

From (No) Butter to Guns? Understanding the Economic Role in Transnational Terrorism

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From (No) Butter to Guns: Understanding the Economic Role in Transnational Terrorism

Abstract

This paper provides a comprehensive study into the economic determinants of transnational terrorism and the role that development can play in fostering a more peaceful world. We analyze models of conflict resolution to investigate the relative importance of economic development on domestic and transnational terrorism. We construct an original database from 1968-2003 for 179 countries, to examine the extent to which economic factors influence the decision to undergo transnational terrorist activities. We also compare these results to a sub-sample from 1998-2003 on domestic terrorism. We find that economic development is associated with higher incidents of transnational terrorism, especially in higher income countries. However, when considering lower income countries, economic progress is actually negatively related to transnational terrorism. Finally, we find that higher income is a deterrent to domestic terrorism in both rich and poor countries.

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1 Introduction

We live in the Age of Terrorism. Since the prominent incidents in high income cities such as New York City, Madrid and London, and the persistent incidence of terrorism in Middle East countries such as Israel and Iraq, both academia and the media have become involved in a careful examination of the causes of terrorism. Terrorism is, however, neither new nor novel — indeed the very origin of the term points to a long history, dating back to the late 1700's.¹ Given its long history, it is surprising how little we know about it. The purpose of our project is to begin to unravel the important linkages between economic development and the incidence of terrorism.

Political scientists have long emphasized that terrorism has been a constant source of worldwide tension through much of the post World War II era. In her seminal contribution on the causes of terrorism, Crenshaw (1981), identifies modernization, ‘social facilitation’ and the spread of revolutionary ideologies as important factors that drive terrorism. This paradigm serves as a useful point of departure for empirical investigations of terrorism. Modernization can isolate certain groups while at the same time provide more cost effective ways of equipping these same groups. Such a view of modernization suggests that terrorism may be more prevalent in more developed countries (i.e OECD countries) which tend to experience higher rates of technological progress.² Social facilitation or ‘social habits and historical traditions that sanction the use of violence against the government’ (p. 382) is synonymous with the view that internal violence begets violence.³

¹The word “terrorism” apparently first appeared in the English language in reference to the “Reign of Terror” associated with the rule of France by the Jacobins from 1793-94. The first incidence was actually reported in first century B.C. when Jewish terrorists, Zealots-Sicari, incited a riot which led to a mass insurrection against the Roman Empire. See Laqueur (1977), pp. 7-8.

²See also Krueger and Maleckova (2002) for analysis that is consistent with this view.

³In our empirical analysis, we include variables such as religious and linguistic fractionalization to control

While terrorism has been present for longer than one might realize, its nature has clearly evolved over time. Indeed, with respect to the spreading of revolutionary ideologies, there appears to be a potential change in the motive of many terrorists since the November 1979 takeover of the US embassy in Tehran. Until that point, terrorism had been primarily motivated by revolutionary and separatist ideologies – see Wilkenson (2001). Since then, the driving force appears to be more of a religious-based fundamentalism. For example, the percent of religious-based terrorist organizations grew from 4 percent to over 50 percent by 1995 – see Hoffman (1997). This shift points to the importance of considering the political motivation of terrorist groups when examining terrorism. In fact, in a more recent discussion, Crenshaw (2001) argues “Terrorism should be seen as a strategic reaction to American power in the context of a globalized civil war. Extremist religious beliefs play a role in motivating terrorism, but they also display an instrumental logic.” This points to the importance of considering theories of civil conflict along side of assessing the relative importance of development, democratization and globalization in determining terror.

This also points to differentiating between the two types of terrorism — domestic and transnational. One might argue that transnational terrorism is more akin to external conflict between two countries whereas domestic terrorism is more akin to civil war or insurrection. One might go a step further and conjecture that certain factors, say social facilitation, are influential in civil conflict whereas others, say modernization, are determinants in external violence. While this may seem plausible, the empirical evidence strongly suggests that each of these factors are important to explaining *both* internal and external conflict. Researchers have shown that treating these factors as having distinct influences in only internal or external

for biases due to such social and historical traditions.

violence would bias the results. Blomberg and Hess (2002) and Blomberg, Hess and Thacker (2005) are two recent papers that demonstrate the joint causal relationship between a host of factors, e.g. modernization and social facilitation, and both internal and external conflict. For this reason, we take a relatively agnostic view in differentiating between transnational terrorism and domestic terrorism.⁴

Operationally, how does one quantify these political motivations for terrorism? Interestingly, radicalism, separatism and other ideological motivations for terrorism that appear to be intrinsically non-economic may actually stem from underlying economic conditions. Marxist and Leftist separatist movements that dominated the terrorist landscape during the 1960s and 1970s were deeply rooted in economics. North/South inequality was a key factor in political movements that might on the surface appear to be motivated by injustice or the Cold War. As Che Guevara noted, “The amount of poverty and suffering required for the emergence of a Rockefeller, and the amount of depravity that the accumulation of a fortune of such magnitude entails, are left out of the picture, and it is not always possible to make the people in general see this.”⁵

Similarly, radical religious movements often appeal to economic conditions as motivation for an attack. Even Osama Bin Laden uses a public finance argument to explain terrorism. “The ordinary man knows that [Saudi Arabia] is the largest oil producer in the world, yet at the same time he is suffering from taxes and bad services. Now the people understand the speeches of the ulemas in the mosques—that our country has become an American colony. They act decisively with every action to kick the Americans out of Saudi

⁴For our main results, we concentrate on using the richest data source available which only documents transnational events. However, we do investigate analogous empirical relationships using only domestic terrorism data, albeit over a shorter time sample. We find, not surprisingly given the literature, that the factors that influence transnational terrorism and also those that influence domestic terrorism.

