

An Empirical Analysis of Terrorism

In the Middle East and Africa

Isaiah Corbin

Wartburg College

Dr. Bret Billet

### Abstract

Since President Bush declared “War on Terror,” counterterrorism policies have taken up a significant amount of resources. The lack of understanding the root causes of terrorism is a serious problem. This study empirically tests the effects of political rights, human development, and type of government on the number of terrorist attacks in the period 2000-2005 in the Middle East and Africa. The political rights index, human development index, and polity score were measured as the independent variables and analyzed using regression and correlation analysis. The level of development measured in GDP per capita, regime durability, conflict, and the size of the country measured in population were used as control variables. The lack of political rights and greater human development decreased the number of terrorist attacks, where the type of government was not significant. Furthermore, GDP per capita, regime durability, the country’s region, and total population size did not significantly affect the number of terrorist attacks.

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**I. Introduction and Literature Review**

Since 9/11, terrorism has taken up a considerable amount of the United States' resources. It has also become a key foreign policy problem, with the potential of a small group of individuals inflicting major damage in the form of casualties and treasure. These fast-evolving trends constitute a clear and present danger to the security of civilization (Victoroff, 2005, p. 3). Various methods and policies have been put forth to prevent and deter terrorism after President George W. Bush declared "War on Terror" ("Transcript," 2001). Several different forms of policies have been implemented to prevent terrorism, including military action, economic sanctions, and diplomatic efforts. America's long war against terrorism has been going on without much serious public debate about the true motivation of terrorists. Emotions such as fear and anger created by terrorism are blocking the patience needed to form serious policies directed at the root cause of terrorism (Pape & Feldman, 2010, p.319). The pressing threat is not terrorism, but how we understand the cause of terrorism. The lack of understanding can and has created ineffective counterterrorism policies.

Counterterrorism policies involve either taking a direct action approach or a defensive approach. A direct action approach includes destroying terrorist training camps, retaliating against a state sponsor, gathering intelligence, or freezing the terrorist's assets. A more defensive approach involves preventative measures like technological barriers (e.g., metal detectors and bomb detectors) and the securing of borders (Arce & Sandler, 2005, p. 184). Much of the policy going into counterterrorism is based on a direct action approach. It is important that

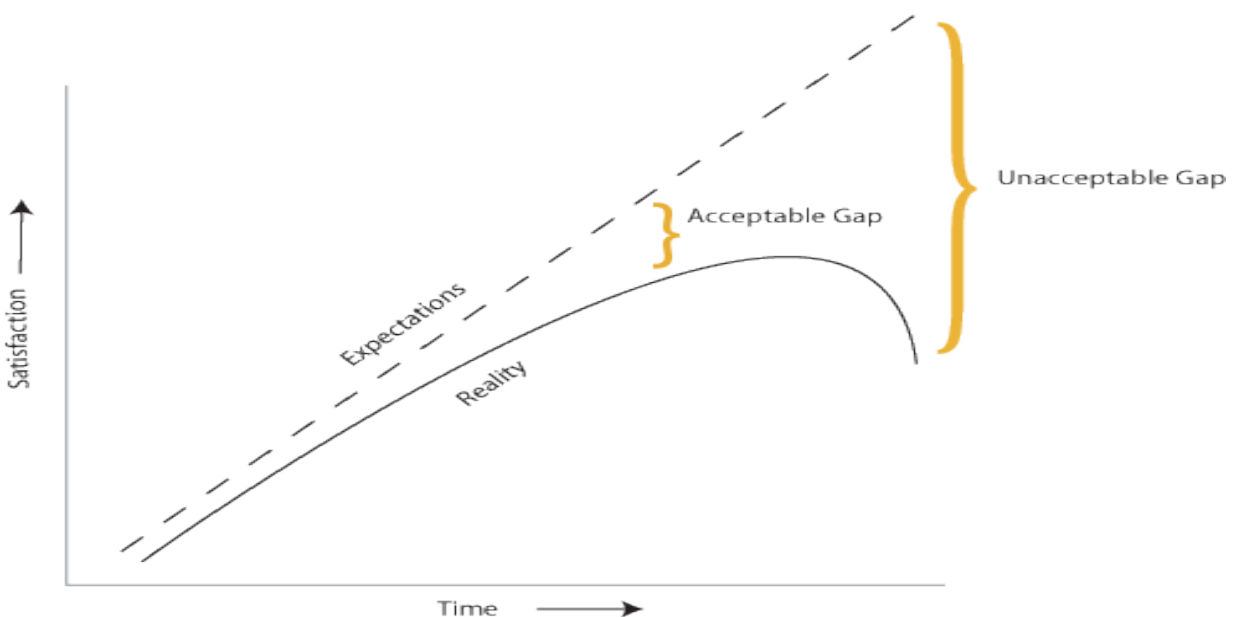
the actions taken are targeted effectively at the root cause of terrorism in order to prevent terrorist actions before they happen. The number of options taken depends on the human, financial, and political resources the United States is prepared to invest. The lack of unlimited resources means that policy needs to be adaptive to the specific factors that cause terrorism. The goal of this study is to look at several different variables and analyze what factors drive terrorism in order to gain a better understanding where resources should be apportioned, in order to form a better counterterrorism policy.

