesis, attitudinal dispositions *must* be

contingent upon structural considerations. In practice, attitudes cannot determine macro-level social structures of the type under consideration here. Rather, the argument presented here is that the fragmentation variables survived because conceptually equivalent attitudinal covariates were unavailable. The relationships between the fragmentation indices, Social Change and political terrorism is implicit and indirect. Social Change may act as a mediating variable, but it is influenced by a large number of considerations *in addition to* fragmentation. Consequently, Social Change cannot be expected to act as an adequate surrogate. The Democracies Only results, which will follow shortly, lends support to the contention that other variables can account for structural covariates, but the connection to terrorism must be more direct. In the absence of these covariates, the fragmentation indices will continue to remain significant.

The performance of the remaining variable, Democracy, is the most difficult to explain. The factor analysis in Table 12 shows that Democracy may be eliminated because of Life Satisfaction, GDP, or Unemployment. But a closer examination of Table 8 reveals that Democracy retained its significance even though Life Satisfaction and Unemployment were also present. (GDP had already been eliminated.) This could indicate several possibilities. The loss of cases from the *Preliminary Model* (Table 8) to the *Final Model* (Table 9) account for Democracy being eliminated. However, reestimating the *Preliminary Model* with the same 235 cases used to estimate the *Final Model* finds this premise to be incorrect. Democracy was not eliminated because of the dropped cases. Alternatively, its removal might be attributable to the introduction of a variable that was not present in the *Preliminary Model*. Two added variables, Immigration and Ethnolinguistic Fragmentation, survived the *Final Model*. Adding each of these variables to the *Preliminary Model*

individually determined that Ethnolinguistic Fragmentation was most likely the variable responsible for the elimination of Democracy. Unfortunately, analysis of variance indicates that Ethnolinguistic Fragmentation has almost no within-country variance. Consequently, one cannot claim with any certainty that this is not a spurious relationship. It may be that the nondemocratic cases here show more immigration, and therefore more terrorism (although this is unlikely). Conversely, Ethnolinguistic Fragmentation might simply be reflecting an *unmeasured variable* that is genuinely related to terrorism. (Please see Chapter Six for a discussion of ANOVA models and associated tests of variance.)

Democracy represents the theoretical link between the All Cases and Democracies Only Models. Although Democracy displayed a significant bivariate relationship, the results presented in Chapter Four show that terrorism may occur in any political environment. In light of this fact, it is not surprising that Democracy did not survive the modeling process. This finding also suggests that it may be more relevant to reduce the inquiry and attempt to discover whether particular *political* elements, found only in democracies, serve to differentiate countries in the democratic context. The bivariate relationships presented in Table 5 found this to be the case. The remainder of this chapter examines how the reduction of cases and introduction of new *politically*-relevant variables affected the *Final Model*.

As one would expect, much of the discussion concerning the All Cases *Final Model* is relevant to the *Final Model* for Democracies Only. Unemployment, Consumer Price Index, Gross Domestic Product and Immigration all behave identically in both contexts. On the other hand, the introduction of new variables did alter the *Final Model* in some important ways: Ethnolinguistic Fragmentation dropped out, while two of the new variables endured. The factor analytic solution

**Table 14**  
**Factor Matrix for Final Model - Democracies Only**

---

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Interpersonal Trust	-.9017					
Democracy Satisfaction	-.8652					
Left/Right Orientation	-.8611					
Anti-System Party Support	.8598					
Life Satisfaction	-.8004					
Social Change	.6223	.5604				
Ethnolinguistic Fragmentation		.8284				
Religious Fragmentation		-.8606				
Political Mobilization		-.4454				
Party System Fragmentation			.8198			
Turnout			.8064			
Government Durability			-.7238			
Unemployment (rate)				.8122		
Postmaterial Values				.7769		
Immigration					.7880	
DTE (lagged)					.7387	
Gross Domestic Product (lagged)						.8369
Consumer Price Index						-.6845

---

presented in Table 13 again serves as a useful point of origin in the discussion of these developments.

The political **structural** covariates did not influence the *Final Model* in any noticeable way. Although Party System Fragmentation, Turnout and Government Durability all loaded significantly on a single unique factor (3), none were present in the final model. Their exclusion appears to be attributable their association with

Democracy Satisfaction, which appears to subsume and act as a proxy for these political structural antecedents. Democracy Satisfaction itself is not a baseline attitude, however, and it dropped out as a consequence of its relationship with the more basic concept of Life Satisfaction.