⁵<http://www.geocities.com/glorybangla/cqtes.htm>

Arabia. What happened in Riyadh and [Dhahran] when 24 Americans were killed in two bombings is clear evidence of the huge anger of Saudi people against America. The Saudis now know their real enemy is America.”⁶ In short, if economic needs were being met, then many of these seemingly non-economic motivations may cease to be compelling for terrorist recruitment.⁷

Economic factors and levels of development may also *directly* have an effect on a country’s likelihood of being affected by violent conflict.⁸ Grossman (1991) provides the seminal economics paper investigating the integral linkages between civil conflict and the economy. In this paper, he presents a general equilibrium model that treats insurrection and the suppression of insurrection as economic activities willingly undertaken by the participants. The ruler has to trade off higher taxes not only with the lower tax revenue that comes about when people devote less time to productive activities but also with the added cost of having to hire soldiering services to suppress insurrection. Grossman finds that economies in which the soldiering technology is effective can move themselves to no-conflict equilibria by devoting some resources to soldiering and keeping tax rates low.

With respect to the link between terrorism and the economic environment, Blomberg,

⁶The Washington Post 8/23/98

⁷Still, it is important to consider these non-economic factors in the empirical analysis, which we do.

⁸There also exists a longer standing literature analyzing the economic impact of terrorism versus other forms of violence. Blomberg, Hess and Orphanides (2004), investigate the impact of various forms of conflict such as terrorism, internal wars and external wars on a country’s economic growth. They find that, on average, the incidence of international terrorism may have an economically significant negative effect on growth, albeit one that is considerably smaller and less persistent than that associated with either external wars or internal conflict. Terrorism is associated with a redirection of economic activity away from investment spending and towards government spending. They also find that the impacts are largest in Africa and amongst non-democratic states. Eckstein and Tsiddon (2004) provide an analysis of the macroeconomic consequences of terrorism in Israel. They find a large impact of domestic terrorism on economic activity in Israel. Using bilateral trade data, Blomberg and Hess (2005a) establish that terrorism has a diminishing effect on international trade and Blomberg and Mody (2005) demonstrate that violence also has a negative impact on foreign direct investment. Glick and Taylor (2004) provide an interesting complementary analysis of external conflict on international trade over a longer historical period.

Hess and Weerapana (2004a) present a model that describe how one factor - the state of the economy - can lead groups to resort to terrorist attacks.⁹ Other authors such as Bernholz (2003) and Wintrobe (2002) have studied the important influences of increased fundamentalism and group solidarity in driving terrorist activity. However, it is important to note that economic conditions are important to consider in identifying the underlying determinants of conflicts and terrorist activity.¹⁰ Blomberg, Hess and Weerapana (2004b) provide an analysis of relationship between economic growth fazes (e.g. expansions and contractions) and transitions into and out of terrorism incidents.

From a public policy perspective, the thrust of these papers is that development may play an important role in deterring costly terrorism. Rich countries may be more apt to experience terrorism but they are also more insulated from the damaging effects from it. The point here is that once a country reaches a certain stage in the development process, terrorism loses much of its capability to economically harm an economy.¹¹ Still, the existing literature has yet to definitively rule on the significance of the impact of development on

⁹The work is in the spirit of Hirshleifer's (1994) view of how economists model conflict. The formulation of the paper; however, is closer to Tornell (1998) who presents a dynamic model in which organized groups extract rents from the economy, eventually depleting the resources to a point where a group not in power decides to abandon this status quo in an attempt to consolidate their own power and deprive the other group(s) of the access to resources. Tornell's model is used to analyze the question of why economic reforms come from within.

¹⁰There is also an existing literature that analyzes how economics influences conflict in general. However, most of the analysis to this point has considered the impact on conflicts such as war without considering alternative types of conflict such as terrorism. For example, Hess and Orphanides (1995, 2001a, 2001b) estimate the probability of conflict for the U.S. doubles when the economy has recently been in a recession and the president is running for reelection. More broadly, Blomberg, Hess and Thacker (2005), and Blomberg and Hess (2002) find some evidence for a relationship between the state of the economy and internal and external conflicts once the region and initial conditions are taken into account.