Definitions of terrorism are controversial due to problems of labeling actions as terrorism promotes the condemnation of the actors, which may reflect ideological or political bias (Gibbs, 1989, p. 329). For this study, we will use a broad definition of terrorism as defined by the Global Terrorism Database (GTD). This will help us take a more inclusive look at terrorism and will not exclude cases based on biases. Terrorism is the “the threatened or actual use of illegal force and violence by a non state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation.” The victims or objects of terrorist attack have little intrinsic value to the terrorist group but represent a larger human audience whose reaction the terrorists seek (Crenshaw, 1981, p. 379). It is important to understand that terrorists are rational actors (Li& Schaub, 2004, pp. 233-234). They have a specific purpose for their use of violence and anticipate that it will create a reaction from the audience that they are targeting.

Rational choice theory states that terrorist actions comes from a conscious, rational, and calculated decision, in order to accomplish a specific sociopolitical goal (Victoroff, 2005, p. 14). Many people use premeditated actions in order to accomplish a specific goal. The question is why some individuals or groups turn to violence while others do not. Are certain factors or environmental conditions more prone to push individuals or groups to violence?

Terrorism has been mostly approached from a historical perspective. This has led to a lack of theoretical analysis on the causes of terrorism (Crenshaw, 1981, p. 379). This study will focus on two different theories to explain what drives certain individuals to use violence in order to accomplish their goals while others accomplish their goals with the use of violence. The first theory focuses on why people come to use violence. This can be explained by the Davies J-curve theory. According to Davies, revolutions, or in this instance terrorism, are most likely to occur when a prolonged period of objective economic and social development are followed by a short period of sharp reversal (1962, p. 6). During the latter period, a mental state of anxiety and frustration manifests when expectations break away from anticipated reality (Davies, 1962, p. 6). The stability is dependent on a state of mind in a society. When a feeling of inadequacy, whether it is political or economic, becomes the state of mind and an unacceptable gap is produced as shown in Figure 1, violence breaks out. The gap is what pushes the terrorists to the point of no return and forces them to use violence in order to express their frustrations.

Figure 1: Davies J-curve (Davies, 1962)



The frustrated state of mind is important by the reasoning of frustration-aggression theory. According to this theory, aggression is the dominant response to the frustration of an ongoing response sequence (Galtung, 1964, p. 71). Furthermore, the frustration-aggression hypothesis literature suggests that coercive tactics may result in the instigation of political violence instead of preventing violence. This insinuates that punishment could increase the likelihood that a frustrated group will respond in an aggressive manner (Shultz, 1979, p. 448). This has serious implications to how terrorism is dealt with in the policy field. Unless one is able to prevent the outbreak of the frustrated state of mind, one will not be able to prevent terrorism. Hence, the key to this study is the exploration of what factors cause this state of frustration.