It is evident from Table 14 that factor 1, which corresponds with factor 1 from the earlier factor analysis, has expanded to include both Democracy Satisfaction and Anti-System Party Support. Again, all of the variables loading on factor 1 appear to be subsumed under Life Satisfaction. Political satisfaction and political life generally are only partial considerations in an individual's assessment of his or her overall Life Satisfaction, insufficient to account for all of the variance attributable to the more diffuse attitude. In this light, Democracy Satisfaction is simply an intermediary between Party System Fragmentation, Turnout, Government Durability and Life Satisfaction, which accounts for them all. Anti-System Party Support, is also a systemic reflection of the underlying pervasiveness of Life Satisfaction. Given the lack of a mediating concept, one could surmise that the theoretical correlation between the two is considerably more pronounced. As was the previous model, Life Satisfaction is once again a central contributor to the *Final Model*.

Another feature common to both *Final Models* is the nexus between Social Change and the two fragmentation indices. But this tripartite relationship was substantially altered by the introduction of Political Mobilization. The discussion relating to Social Change and Religious Fragmentation above is still relevant, but the status of Ethnolinguistic Fragmentation was amended by Political Mobilization such that it not longer figured into the *Final Model*. Whereas Religious Fragmentation is still bereft of a direct attitudinal connection to political terrorism, it

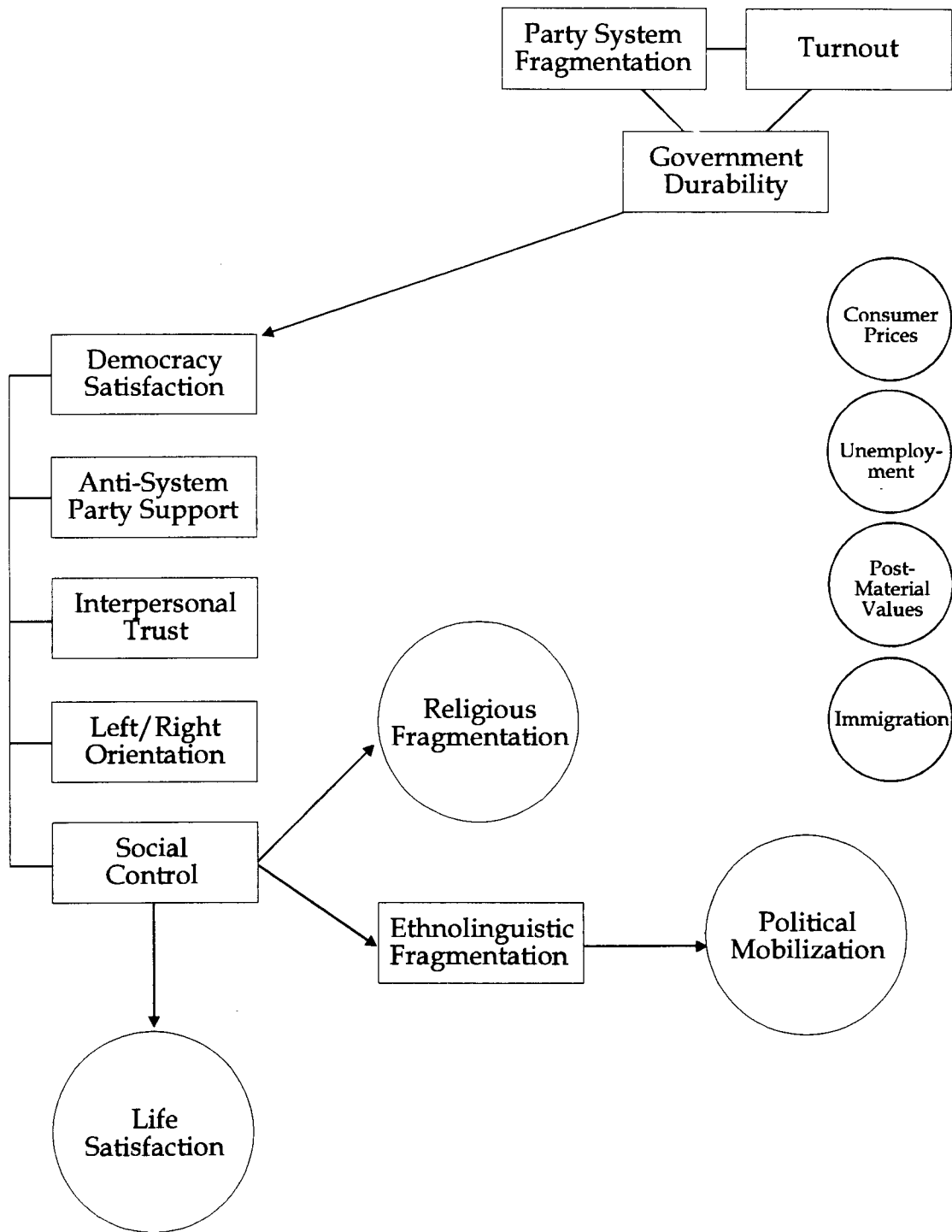
appears as though Political Mobilization is fulfilling this function for Ethnolinguistic Fragmentation. The direct attitudinal response to increased Ethnolinguistic Fragmentation is a decrease in Political Mobilization, and in turn, increased illicit political action. As the link between ethnic fragmentation and political terrorism, Political Mobilization was one of two "political" variables to survive through the final analysis.