¹¹There is also some evidence on the empirical effect of public policies more specifically targeted towards preventing terrorism. Enders, Sandler and Cauley (1990) have developed a model to assess the effectiveness of terrorist-thwarting policies on terrorism. Unfortunately, they find little evidence for legislative activity in preventing terrorism. They find that installing metal detectors in airports helped reduce the incidence of sky-jackings while enhancing security in embassies helped increase the safety of U.S. diplomats albeit with the unintended consequence of decreasing the safety of non-diplomatic individuals. O'Brien (1996) looks at whether terrorism is used as a foreign policy tool by international superpowers: he shows that authoritarian regimes are more likely to sponsor terrorist attacks following setbacks in the foreign policy arena.

terrorism. The economic literature has reinforced the political science literature by stressing terrorism's important link to institutions and pointing to the possible economic consequences of these factors. Drawing on this earlier literature, in our investigation of the economic causes of terrorism we attempt to control several of these factors and parse the results by income and terrorism target. This is a central contribution of our work.

Our paper introduces several important differences across income, trade and terrorism. First, countries are more likely to experience terrorism as they develop though the impact is largest in higher income countries. Second, openness can help mitigate this effect, though once again, the impact is largely seen for higher income countries. The results are markedly different when considering the low income countries. In this case, income per capita is negatively related to terrorism and openness is positively related to terrorism. Reconciling the positive relationship between international terrorist incidents and levels of income for higher income countries with the subsequent negative relationship between international terrorist incidents and income for lower income countries cannot be directly addressed in this paper but is analyzed in our companion piece — Blomberg and Hess (2005b). Finally, we find that for both high and low income countries, domestic terrorism is reduced as economies develop.

2 The Data and Empirical Regularities

In this section, we describe our data sources and examine some of its basic empirical regularities. In constructing the data set, our goal is to combine terrorism data with the most standardized and broadly accepted international economic data source—namely, the Penn

World Table data (Summers and Heston (1991)).¹² This has certain implications for the organization of our data. Importantly, since our benchmark is given as a country-year panel, we convert data on the incidence of terrorism (and other variables) accordingly. Our intent is to examine the effects of the economy on the incidence of terrorism, controlling for a myriad of other factors that affect the incidence of terrorism.

To measure terrorist activities, we employ the latest update of the “International Terrorism: Attributes of Terrorist Events” (ITERATE) data set from Mickolus *et. al.* (2002). In all, the resulting data set covers 179 countries over 35 years providing an unbalanced panel data set of over 4000 observations.

Of course, the ITERATE data set is certainly not the only data set available, though we feel it is the most extensive and reliable. So, before describing our data set, we begin with a brief description of other data sets available to include pros and cons. Recently, the US State Department’s terrorism data has received much attention in the popular press. The United States’ State Department issues its annual report “Patterns of Global Terrorism report” which contains information on the number and location of international terrorist events. However, the 2003 report has come under heavy scrutiny – see Krueger and Laitin (2004). Due to these detailed criticisms, we choose not to employ the State department data directly in our analysis, although we do examine it as a robustness check.

Another widely, though less controversial source for terrorism data, is given in Engene’s (2004) book, the TWEED (Terrorism in Western Europe) data set. This data set is one of the richest and long-standing data sets available. TWEED catalogs all terrorist events, including domestic and international events, in Western Europe over the last 50 or

¹²We also considered matching other types of data such as tourism, ... etc. However, the availability of the data limited our ability to investigate the issue on a large scale.

so years.¹³ Unfortunately, the entire focus of the data set is on Western Europe and so only 18 countries are examined. Hence, due to the limited coverage of countries, we did not adopt the TWEED data for our analysis.

Tavares (2004) also provides an alternative data set for terrorism from the International Policy Institute for Counter-Terrorism (IPIC) (2003). The organization may be viewed as less political than the State Department and therefore the data maybe considered more reliable. However, the number of years covered is significantly smaller than in both the State department and ITERATE data sets. Notably, the IPIC data set begins systematizing the data in 1987. Ultimately, for this reason, we declined to use the IPIC data set.

Another well-known chronology of terrorism events is the RAND-St Andrew's Chronology of International Terrorist Incidents (RAND, hereafter). The RAND data includes a computerized database of international terrorist incidents that have occurred world-wide from 1968 to the present. While the database coverage is quite extensive, it generally excludes violence carried out by terrorists within their own country against their own nationals, and terrorism perpetrated by governments against their own citizens (even if located abroad). The data coverage is quite extensive and is the closer in spirit to ITERATE.¹⁴ The RAND database is the only data set available that does have some limited data on domestic terrorism. As such, we will employ the domestic data to as a robustness check for our results on transnational terrorism. The time span for domestic terrorism is shorter, however, and only covers the years 1998-2003.

This leaves the ITERATE data set which has significantly larger country and tem-

¹³The data set actually begins in 1950.

¹⁴A future avenue of research would be to conduct the exercises employed in this paper using the RAND database to examine the importance that development, democratization and globalization play in determining state-sponsored terrorism.

poral coverage than many of the other data sets. The one downside to employing this data is that it emphasizes the border-transcending character of terrorism. However, since the purpose of this project is to investigate the terrorism and its relationship to development, democratization and globalization, ITERATE is the most well-suited data for our project.

The ITERATE data set attempts to standardize and quantify characteristics, and activities of transnational terrorist groups. An international terrorist event is defined as:

“the use, or threat of use, of anxiety-inducing, extra-normal violence for political purposes by any individual or group, whether acting for or in opposition to established governmental authority, when such action is intended to influence the attitudes and behavior of a target group wider than the immediate victims and when, through the nationality or foreign ties of its perpetrators, its location, the nature of its institutional or human victims, or the mechanics of its resolution, its ramifications transcend national boundaries.” Mickolus *et. al.*, (2002, page 2).