In order for terrorism to occur, you need to presence of three things. First, there needs to be a concrete grievance. Second, there must be a lack of opportunity for political involvement. Third, an event must take place that provokes the outbreak of a terrorist attack (Crenshaw, 1981, pp. 383-384). It is important to understand what event is causing a terrorist to become frustrated and resort to violence. Should counterterrorism policies be more focused on economic or political reasons? A vast number of empirical studies on terrorism have looked at economic and political reasons, and there is still much debate over the impact of these two factors. In the following pages, this study will look at previous studies to understand the root of the frustrated mind of a terrorist and what previous empirical studies have found about the economic and political causes of terrorism.

### **Economic Analysis of Terrorism**

Previous empirical studies looking at the impact of economic development are mixed. Li & Schaub have shown that the economic development of a country plays an important role in

reducing the number of transnational terrorism incidents within a country (Li & Schaub, 2004, p. 232). On the opposite side, Krueger & Malečková (2003) saw little direct connection between poverty or education and participation in terrorism (p. 141). It is difficult to understand the economic reasoning behind the use of terrorism. The prospect of individual economic gain by a terrorist is hardly justified, as they would become a target of the audience they attacked. They may see the promise of larger payments to their families, as sufficient motivation to participate in terrorism (Krueger & Malečková, 2003, p. 122). But there is very limited chance for economic gain of an individual using terrorism which provides little reason for an individual to resort to using terrorism for personal economic gain.

There has been a widespread assumption that poverty creates terrorism. This view is not shocking considering that much of the results from previous literature on the economic conditions of conflict suggest that poverty increases the probability of violence (Abadie, 2006, p. 50). Abadie (2006) found a significant association between terrorism and economic variables, such as income (p. 55). Li and Schaub (2004) found evidence that terrorism is associated with poverty (p. 232). Poverty is closely related to the education level. Generally, educated people are more likely to be involved in the political process. Educated people will be likely to participate in politics in part because political involvement requires some minimum level of interest, expertise, and commitment to issues and effort, all of which are more likely if people have enough education and income to concern themselves with more than minimum economic subsistence (Krueger & Malečková, 2003, p. 142). The implication for politics is that long-term policies based on human development are the best defense against terrorism (Bravo & Dias, 2006, p. 331). This is due to the fact that people would be more willing to use political methods instead of violent methods to bring about change when they are frustrated about a situation.

### **Political Analysis of Terrorism**

Two arguments have been put forth concerning the relationship between democracy and terrorism (Li, 2005, p. 278). The first argues that democracy reduces terrorism, because it offers access for citizens to seek an alternative to their grievances in a nonviolent approach, when conflicts of interests arise. The second argument contends that democracy encourages terrorism. Democratic countries provide more freedoms like speech and association, which reduces the cost of conducting terrorist activities, therefore facilitating more terrorism.

Many of the previous studies have found that the level of democracy tends to play a positive role when preventing terrorist attacks (Li and Schaub, 2004, p. 249). This is likely due to the fact that there are more opportunities for an individual or group to express their political goals through the process of government. Also, government oppression increases the likelihood of being frustrated with the lack of opportunity to participate. An authoritarian type of government will oppress certain civil rights that will prevent the participation in the political process, therefore increasing the likelihood that someone will chose an alternative method, like terrorism, to affect the political outcome. The ability to recruit members is important and can be made difficult by doing such things as reducing grievances and preventing the anger and hatred of their citizens, not oppressing civil rights (Heymann, 2002, p. 28). Democratic participation helps in many different ways to reduce terrorism. Participation increase satisfaction and the political efficacy of citizens. This also reduces their grievances, their ability to recruit new members, and it raises public tolerance of counterterrorism policies (Li, 2005, p. 294). Furthermore, Krueger & Malečková (2003) found evidence supporting the view that terrorism is a dilemma with the lack of civil rights, and supports the view that terrorism is a political and not economic problem (p. 142).