The second enduring political variable, Postmaterial Values, was not significantly correlated with any of the other parameters. Like Immigration, Postmaterial Values demonstrated a very low t-value in Table 5, and like Immigration, it survived. Accordingly, one can conclude that Postmaterial Values is contributing uniquely to the explanation of political terrorism, and that it survived because none of the other variables could account for it. For this reason, the following variables are presented in the path diagram in Figure 1 with no connecting lines: Postmaterial Values, along with Immigration, Unemployment and Consumer Prices. The remainder of the covariates, along with the direction of their relations, is also provided in Figure 1. Note that the *Final Model* covariates are indicated by circles, while those variables that fell out are represented by squares.

## **Conclusion**

The statistical results for two distinct contexts were examined in this chapter. The first model utilized all of the cases in the data set, while the second restricted the number of cases by introducing political variables that are only relevant for democracies. The estimation of bivariate relationships for both models indicated that, with the exception of the Democracy variable in the All Cases Model, all of the hypotheses posited in Chapter Two were confirmed. As well, the large number of

**Figure 1**  
**Path Diagram of Final Model - Democracies Only**



independent covariates displaying significant t-values suggested that the prospects for causal modeling were positive for both the *ACM* and the *DOM*.

In practice, the process of model construction revealed several paradoxes; the interdependence characteristic of multivariate causal approaches often alters the behaviour of covariates such that the bivariate relationships are not always definitive or even accurate predictors of which variables might be substantively important. In contrast, the explication of the *Final Models* is predicated upon more specific statistical techniques (such as factor, correlational and path analyses) and motivated by fundamental theoretical considerations. The parameterization of causal models is not an ad hoc or haphazard procedure, but rather, demonstrates a consistent logic that can be identified and articulated.

In general, the postulated nexus between structural antecedents and political culture is affirmed by the results presented here. In particular, all of the political structural covariates (in both models) were accounted for by attitudinal dimensions. On the other hand, some structural elements remained because they contributed uniquely to the overall variance of terrorism. While social structural covariates such as Ethnolinguistic (in the All Cases Model only) and Religious Fragmentation are able to endure the model building process because no direct attitudinal proxy was available, economic covariates such as Consumer Price Index and Unemployment are present at the end because they are related to and measure *short-term* fluctuations. Social and political structural constructs, as well as political culture are generally long-term indices that are relatively stable and consistent over time. In contrast, CPI and Unemployment are more immediate. The unique variance contributed by Immigration is attributable to a) the absence of an attitudinal proxy; and b) its ability to measure and reflect change.