In short, a terrorist event is required to be employed for political purposes to influence a wider target group on an international scale. This means that events such as September 11, 2001 are included in this dataset but some other terrorism events, such as the Oklahoma city bombing, are not deemed to meet all the relevant criteria.

ITERATE provides a rich micro-level data set of over 16,000 incidents of terrorism across 179 countries from 1968 to 2003. The raw data is grouped into four broad categories. First, there are incident characteristics which code the timing of each event. Second, the terrorist characteristics yield information about the number, makeup and groups involved in the incidents. Third, victim characteristics describe analogous information on the victims involved in the attacks. Finally, life and property losses attempt to quantify the damage of the attack. Unfortunately, the information across many of these categories is not provided in a consistent manner as the original source material comes from news organization resources which may fail to report a particular factor, such as the number of victims. This presents a

significant limitation of this dataset. Because of this limitation, we focus our attention on the number of terrorist incidents reported, which is the most consistent measure reported in the ITERATE dataset.¹⁵ As an alternative, we also report results using the number of incidents-per-capita in a given year as a measure of the incidence of terrorism.

Before we leave this issue, it is useful to note that in aggregate, the dynamics across the major data sets are roughly similar. Table 1 reports the total number of incidents reported by the STATE Department, ITERATE and RAND data sets. In each data set, the number of events increases during the period 1969 to 1987. The state department and ITERATE estimate a similar steady increase from approximately 100 to 200 incidents per year, up to 500 to 600 incidents per year. RAND estimates a similar trend, though the levels are smaller (from a base of approximately 100 incidents per year). Likely the difference in the levels of terrorism in these data sets is that RAND does not include terrorism from state actor to non-state actor within a country and so systematically underestimates the number of attacks.

Also, note that the results demonstrated in Table 1 indicate that from the time period 1987 to 1998 all the data sets demonstrate a steady decline to about 100 to 200 incidents per year. Since then, however, there is a significant difference in the number of estimated incidents. Data from the ITERATE and STATE data sets both estimate a smaller number of incidents than at the peak in the late 1980's, approximately 200 to 400 incidents per year. RAND, on the other hand, reports a larger jump in incidents since 2000. Therefore, as a first pass, it appears that the ITERATE data shares many of the same features as other

¹⁵Still, the incident reported data has certain instances where the coding may seem arbitrary. On the coding of "transnationality", for example, certain separatist movements such as in Puerto Rico and Corsica are included whereas others such as the Oklahoma City Bombing are not. A larger issue may be trying to define the point at which terrorism stops and a civil war starts, as in Iraq. This distinction may not be a serious concern when evaluating results however, see Blomberg, Hess and Orphanides (2004).

data sets on terrorist incidents. As such, by employing the ITERATE data set, we are likely to be capturing important and representative aspects of the determinants of terrorism.

It also appears that employing the definition of terrorism as the country being targeted is appropriate if we are to compare our results to the existing literature. If instead, we employed the definition of terrorism from a source country, we would be unable to see to what extent our data comoves with RAND or STATE. We do believe it would be interesting to investigate the importance of terrorism at the source level. In particular, it would be interesting to see to what extent source level ideologies, such as religion, influence terrorism. This is beyond the scope of our paper. However, we do investigate this issue in our companion piece, Blomberg and Hess (2005b).

2.1 The Trends in Terrorism

As discussed above, since 1968 (the first year that the ITERATE data are available), the number of terrorist incidents steadily increased year after year until peaking in the mid to late 1980's – See Table 1. For several years thereafter, the worldwide intensity of transnational violence—violence motivated by international political considerations—fell steadily. In the late 1980's, according to the ITERATE data set, approximately one-and-one-half transnational violent events occurred every day. This frequency declined to less than one-half of an event a day by 2000. The decline also indirectly implies that the number of countries affected by a violent event fell over that period.¹⁶ This trend to a more peaceful world may

¹⁶Other measures of violence also ebbed during the 1990's. For example, the threat of nuclear holocaust, as defined by the Doomsday Clock, fell sharply in 1991 with the signing of the Strategic Arms Reduction Treaty between the United States and the Soviet Union. The Doomsday Clock is calculated by the Bulletin of the Atomic Scientists (www.thebulletin.org/clock.html). Russett and Slemrod (1993) demonstrate the doomsday clock has a significant impact on savings.

be linked to the upswing in democratization and globalization.¹⁷ The direct relationship between globalization, democratization and terrorism is investigated in our companion piece, Blomberg and Hess (2005b).

The dynamics of terrorism is obviously more complicated than is suggested in the previous paragraph. A careful examination of Table 1 demonstrates five facts on the trend of terrorism. First, the number of terrorist incidents have fallen since peaking in the late 1980's. Terrorism was halved from approximately 500 - 600 incidents per year in 1991 to 200 - 300 in 2003. On a per capita basis, the trend away from terrorism is even larger. The number of incidents per million was .43 during the 1970's, .46 during the 1980's, .28 during the 1990's and .12 beyond. This point has been more seriously addressed in Enders and Sandler (2005) who demonstrate that there has been no increase in violence from terrorism since 9-11. They show, if anything, terrorism has fallen. Second, however, over the same time period in question, the number of violent episodes may have risen—particularly since 9-11. The average number of deaths per incident was 0.83 from 1968 to 1993. In seven of the next ten years, the number of death per incident was higher than that. Table 1 calculates that over the entire sample (1968-2003) there has been about 1 death per incident, and since 2001, the average has been five times that rate.