Piazza (2007), on the other hand, found evidence suggesting that democracy increases terrorist attacks (p. 536). Piazza (2008) also found that analysis of the promotion of democracy and free market economics is not a solution to terrorism (p. 84). This does not support the hypothesis that fostering democracy in the Middle East will provide protection against terrorism. Rather, the results are opposite and show that a more liberal Middle-Eastern political system is more susceptible to the threat of terrorism than a dictatorial regime. Furthermore, Eubank and Weinberg (1994) found that the likelihood of terrorist groups occurring in democracies is three and one-half times greater than occurring in non-democracies (p. 423). The current position of the United States' has been in support for more democratic nations, which runs parallel to the finding above. This approach, as shown in the empirical studies from above, shows that the policies are not preventing terrorism, but actually aiding it.

Schmid (1992) sums up the characteristic weaknesses that democracy have in fighting terrorism and why terrorism is more likely to occur in democracies. First, in democracies, there is freedom of movement. People are free to come and go without the kind of surveillance that occurs in closed societies. Similarly, there is the freedom of association. The state does not prevent like-minded individuals from forming groups. Third, open societies provide would-be terrorists with an abundance of targets. Lastly, there it is relatively easy for terrorist to obtain weapons and transfer funds from anonymously held bank accounts (pp 17-18). It is this kind of environment increases the likely of terrorism occurring in democracies rather than authoritarian governments, which can control all of these factors with relative ease.

## **II. Research Design: Hypothesis, Data, Variables, and Methods**

### **Hypothesis**

From the discussion above, the hypothesis for economic and political effects on terrorism are as follows.

**Hypothesis 1:** Human development is negatively related to terrorist attacks.

**Null Hypothesis 1:** Human development is not related to terrorist attacks.

**Hypothesis 2:** Political rights are positively related to terrorist attacks.

**Null Hypothesis 2:** Political rights are not related to terrorist attacks.

**Hypothesis 3:** More authoritarian governments reduce terrorist attacks.

**Null Hypothesis 3:** More democratic governments reduce terrorist attacks.

### **Dependent Variable and Data Selection**

The dependent variable is the number of terrorist attacks within in country between 2000-2005. For the study, they were analyzed in two year increments in order to look at the short, medium, and long term effects. The number of terrorist attacks was taken from the Global Terrorism Database (GTD). The definition of a terrorist attack was "the threatened or actual use of illegal force and violence by a non state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation." This allowed a broad interpretation of the use of terrorism for the purpose of this study.

### **Independent Variables and Data Selection**

To measure the economic well being of a state's citizen, I used the United Nations Human Development Index (HDI). The HDI measures the well-being of the inhabitants of a country along three different dimensions: health, education, and income. It is constructed using country

data on life expectancy at birth, adult literacy, school enrollment ratio, and GDP per capita. The HDI has a 0-1 potential range, with higher numbers reflecting greater human development.

In order to measure how democratic a state is, the study will look at the political freedom or lack thereof, using the Freedom House's Political Rights Index (PRI). The PRI has a 1-7 range with higher values representing lesser existence of political rights.

Also used to measure democracy will be the annual Polity score which examines connected qualities of democratic and autocratic authority in governing institutions, rather than discreet and mutually exclusive forms of governance. The polity score has a range -10 (heredity monarchy) to 10 (consolidated democracies).

### **Control Variables and Data Selection**

The control variables will be used to account for the size of the country, level of economic development, regime durability, and conflict within the state. They were measured for the year 2000.

The level of development of the country will be measured in GDP per capita. This is consistent with previous studies including Li and Schaub (2004). More developed countries are more likely to have more resources to prevent terrorism, making it important to control.

Regime Durability is based on the number of years since the most recent regime change. Several studies find that countries undergoing more frequent regime changes are more likely to experience terrorist incidents. Those democracies that experience more regime changes tend to have more terrorist attacks than other countries. The effect of regime change is important to control, therefore to account for the country's perceived stability (Li, 2005, p. 286).

For the same reasons as above, conflict must be taken into account. The country was considered in conflict if it had at least 25 battle-related deaths per year. This includes internal

and external conflict. If the state was engaged in a conflict, it was given a 1. If it was not, it was given a zero (Gleditsch et al, 2002, p. 615-637).