Statistical tools are helpful in offering relational clues and suggesting potential avenues of inquiry, but they are not substitutes for theory. While correlation coefficients and factor analysis reveal important connections and relationships, a logical theoretical framework is required for *explanation*. In order to account for those variables which comprise the causal models of political terrorism derived here, the following postulates are advanced: first, where the link is direct, political culture functions as a facilitative bridge between structural elements and terrorism; second, a group of variables with shared variance may be subsumed and represented by one variable functioning as a surrogate; and third, remaining variables are modeled according to their unique contribution to the overall explanation of political terrorism. These postulates provide the following interpretive results:

- 1) Interpersonal Trust, Social Change, Left/Right Orientation and Life Satisfaction, in addition to Democracy Satisfaction and Anti-System Party Support (democracies only) form a complex that is best represented by Life Satisfaction, the key foundational concept from which the others are derived.
- 2) The relationship between political structure and terrorism is mediated initially by Democracy Satisfaction, but ultimately Life Satisfaction provides the direct attitudinal connection to terrorism.
- 3) In the All Cases Model, both Religious and Ethnolinguistic Fragmentation provide unique variance in the absence of equivalent political cultural concepts.
- 4) In the Democracies Only Model, Ethnolinguistic Fragmentation fails out of the model because of the influence of Political Mobilization.
- 5) Immigration, Unemployment and Consumer Price Index survive in both contexts because they demonstrate short-term change and contribute unique variance. Recall that these variables displayed no significant correlations with any other variables.

- 6) Postmaterial Values also contributed uniquely. The weakest factor, Postmaterial Values probably reflects a dissatisfaction with democracy (See Appendix C for details on the construction of this variable.

Several attributes of the *Final Models* suggest that some confidence may be placed in these results. First, dependence across years, represented by the DTE (lagged) variable, has been controlled for. Second, model derivation through the application of the iterative stepwise elimination procedure continued until *no further covariates could enter*. Finally, the results are statistically and theoretically consistent. Still, these conclusions are not entirely persuasive. More sophisticated testing techniques are required before the validity of the models is more positively established. The following chapter applies various of these testing techniques in order to further validate the results presented above.

## Chapter Six

### Model Testing

By their very nature, the results of maximum likelihood estimation often appear ambiguous because they provide no measure of the amount of the dependent variable explained in the model. Other multivariate measures produce standard statistical referents that are considerably easier to interpret. Multiple regression, in contrast, yields an  $R^2$  value that allows the evaluation of a model relative to others. The *Count* product that corresponds most closely is the log-likelihood. Log-likelihoods may be compared using the chi-squared statistic, but only if the comparison involves "nested" models. Consequently, maximum likelihood models can seem arbitrary, and it is admittedly very difficult to know whether the final model is necessarily the "best" model. On the other hand, the  $R^2$  test statistic has itself come under increasing criticism since it can be profoundly misleading. Moreover, techniques based on ordinary least squares are inappropriate for the type of event count data utilized here. The gamma coefficient estimates clearly indicates a consistent pattern of overdispersion that would seriously bias other multivariate techniques. Despite its interpretive ambiguity, the maximum likelihood technique appears to be the most appropriate methodology for the type of event count data relied upon here. The purpose of this chapter is to determine whether the results presented in Chapter 5 are valid. Because the Democracies Only Model was theoretically the more interesting of the two models, it will serve as the basis for testing.

Maximum likelihood models are susceptible to a numerous potential threats to validity that, if not controlled for, could seriously jeopardize the confidence

afforded the final results. Validity must therefore be addressed using several indices. First, the dependency across time, or serial correlation, in the dependent variable should be controlled for. This was done through the introduction of DTE (lagged) as an independent covariate (for across-years dependency) and through inspection of the  $\gamma_0$  coefficient (for within-years dependency). Second, each of the parameters in the *Final Model* is estimated with a set of country dummies to assess potential within-country effects. And third, a set of dummy variables representing individual countries is introduced to determine the extent to which the *Final Model* covariates are able to account for significant intercountry differences in terrorism. If the parameters in the *Final Model* control for these threats reasonably well, then the result may be regarded as valid.

### *Time Dependency*

As it relates to the dependent variable, time dependency may be manifest in two ways. First, the occurrence of the dependent variable may be *dependent across years*, meaning that the number of events materializing in one year is contingent upon the number of events that transpired in the previous year. For example, if there is a terrorist event in a given year, there are more likely to be a terrorist event in the following year. Second, the dependent variable may also be *dependent with years*, such that the occurrence of one terrorist event in a year increases the probability that more terrorist events will ensue in that same year. Both forms of dependence present problems for causal modeling approaches because they essentially suggest that terrorism is caused by itself. Before the model parameters can be considered valid, they must be able to control for this time dependency.