Third, the recent drop in terrorism is systematic across regions, governments, income classes, and degrees of openness. Tables 2 - 4 provides a breakdown of the data decade by decade parsed by region, governance and geography. In each and every case, there was an increase in terrorist incidence per capita during the 1970's and 1980's and a subsequent

¹⁷For example, the early 1990's also mark the point of a decisive break in global foreign investment. A sharp increase occurred in the Foreign Direct Investment (FDI) to global investment ratio for the rest of the decade. While the run-up of FDI in the 1990's, especially in the second half of that decade, has several explanations, the correlation with a decline in worldwide violence is striking. Since 1991, the simple correlation coefficient between violence and FDI is -0.91.

fall in the 2000's. During the 1970's and 1980's, rich countries saw both the number of terrorist incidents and the number of incidents per capita rise.¹⁸ Since then, rich countries have seen a successive 50 percent drop in terrorism per capita in the 1990's and 2000's. The drop in terrorism follows a similar path in poorer countries. Tables 2 and 3 also reports the different trends partitioned by form of government—democratic or non-democratic, and by integration—globalized and non-globalized.

Fourth, the hot spots for terrorism, as measured by incidence per capita, appear to be richer democracies, economies more open to trade and Middle Eastern countries. Though the globalizers/non-globalizers and democracies/non-democracies saw declines in terrorism and terrorism per capita in the more recent periods, globalizers and democracies saw the sharpest declines.¹⁹ On a per capita basis, terrorism is about one tenth the size during the 2000's as it was in the 1980's for globalizers and democracies. Table 2 demonstrates that both the number of incidents and incidents per capita were larger in the high income sample.²⁰ Table 2 also demonstrates that democracies have been more susceptible to terrorism. It is also worthwhile noting that there is a strong correlation between democracy and income that may affect the interpretation of Table 2.

Tables 3 and 4 continue the above exercise and parse the data by region and the extent to which a country is open to trade. Over the entire sample, globalized economies appear to have about eight times the incidence of terrorism per capita than non-globalizers. Interestingly, as Eastern European countries became more open since 1990, the rate of terrorism per capita began to rise and approach the rate of Western Europe. Note that the

¹⁸A rich or developed country is defined as a High Income country by the World Bank. See the World Bank's website for more details.

¹⁹A country is labelled as Globalized (Non-Globalized) if trade as a percent of GDP is greater than (less than or equal to) 50 percent.

²⁰Note that, for comparison, these decadal breakdowns are given as yearly averages.

Middle East has experienced significantly higher rates of terrorism per capita than any other region examined. For example, during the 2000's, the Middle East has four times the rate of terrorism per capita in Western Europe and 10 times the rate in Asia, Latin America and Sub-Saharan Africa.

Finally, there appears to be a significant change in the incidence of terrorism since the 1980's. The gap between democracies versus non-democracies and globalizers versus non-globalizers has disappeared. In fact, since the 2000's, non-democracies and non-globalizers have had **higher** incidence of terrorism per capita. This issue will be explored in greater detail in our companion piece, Blomberg and Hess (2005b).

If anything then, the rise in terrorist incidents and subsequent fall in violent incidents over the past 15 years seems to have been more pronounced in the Middle East or in closed, non-democratic poor countries. To investigate this issue in more detail, we consider the geography of terrorism in the next subsection.

2.2 The Geography of Terrorist Incidents

As a starting point, we provide a summary on the incidence of terrorism by a map of the world (Figure 1A). Each country has a graduated color with the darkest representing the countries with the most terrorist events and the lightest representing the countries with the least.²¹ The areas of the world that appear to have the most terrorism are the Americas and Europe whereas there appears to be far less terrorism in Africa.

Figure 1A might cause one to conclude that terrorism is an unfortunate consequence of economic development and political freedom. For example, after Lebanon at 24.4 terrorist

²¹Recall that these are graphs of international terrorism that take place in given country. That is, an international terrorist incident that takes place in Africa but that targets U.S. interests would be viewed as an incident in Africa not in the U.S.

events per year, the United States experiences the second highest terrorist incidence, with an average of about 19.6 terrorist events a year, followed closely by Germany and France at 18.4 and 17.9 respectively. However, neighboring countries with similar income and political systems do not suffer from terrorism. Countries such as Canada at 1.4 incidents per year and the Nordic countries such as Sweden (1.5), Norway(0.5), and Finland (0.0) do not have such problems.