The size of the country was controlled using the total population of the country as used by previous studies. It was important to control the size of the country to assure that larger countries do not have more terrorist attacks.

### **III. Empirical Analysis and Results**

For the empirical analysis, I used regression and correlation analysis. The countries used in the study were from Africa and the Middle East (66 total countries listed in Appendix C). Model 1 provides the foundation for testing all the variables listed above. The first regression model followed the results from Table 1. This model's analysis showed that Human Development and Conflict had a significant influence on the number of terrorist attacks while political rights index, polity, and the remaining control variables did not. In order to improve the model, all the variables that were not significant were thrown out in order to improve the model. Political rights was left in the model due to it being close to significant ( $t = -1.601$ ).

Table 2 is an analysis of HDI, conflict, and PRI effects on the number of terrorist attacks between 2000-2001. All three of the variables played a significant role in the number of terrorist attacks. HDI and existent conflict had a positive impact on the number of terrorist attacks and PRI had a negative impact on the number of terrorist attacks. Table 2 also analyzed the same variables in 2002-2003. During this period, PRI was no longer significant on the number of terrorist attacks, while HDI was still significant with a positive impact. Table 2 again analyzed the same variables except in 2004-2006. None of the factors played a significant role in the number of terrorist attacks.

From the results, I was able to reject null hypothesis 1. The level of HDI is significant and positive in the immediate and short term conditions. I was also able to reject null hypothesis 2. Higher levels of political rights had a significant and negative effect on the number of terrorist attacks in the immediate term, but did not play a role in the short and long term. The polity score did not have an effect on the number of terrorism incidents, which means that I was able to reject null hypothesis 3, but I was not able to strengthen hypothesis 3 because it was not significant.

Li (2005) found countries undergoing regime changes were more vulnerable to terrorist attacks, while countries with long-term regimes tended to experience fewer attacks (p. 287) which is inconsistent with my results and the Davies J-curve theory. People are unlikely to have expectations for a regime that has not been in power for a long period of time. This means that they will not likely meet the time period where there an unacceptable gap has been reached. This will give them less of a rationale to use terrorism compared to that of a regime that has been in power longer and is more likely to expectations break from reality. Existing conflict did have a positive result on the number of terrorist attacks which is expected, as it creates grievances and opportunities for terrorists. Model 1 also showed no significance if the country was located in the Middle East or Africa. Population Size and GDP per capita also did not have significant impact on the number of terrorist attacks meaning that they did not play a role in the frustration of the terrorists.

#### **IV. Conclusion**

The Davies J-curve theory explains terrorism as a condition when expectations grow apart from reality, leaving an unacceptable gap. It is this gap that leads terrorists to seek out violent methods to express themselves. However, this gap cannot simply be explained by people becoming frustrated. The frustration theory does play a role in terrorist actions, but it does not

explain all of it. Millions of people live in frustrating circumstances, but they never turn to terrorism. Furthermore, the oppression of the government does not play a role in all terrorist attacks as shown by leftist groups in Europe during the 1970s (Victoroff, 2005, p. 19). Terrorism is much more than being frustrated. The lack of theoretical underpinnings to the cause of terrorism is a major problem. In order to improve further studies, a better theory on why people resort to terrorism is needed.

One cannot assume that where there is terrorism, there is oppression (Crenshaw, 1981, p. 388). Furthermore, coercive tactics in the form of restrictions on political rights does not necessarily mean that there will not be an increased occurrence of terrorism activities within a country. The chances of terrorism will decrease within a country that is lacking political rights. This is probably due to several interrelated reasons. For example, more restrictive governments will be able to control the message through the media, preventing groups from forming and gaining footholds by taking away rights, and making it much more difficult to recruit members.

A terrorist is much more than a crazy person looking to inflict damage on innocent citizens. They are rational actors who seek to accomplish a goal and to inflict terror on the people who see the damage inflicted. Terrorism can only be effective if it has the ability to inflict terror on the people watching, as most terrorist attacks cause very little damage in terms of lives taken and wealth lost. They need an outlet that allows them to have their message heard. This means that there must be an environment that allows them to broadcast their message. If the message is lost, terrorism just becomes a blip on the screen.