Both forms of time dependence are evidenced within the domestic terrorist events data set. The significant t-value of the DTE (lagged) covariate in Table 5 clearly establishes dependency across time, while the gamma0 coefficient for all model estimations consistently identifies overdispersion of the type discussed in Chapter Three. But both forms of dependence are controlled for here. The covariate DTE (lagged) is eliminated in the process of deriving the *Final Model*, and is unable to re-enter at any stage. This indicates that the serial correlation suggested by DTE (lagged) is in fact as spurious relationship, and terrorism across consecutive years does not simply "follow upon itself". Rather, the independent variables that comprise the *Final Model* are truer causes.

Because the data used here are all based on annual measures, the unit of analysis is necessarily years: variables that are not operationalized in years cannot be estimated. Consequently, it is not possible to introduce a variable that is the within-year equivalent of DTE (lagged). Without a control variable that represents dependence within years, this type of dependence cannot be eliminated in the same way that across-years dependency was. It can, however, be controlled, as it is here. The *Generalized Event Count Regression* procedure identified in Chapter Three and used to estimate all of the models in Chapter Five was specifically chosen because it controls for the type of overdispersion that characterizes this data. Given the methodological restrictions imposed by these data, this is most effective control possible. Within-year dependency still affects the incidence of terrorism, but it does not bias the final results or model construction.

### *Within-Country Variance*

Examination of within-country variance is the method by which intra-nation effects can be determined. A model covariate may be of tenuous validity if it displays relatively little variance within countries. A variable which demonstrates little or no variance is essentially operating in the same manner as a set of country dummies. The variable may actually be causally related to the dependent variable of terrorism. Alternatively, it may simply be correlated with some other, currently *unmeasured*, variable. In general, the greater a variable's within-country variance, the greater the probability that the variable is a genuine cause. Variables exhibiting less variance are considerably less definitive and more equivocal. One simply cannot be sure about the validity of the measure.

Within-country effects are estimated using the analysis-of-variance (ANOVA) technique. In the ANOVA procedure, each of the independent variables from the *Final Model* is individually modeled with a set of dummy variables that represent each individual country. Given that Ireland and Portugal have been eliminated from the analysis because of missing values on the Immigration variable, the number of available countries remaining is 10. In order to avoid collinearity, one of the country dummies is not used. Consequently, the set of country dummies used throughout this testing chapter has nine (9) parameters.

In these ANOVA models, the independent variables from the original *Final Model* become dependent variables, and the country dummies function as factors. ANOVA produces an R-Squared statistic that indicates how much of the dependent variable's variance is accounted for by the factors (country dummies). The remaining variance is within-country variance. The results presented in Table 15 are adjusted to reflect only this unique variance. It is important to remember that the

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**Table 15**  
**Proportion of Total Variance that is Within-Country**

Parameter	R-Squared
Postmaterial Values Index	.886
Unemployment Rate	.578
Consumer Price Index (lagged)	.538
Immigration Rate	.255
Political Mobilization Index	.223
Life Satisfaction	.151
Religious Fragmentation Index	.028

---

dependent variables in the ANOVA models are the independent variables from the *Final Model*.

Table 15 indicates that, with the exception of the Religious Fragmentation Index, all of the covariates in the *Final Model* are reasonably varied within countries. It is not surprising that the four parameters with the most variance are Postmaterial Values, Unemployment, Consumer Price Index, and Immigration, given that these were the same four parameters not significantly correlated with any of the other parameters (Chapter Five). Accordingly, Political Mobilization and Life Satisfaction also behave as expected. Chapter Five found that Political Mobilization had some variance in common with Ethnolinguistic Fragmentation, while Life Satisfaction shared variance with at least five other parameters that comprised the complex of attitudes that was *represented* by Life Satisfaction. Since it is clear that Political Mobilization and Life Satisfaction operate in conjunction with other parameters, as

either a nexus or a proxy, one would not expect their variance to be as great as the variance characterizing those variables which appear to operate more directly.