To understand some of the difficulties associated with interpreting the incidence of terrorism, consider the following fact from two of the high-incidence countries mentioned above—the United States and France. During the 1960’s, 1970’s and part of the 1980’s, the main perpetrator in each country came from a single organization. In the United States, the main culprit was the FALN (Armed Front for National Liberation), a Puerto Rican separatist group. In France, the main instigator was (CNLF) the Corsican National Liberation Front. Yet, in both cases, during the later part of the 1980’s and 1990’s, both the FALN and CNLF became virtually non-existent. Such anecdotal evidence is suggestive of many complicating factors facing researchers dealing with these data. For instance, some statistics may be unduly influenced by one interest group, region or country and may be quite hard to generalize going forward.²²

If we considered the prevalence of terrorism on a per capita basis, the relationship between governance, income and terrorism is somewhat diminished. While a simple Spearman rank correlation shows that the correlation between the country rankings of average incidence of terrorism and the country rankings of average terrorism per capita is .60, coun-

²²Indeed, Enders and Sander (2005) catalog the types of terrorism over time to highlight the importance of such idiosyncrasies. From the early 1960’s to the late 1980’s, terrorism is predominantly motivated by nationalism, separatism, and other more radical considerations. Since the 1990’s, however, religion appears to have played a larger role.

tries with large populations such as the United States drop in world rankings. For example, the three countries mentioned previously—France, Germany and the United States rank 41, 51 and 87 out of 210 countries when using incidence per capita as the measure for terrorism.

Indeed, as one might suspect, countries in the Middle East tend to be countries with higher rates of terrorist incidents per capita. This is best seen in Figure 1B which plots a summary of incidence on a per capita basis. Indeed, the Middle East comprises 7 of the top 10 terrorism per capita countries in the World.

In summary, the past two subsections point out that when considering the economic causes of terrorism, terrorism varies systematically across time, region and income. As such, these factors must be controlled for in order to understand the incidence of terrorism. We pursue this issue in the following section.

3 Econometric Evidence

The purpose of this section is twofold. First, we want to examine our results within the context of long-horizon cross-sectional regressions. Second, we wish to re-examine these results in panel regressions controlling for specific country and year effects. Finally, we compare our results from international terrorism to domestic terrorism.

3.1 Cross Country Regressions

We begin these exercises by constructing our baseline model by appealing to the literature on economic growth. As one of our basic questions is whether the level of economic development affect the rate of incidence of terrorism, we believe that the scope and extent of the economic's literature that considers the cross country determinants of economic growth is a useful starting point for thinking about the cross country determinants of terrorism. The

workhorse model employed in the literature is cross country regressions (e.g., see Levine and Renelt, 1992), where a country’s economic growth is explained by exogenous (or, at least, predetermined) factors such as past levels of income, human capital (i.e. education), etc...

From the economic growth literature, our baseline cross-country regression model includes as control variables measures of development, governance and openness. All variables are 35 year averages for each country from 1968-2003. We proxy for economic size and level of development by including in our specification the following variables: the natural logs of Real GDP [LN(GDP)] and Real GDP per capita [LN(GDP/N)]. Furthermore, our measure of openness is the ratio of exports plus imports to GDP, $trade/GDP \equiv [LN(OPEN)]$. Finally, to proxy for political governance, we construct measures of governance from the POLITY IV database and from the Keefer database: namely, our measure of democracy is DEM, a dummy variable which is equal to 1 if polity is greater than 7 or the executive plus legislative index of political competitiveness is greater than 14, or 0 otherwise.²³

In addition, our empirical specification allows for measures of modernization that researchers have pointed to as important factors in terrorism, namely the amount of language fractionalization (LANG), amount of religious fractionalization (REL), and literacy rate (EDUC). We also include a dummies for Sub-Saharan Africa (AFRICA) and Asia (ASIA) which researchers have consistently identified as important, both in economic and statistical terms. Starting from this baseline model, and in line with earlier work in this literature, we examined other policy, regional, or institutional variables that might be important in explaining economic growth.

²³Both measures are conventional measures of democracy—polity is a 1-10 scale of democracy from the POLITY IV database and executive+legislative index is a 2-14 scale of electoral rules from the Keefer database.

$$T_i = \beta_0 + \beta_1 LN(GDP)_i + \beta_2 LN(GDP/N)_i + \beta_3 LN(OPEN)_i + \beta_4 DEM_i + \beta_5 LANG_i + \beta_6 REL_i + \beta_7 EDUC_i + \beta_8 AFRICA_i + \beta_9 ASIA_i + \varepsilon_i. \quad (1)$$

Our findings were broadly consistent with the early research—most institutional, geographical or policy variables tended to be fragile in their ability to statistically influence terrorism, especially when considered across income class.

Before discussing the results from this regression, we provide a graphical depiction of the data. Figures 2A - 2B demonstrate that terrorism is generally associated with higher levels of development, democracy and openness. These bar charts depict the horizontal axis is the quintile of the distribution – partitioned by income, democracy and globalization — and the vertical axis as the mean value for terrorism. Figure 2A uses the number of incidents as its measure of terrorism while Figure 2B uses the number incidents in per capita terms. Figure 2B shows that in per capita terms, terrorism rises as countries move up the income, democracy and openness scale. Figure 2A shows a similar result, though the impact due to openness appears to move in the opposite direction. This is likely due to the fact that openness is highly correlated with country size.