Terrorists rely on the media to further their terror-inspiring goals, and the media utilize the terrorists' acts as necessary or rewarding news items (Freedom & Alexander, 1983, p. 177). Media technology has made terror-violence an attractive strategy for effecting social or political

transformation for two reasons. First, it has enhanced the image of those who are opposed to the sociopolitical systems of an increasingly complex and vulnerable society. Second, technology has made the media an indispensable device, by which an individual or a small group of individuals can magnify their power and influence over society within a short period of time and with relatively little effort (Freedom & Alexander, 1983, p. 178).

Authoritarian governments who take away rights, like the freedom of press, are going to have better success at containing and preventing the message terrorist want to send to their audiences. This means that the efforts of terrorism in these more restrictive governments become futile and useless. On the other hand, a democratic government gives terrorist a speaker phone to broadcast their messages. This platform improves the chances of success for terrorism. The press is more likely to cover the attacks heavily in a democratic country, compared to an authoritarian country.

This will create fear within the citizens watching the attacks and will increase the chances for success. The ability for the message to be received will also encourage the use of terrorism, as others will see the effects of one small attack. Also, recruiting successes will likely increase, creating positive feedback. This is the advantage of an authoritarian government. They have the ability to clamp down on coverage. The ability to restrict rights, such as the freedom to assemble and free speech, make it more difficult for terrorist organizations to gain significant legitimacy.

The importance of high development in areas such as health, education, and income is important in preventing terrorism. High development in these areas will decrease the number of terrorist attacks. This is likely due to the satisfaction. If a country is performing high in these areas, the citizens are more likely to be happy and satisfied. Moreover, increased development means there is an efficient government that has the ability to make sure its' citizens are taken

care of. The wealth that citizens have does not necessarily predict the use of terrorism. GDP per capita does not play a role in the number of terrorist attacks within a country.

Further research into more specific development areas is needed. Previous studies done on the effects of poverty on terrorism have shown mixed results. Terrorism may not stem from poverty, as terrorist attacks give little incentive for individual economic gain. Poverty does, however, go hand and hand with income levels and education, which each have shown to play significant roles in the number of terrorist attacks. A population that has lower poverty levels will be a better educated population that will in turn be more likely use political rather than violent methods as a way to express themselves. If frustrations are expressed through political methods, terrorism will likely decrease. But this is only going to happen if the citizens are educated enough to have the desire to take the political route.

## **V. Policy Implications**

The findings have several important policy implications for “the war on terrorism.” Democracy does not have a positive effect on terrorism, as is often claimed. Foreign policy in the Middle East constructed around the promotion of democracy and increasing civil liberties will not have a positive impact on the security of the United States in terms of terrorism. It may actually increase the frequency of terrorism. This has serious consequences, as many have used the promotion of democracy as a way to solve the problem with terrorism, but much of the empirical research has shown that democracy will not solve terrorism.

The dilemma over whether or not the United States should promote democracy over its’ own safety is something that needs to be discussed. Should the United States take the high ground and continue to promote democracy, civil liberties, and human rights or should the



United States support a more authoritarian government that lacks political rights in order to gain more control over future terrorist attacks?

It is important that if the United States continues to promote democracy, it should do so in a fashion that decreases the chances of terrorist attacks. This means making progress in the effectiveness of the government by improving citizen satisfaction, electoral participation, and political efficacy, all of which have been shown to reduce the number of terrorist incidents within democratic government's borders (Li, 2005, p. 294). Due to the increased chances of terrorism occurring in a more democratic nation, it will be important that the United States promotes a government that will be less likely than most to have terrorist attacks.

The research also shows the importance of establishing an economy that can improve the citizen's lives within that country. The well-being of the inhabitants is crucial to decreasing the amount of terrorism within a country. This includes improving the health, education, and income levels. A government that cannot provide and improve the well-being of their citizens will not be successful in decreasing the number of terrorist attacks. It will be important that the United State's policy is focused on building the infrastructure or else no matter what type of government it is, discontent with the government will create reason to use terrorism.