The lone problematic variable is Religious Fragmentation, although this too was not unexpected. As mentioned in Chapter Two, the longitudinal data presented by Barrett (1982) clearly demonstrates that proportional changes in specific religious affiliation have not been particularly significant. Rather, changes in the Religious Fragmentation Index are almost wholly the result of increasing numbers of non-religious/atheist individuals. In fact, the R-Squared statistic for an ANOVA procedure using just the non-religious/atheist category as the dependent variable is .179. One cannot discount the possibility that the Religious Fragmentation Index is in fact tapping some other unmeasured variable with any certainty of course, but it is plausible that the Index is a valid measure of religiosity per se, despite the relatively small variance it displays.

Showing within-country variance, however, is not enough, since it may not be that variation which is doing the explaining. The key test for assessing within-country effects is to estimate each of the independent parameters in a model with the country dummies using *Count*. If the independent variable is valid, then its coefficient estimate should remain roughly consistent, while its standard error should get smaller. In general, this would be evidenced in larger t-values. If the coefficient estimate of the independent variable dropped significantly, and/or if the standard error increased significantly, the validity of the variable would be dubious. An insignificant t-value would once again raise doubts as to whether the variable was actually measuring what it purports to measure. The results presented in Table 16 suggest that, with the exception of Religious Fragmentation, the



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**Table 16**  
**Coefficient and T-Value Estimates of Independent Parameters**  
**With and Without Country Dummies**

Parameter	Final Model		Final Model With Country Dummies	
	Coefficient	T-Value	Coefficient	T-Value
CPI(lagged)	0.0756	5.85	0.0833	7.73
Immigration	0.4285	3.66	0.6314	6.42
Unemployment	0.0576	2.37	0.0664	4.37
Life Satisfaction	-3.9739	-11.57	-2.1717	-31.28
Political Mobilization	-1.0409	-6.85	-0.7553	-19.43
Religious Fragmentation	3.1309	5.41	-5.9518	-150.30
Postmaterial Values	0.9490	2.05	1.2662	18.24

---

independent parameters in the *Final Model* are valid, tapping differences within nations that are causally related to terrorism.

Not surprisingly, the coefficient for Religious Fragmentation behaved very strangely, its coefficient becoming significantly larger, but in the wrong direction. The very small variance exhibited by Religious Fragmentation in Table 15 indicates that it is collinear with the country dummies.

The evidence of significant within-country variance present for six of the seven variables is a necessary, but not a sufficient, criterion of validity. Even where significant within-country variance is manifest, causality may still be attributable to intercountry differences. The final test of the model examines to degree to which

significant intercountry differences are accounted for by the variables in the *Final Model*.

### *Intercountry Differences*

The final test for the model is the test for intercountry differences, which involves determining whether the log-likelihood of the *Final Model* improves significantly when the set of country dummies is added to the *Final Model*. If the country dummies do significantly increase the log-likelihood of the model according to a chi-squared test, the implication is that the original covariates are unable to account for all significant intercountry differences in the incidence of political terrorism. The validity of the individual parameters comprising the model has already been established. This final test concerns the model as a whole.

The log-likelihood of the *Final Model* before the introduction of the country dummies was 23750.54, while the log-likelihood of the *Final Model* subsequent to the addition of the country dummies was 23776.54. Subtracting the former from the latter and multiplying that value by two results in a  $\chi^2$  value of 51.04. Since a  $\chi^2$  value  $\geq 16.91$  is required for significance at the .05 level with nine degrees of freedom, it is obvious that the introduction of the country dummies has significantly increased the log-likelihood of the *Final Model*. This result indicates that there are other variables that account for significant intercountry differences in terrorism that are not included in the *Final Model*, implying that the *Final Model*, while partially valid, is incomplete.

## Conclusion

In general, the *Final Model* for democracies tested out quite positively. Within year time dependency, while not eliminated, has at least been controlled for through the *Generalized Event Count Regression* procedure so that the final results are not biased by the overdispersion that characterizes the terrorism data. More importantly, time dependence across years was controlled for by the independent variables such that it no longer contributes significantly as a cause of terrorism. As well, the tests for within-country variance concluded that, with the possible exception of Religious Fragmentation, the individual parameters that comprise the *Final Model* are valid measures which are causally related to terrorism.