Table 5 provides statistical evidence supporting Figures 2A- 2B. In this case, we estimate the relative impacts of development, democracy and globalization on terrorism. Table 5 provides several key results. First, development has a positive effect on terrorism that is statistically robust across all and higher income countries. Second, openness has a negative impact on terrorism that is significant for the entire sample and when we exclude low income countries. Finally, democracy has little impact on terrorism in the pure cross-section.

Interestingly enough, the results are markedly different when considering the low income countries. In this case, income per capita is negatively related to terrorism and openness is positively related to terrorism. There are two possible explanations for the difference across income levels. First, there may be a non-linear or “take-off” effect, in which good policies that encourage income, governance and openness deter terrorism for the most disadvantaged. However, as countries develop, terrorism becomes a “luxury good” employed by dissident groups for political purposes. This point is discussed in Blomberg, Hess and Weerapana (2004b) and is addressed in our companion piece Blomberg and Hess (2005b).

3.2 Panel Regressions

This section is a straightforward extension of the previous section. As such, we extend the model so that we can examine short run impacts on terrorism and add observations over time from 1968 to 2003. In addition, we consider two extensions over the cross-section by including two different measures of terrorism. First, we include a measure of intensity of terrorism, so that we include only violent incidents of terror. Second, we include only domestic incidents using the RAND data set. As mentioned early, the series is of shorter duration so we are only able to estimate the impact of domestic terrorism from 1998-2003.

The results from the panel estimation continues to support the cross-sectional findings with a few notable caveats. Greater levels of development and democracy actually encourage terrorism in the full sample, while openness has a mitigating influence. However, for developing countries, higher income continues to discourage terrorism. The caveats are as follows: when considering violent incidents or domestic incidents, higher income is negatively associated with terrorism across all sub-samples. Moreover, not surprisingly, openness has little influence for domestic terrorism.

The regression is similar to that employed above with a time subscript added to each variable:

$$T_{it} = \beta_0 + \beta_1 LN(GDP)_{it} + \beta_2 LN(GDP/N)_{it} + \beta_3 LN(OPEN)_{it} + \beta_4 DEM_{it} \quad (2)$$

$$+ \beta_5 LANG_{it} + \beta_6 REL_{it} + \beta_7 EDUC_{it} + \beta_8 AFRICA_{it} + \beta_9 ASIA_{it} + \varepsilon_{it}.$$

Table 6 reports the results from the basic panel model. These results continue to support the earlier findings. Most interestingly, we find that higher income leads to more terrorism for richer countries but less terrorism for poorer countries.

One concern from this analysis is that these results do not consider the *intensity* of the violent attacks. In other words, perhaps all terrorist incidents are more or less associated with development but may not actually have large negative consequences. To deal with this issue, Table 7 estimates the model with a twist—we replace our left hand side variable with all *violent* terrorist incidents. The results from this robustness check continues to support our earlier findings: namely, higher income is negatively related to terrorism in poor countries and it is positively related to terrorism in higher income countries.

As a final robustness check, Table 8 re-estimates the model using domestic terrorist incidents as the variable of interest. Domestic terrorist events occur at a much greater frequency, however we were only able to obtain data from 1998-2003. The results continue to support our earlier findings, although there are two interesting differences with respect to the findings for international terrorism. First, openness seems to have little statistical impact on domestic acts of terrorism. Second, and most importantly, higher income discourages terrorism in both poor and rich countries. These impacts are both economically and statistically more significant than in the earlier tables. While we note these statistical differences

between domestic and international terrorism, given the short time period for the former set of data we will have to leave the interpretation of these differences to future research.

4 Conclusion

In this paper, we investigate the impact of development on terrorism. We began by considering the large volume of work that has yet to conclusively rule on the issue. By parsing the data into income classes, we were able to see why. Terrorism does tend to be associated with higher income countries. However, we find that for low income countries, development tends to be associated with declines in the likelihood of a terrorist attack. This is borne out when we consider only domestic terrorist attacks which appear to be negatively correlated with income across all income groups.

This result has strong implications for policy. Our paper documents the need for policies that encourage income growth in poorer regions to encourage peace. We show that this is true for both transnational and domestic terrorism, and especially true for the more violent acts of terror. In our companion paper, Blomberg and Hess (2005b), we provide bilateral evidence on the role of development in affecting which countries are targets of international terrorism and which are sources of international terrorism. Our companion paper turns out to be helpful for reconciling the differential relationships between income and terrorism across high and low income countries that are prominent in this paper.

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Table 1: Measures of International Terrorism 1968-2003