## **VI. Future Research**

The cause of terrorism is beyond economic or political factors although they both play an important role. Future research needs to include factors such as social conditions as well as psychological considerations. The lack of understanding as to what factors trigger terrorism has serious implications. A better understanding is needed to improve what policies are put forth in the future. If this does not take place, the fight to stop terrorism will only waste more and more resources without solving any problems.

Future research on analyzing terrorist attacks in democratic nations is needed. Many incidents of terrorist attacks in democratic countries are reported more often in the media due to fewer restrictions (Li & Schaub, 2004, p. 249). According to the contagion hypothesis, media attention given to terror-violence encourages further incidents of terror-violence (Freedom & Alexander, 1983, p. 184). Press freedom increases the ability of terrorists to be heard and watched by a large audience and increases their ability to create widespread fear. Press freedom can create greater incentives for terrorist activities (Li, 2005, p. 282). It will be important for future research to study the effects media has on terrorism. This will help provide better details behind the motivation of terrorists and how the media is shaping the use of terrorism.

Understanding why democracies are more likely to higher frequencies of terrorist attacks will be important in the future. The continued push of democracy is unlikely to slow down in the future so a better grasp on the causes of terrorism in democratic states will be needed. This means better understanding of the media's role, citizen satisfaction, electoral participation, and political efficacy to help improve counter-terrorism policies in democratic states.

An analysis of counter-terrorism policies is also needed to better understand what is and what is not working to help prevent terrorism. This will not only improve existing policies, but it will also help researchers gain a better understanding of what changes are most likely to deter terrorism. This insight will improve future research, as it will give a more focused look at what factors are causing terrorism.

## APPENDIX A

Table 1

Independent Variable	Dependent Variable-Number of Terrorists Attacks between 2000-2001 Beta Weight*** (t Statistic)
HDI	.396* 1.968
PRI	-.242 -1.601
Polity	-.011 -.078
GDP/capita	.059 .401
Regime Durability	-.025 -.200
Conflict	.570**** 4.921
Population Size	.072 .619
Country Region	.064 .374
Adjusted R Square	.310
Total Cases	66
F Score	4.533****

Significance Level

\* .05

\*\* .01

\*\*\* .005

\*\*\*\* .001

**APPENDIX B****Table 2**

Variable	Year		
	2000-2001	2002-2003	2004-2005
HDI	.393**** 3.715	.302* 2.540	.087 .652
PRI	-.245* -2.409	-.138 -1.206	.126 .983
Conflict	.597**** 5.697	.472**** 4.012	.073 .550
Adjusted R Square	.361	.194	-.18
Total Cases	66	66	66
F Score	13.037****	6.138****	.626

Dependent Variable-Number of Terrorist Attacks

Beta Weight\*\*\*\*  
(t Statistic)

Significance Level

\* .05

\*\* .01

\*\*\* .005

\*\*\*\* .001

**APPENDIX C****List of Countries Used**

Algeria	Swaziland
Angola	Tanzania
Benin	Togo
Botswana	Tunisia
Burkina Faso	Uganda
Burundi	Zambia
Cameroon	Zimbabwe
Central African Republic	Turkey
Chad	Syria
Congo	Lebanon
Dem. Rep. of Congo	Israel
Djibouti	Jordan
Egypt	Iraq
Equatorial Guinea	Saudi Arabia
Ethiopia	Yemen
Gabon	Oman
Gambia	UAE
Ghana	Qatar
Guinea	Bahrain
Guinea Bissau	Kuwait
Kenya	Iran
Lesotho	Turkmenistan
Liberia	Uzbekistan
Libya	Kyrgystan
Madagascar	Tajikistan
Malawi	Afghanistan
Mali	Pakistan
Mauritania	Kazakhstan
Morocco	
Namibia	
Niger	
Nigeria	
Rwanda	
Senegal	
Sierra Leon	
South Africa	
Sudan	

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