The only negative aspect of model testing was the finding that there are significant intercountry differences in terrorism that the *Final Model* cannot account for. But, given that this thesis represents an empirical approach that is completely novel in the context of political terrorism, even this result is not particularly discouraging. In fact, it would have been more surprising if all of the necessary covariates had been gathered for what is really a preliminary attempt. More to the point, the scope of the thesis virtually guaranteed that there would be significant unexplained residual variance. Terrorism is an extremely complicated phenomenon that can be best explained by reference to an orientation that is both multivariate and *multi-level*. The discussion of Corrado & Tompkins' model in Chapter One identified three levels of interaction, of which the thesis had examined only one. At the very least, some organizational and individual level covariates would have to be incorporated before one could even hope for a comprehensive model. In light of the

proposed goal of the thesis, to produce an initial attempt at empirical modeling for political terrorism, the final results and their attendant tests are quite acceptable.

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## Appendix A

### *Ethnolinguistic Fragmentation Index*

Source: Kloss, Heinz and Grant D. McConnell. *Linguistic Composition of the Nations of the World*. 1977.

Notes: While this sources contains a variety of estimates from different sources, national census data was used wherever possible to maintain consistency. See Appendix D for discussion of regression technique used to estimate missing data.

### *Religious Fragmentation Index*

Source: Barrett, David A. *World Christian Encyclopedia: A comparative study of churches and religions in the modern world*. 1982.

Notes: Barrett presents estimates of religious affiliation for 1970, 1975, and 1980. See Appendix D for discussion of regression technique used to estimate missing data.

### *Immigration Rate*

Sources: United Nations. *Demographic Yearbook*, 1962.  
United Nations. *Demographic Yearbook*, 1968.  
United Nations. *Demographic Yearbook*, 1977.  
United Nations. *Demographic Yearbook*, 1985.  
United Nations. *Demographic Yearbook*, 1989.

Notes: Immigration data for Ireland and Portugal are not reported. See Appendix D for discussion of regression technique used to estimate missing data.

## Appendix B

### *Consumer Price Index*

Source: International Monetary Fund (IMF). *International Financial Statistical Yearbook* (1979, 1983, 1990, 1993).

### *Unemployment*

Source: United Nations. *Monthly Bulletin of Statistics* (1965-1990).

Notes: Unemployment data are not always comparable across years for the same country. Changes in reporting practices or definitions resulting in missing data. For all countries except the Netherlands, the most recent series is used. Since the Netherlands' series changed in 1987, the most recent previous series was used, in order to avoid having to eliminate all of the data points before 1987.

### *Gross Domestic Product*

Source: International Monetary Fund (IMF) *International Financial Statistical Yearbook* (1979, 1983, 1990, 1993).

#### Method:

In order to test the full range of options presented by the economic indicators, eight versions of each indicator were constructed.

1. The rate, as given by the source;
2. The rate, lagged by one year;
3. The change in rate over the previous year;
4. The change in rate, lagged by one year;
5. The proportional change in rate over the previous year;
6. The proportional change in rate, lagged by one year;
7. The absolute value of change in rate over the previous year;
8. The absolute value of change in rate, lagged by one year.

*Count* models were run in advance to determine which of the versions was the strongest for each variable. For unemployment, it was the rate. But for CPI and GDP, the lagged rate versions (#2) were the best.

## Appendix C

*Eurobarometers* are attitudinal surveys conducted on a semi-annual basis (usually March/April and October/November) in the European Community countries. The data for most countries goes back to 1973. For Greece (1980), Portugal (1985) and Spain (1985), Eurobarometers only began in the year of entry into the EC.

Because the Eurobarometers are the only source of longitudinal survey information, they form the basis of the attitudinal data set. While each Eurobarometer is comprised mostly of specific questions related to particular themes or topics, there are a series of core questions that are asked in almost every survey. Questions were selected for inclusion in the dataset on the basis of their theoretical relevance to the etiological literature on terrorism.

### *Life Satisfaction*

Description: Average.  
4-point scale.

Question: On the whole, are you very satisfied, fairly satisfied, not very satisfied, or not at all satisfied with the life your lead?

Responses: 1. Very satisfied.  
2. Fairly satisfied.  
3. Not very satisfied.  
4. Not at all satisfied.

### *Democracy Satisfaction*

Description: Average.  
4-point scale.

Question: On the whole, are you very satisfied, fairly satisfied, not very satisfied, or not at all satisfied with the way democracy works in your country?

Responses: 1. Very satisfied.  
2. Fairly satisfied.  
3. Not very satisfied.  
4. Not at all satisfied.

### *Social Change*

Description: Average.  
3-point scale.

Question: On this card are three basic kinds of attitudes vis-à-vis the society we live in. Please choose the one which best describes your own opinion.

- Responses:
1. The entire way our society is organized must be radically changed by revolutionary action.
  2. Our society must be gradually improved by reforms.
  3. Our present society must be valiantly defended against all subversive forces.

### *Interpersonal Trust*

Description: Average.  
4-point scale.

Respondents are asked to rate separately the trustworthiness of persons from all of the E.C. nations, including their own. This variable is a measure of the level of trustworthiness attributed to members of the respondent's home nation. For example, the measure of "trust" for Greece is a reflection of Greek answers to the question "How trustworthy are Greeks?"

Question: Now I would like to ask about how much you would trust people from different countries. For each country please say whether, in your opinion, they are in general very trustworthy, fairly trustworthy, not very trustworthy, or not at all trustworthy?

- Responses:
1. Very trustworthy.
  2. Fairly trustworthy.
  3. Not very trustworthy.
  4. Not at all trustworthy.

### *Left/Right Orientation*

Description: Average.  
10-point scale.

Question: In political matters people talk of "the left" and "the right." How would you place your views on this scale?

Responses: 01. Left  
02. .  
... .  
09. .  
10. Right

### *Postmaterial Values Index*

Description: Average.  
3-point scale.

Identification: This index is constructed from responses to the following two questions.

Question #1: There is a lot of talk these days about what the aims of this country should be for the next ten years. On this card are listed some of the goals which different people would give top priority. Would you please say which of these you, yourself, would consider the most important in the long run?

Question #2: And which would be your second choice?

Responses: 1. Maintain order in the nation  
2. Giving the people more say in important government decisions.  
3. Fighting rising prices  
4. Protecting freedom of speech

Categorization: 1. Materialist; coded 1 or 3 in Q.1 and coded 1 or 3 in Q.2  
2. Mixed; coded 1 or 3 in Q.1 and coded 2 or 4 in Q.2 or coded 2 or 4 in Q.1 and coded 1 or 3 in Q.2.  
3. Post-materialist; coded 2 or 4 in both Q.1 and Q.2.



### *Political Mobilization Index*

Description: Average.  
11-point scale.

Identification: The political mobilization index is a constructed variable that combines responses to three separate questions to form an indicator of an individual's potential to take an active role in the political process.

Question #1: When you, yourself hold a strong opinion, do you ever find yourself persuading your friends, relatives or fellow workers to share your views? If so, does this happen often, from time to time, or rarely?

Responses: 1. Often  
2. From time to time  
3. Rarely  
4. Never  
0. Unknown

Question #2: When you get together with your friends, would you say that you discuss political matters frequently, occasionally, or never?

Responses: 1. Frequently  
2. Occasionally  
3. Never  
0. Unknown

Question #3: Do you consider yourself to be close to any political party? If so, do you feel yourself to be very close to this party, fairly close or merely a sympathizer?

Responses: 1. Very close  
2. Fairly close  
3. Merely a sympathizer  
4. Close to no particular party

## Appendix D

For the social structural variables and the political cultural variables, a special regression procedure was used to estimate missing values. The procedure was developed by Jan Kmenta (*Elements of Econometrics*, 1986) to restrict regression estimates to plausible values only. For example, with the social structural variables, values can only range between zero and one. But normal regression simply plots the best fit, some producing out of range numbers.

The first step involves converting the score into a logarithm

$$\ln[(\text{maximum potential value}/\text{actual score})-1]$$

Life satisfaction can serve as a concrete example. Assume that the actual score for a given year was 2.5. The maximum score for life satisfaction is 4. Thus the equation would be

$$\ln[(4/2.5)-1]$$

The logged scores are then used in a traditional regression procedure in SPSS. After regression has been used to estimate the missing values, all of the scores must be converted back by exponentiation

$$4 (\text{maximum value}) / (1 + \exp(\text{logged score}))$$

This procedure produced more realistic estimation for missing values.