Year	ITERATE DATA		STATE DEPT DATA		RAND D
	Number of incidents	Violent Incidents	Number of incidents	Death/Incident	Number of i
1968	123	123	125	0.27	106
1969	181	181	193	0.29	103
1970	344	344	309	0.41	181
1971	301	301	264	0.14	157
1972	480	480	558	0.27	210
1973	341	341	345	0.35	176
1974	426	426	394	0.79	237
1975	342	342	382	0.70	215
1976	455	455	457	0.89	330
1977	341	341	419	0.55	240
1978	290	284	530	0.82	227
1979	336	319	434	1.61	248
1980	525	522	499	1.02	241
1981	469	469	489	0.34	306
1982	423	421	487	0.26	368
1983	428	295	497	1.28	299
1984	473	355	565	0.55	330
1985	525	364	635	1.30	450
1986	538	360	612	0.99	383
1987	504	504	665	0.92	369
1988	417	318	605	0.67	387
1989	359	281	375	0.51	364
1990	371	371	437	0.46	293
1991	578	578	565	0.18	427
1992	359	359	363	0.26	276
1993	554	554	431	0.25	274
1994	377	377	322	0.98	316
1995	315	315	440	0.37	272
1996	223	223	296	1.06	246
1997	189	189	304	0.73	183
1998	96	96	274	2.70	162
1999	295	295	395	0.59	125
2000	167	167	426	0.95	103
2001	52	52	355	9.28	205
2002	130	130	202	3.59	293
2003	275	275	208	3.00	273
Total	12602	11807	14857	0.83	9375

Table 2. Terrorism by Development & Governance

Years	All		Developed		Developing		Democracies		Non-Democracies	
	T	T/N	T	T/N	T	T/N	T	T/N	T	T/N
1960s	0.72	0.20	2.47	3.56	0.41	0.14	2.53	2.13	0.76	0.39
1970s	1.72	0.43	6.09	8.32	0.96	0.29	5.59	3.73	1.18	0.53
1980s	2.20	0.46	6.56	8.38	1.45	0.36	5.38	2.65	1.42	0.55
1990s	1.57	0.28	3.24	3.87	1.28	0.27	2.30	0.75	1.40	0.56
2000s	0.73	0.12	1.25	1.42	0.64	0.12	0.70	0.26	0.60	0.32
Total	6.94	1.49	19.61	25.54	4.74	1.19	16.49	9.53	5.36	2.34

Notes: N is a million of people. Democracy measure is based on a combined democracy of DPI and Polity. Developed if high income country. Democracy if polity > 7 and/or liec+eiec= 14.

Table 3. Terrorism by Globalization & Region

Years	All		Globalized		Non-Globalized		Sub-Sah Africa		Mid East	
	T	T/N	T	T/N	T	T/N	T	T/N	T	T/N
1960s	0.72	0.20	0.62	3.79	0.74	0.22	0.12	0.44	1.67	12.95
1970s	1.72	0.43	1.46	3.53	1.84	0.51	0.31	0.95	3.63	23.93
1980s	2.20	0.46	1.59	2.31	1.00	0.24	0.76	1.79	7.25	35.60
1990s	1.57	0.28	1.08	0.68	2.33	0.58	1.04	1.85	3.89	14.75
2000s	0.73	0.12	0.71	0.25	0.75	0.23	0.47	0.70	2.85	9.39
Total	6.94	1.49	5.47	10.56	6.66	1.78	2.69	5.73	19.29	96.62

Notes: N is a million of people. Globalized if trade as a percent of GDP > 50 percent.

Table 4. Terrorism by Region

Years	All		W Europe		E Europe		Lat Amer		Asia	
	T	T/N	T	T/N	T	T/N	T	T/N	T	T/N
1960s	0.72	0.20	1.17	3.40	0.08	0.25	1.00	3.82	0.25	0.15
1970s	1.72	0.43	5.56	15.63	0.09	0.29	3.14	10.30	1.76	0.90
1980s	2.20	0.46	6.32	17.19	0.14	0.41	3.45	9.05	2.19	0.92
1990s	1.57	0.28	3.48	9.12	0.77	2.16	2.38	5.19	2.50	0.88
2000s	0.73	0.12	0.94	2.40	0.22	0.65	0.63	1.23	1.80	0.58
Total	6.94	1.49	17.47	47.74	1.31	3.75	10.59	29.59	8.50	3.42

Notes: N is a million of people.

Table 5: International Terrorist Incidents Cross-Country Regressions: 1968-2003

	All			Low Income			Not Low Income		
	Base	MOD	REG	Base	MOD	REG	Base	MOD	REG
	1	2	3	4	5	6	7	8	9
LN(GDP)	0.348** [0.171]	0.330* [0.185]	0.378** [0.177]	0.545 [0.338]	0.787*** [0.301]	0.822*** [0.277]	0.246 [0.184]	0.124 [0.158]	0.083 [0.145]
LN(GDP/N)	0.413** [0.196]	0.438** [0.221]	0.538** [0.246]	-0.727* [0.388]	-0.952** [0.386]	-0.996*** [0.367]	0.564** [0.243]	0.632*** [0.240]	0.910*** [0.289]
LN(OPEN)	-1.743** [0.686]	-1.426** [0.670]	-1.386** [0.641]	0.198 [0.664]	1.688** [0.733]	1.595** [0.649]	-2.556*** [0.885]	-2.457*** [0.861]	-2.574*** [0.728]
DEM	0.031 [0.938]	0.412 [0.919]	0.494 [0.926]	-0.8 [1.490]	0.291 [1.261]	0.043 [1.499]	0.28 [0.950]	0.683 [1.174]	0.62 [1.145]
EDU		-0.016 [0.015]	-0.011 [0.017]		-0.045*** [0.015]	-0.043*** [0.015]		-0.013 [0.024]	-0.009 [0.022]
LANG		-0.32 [0.998]	-0.815 [0.940]		-1.668 [1.016]	-1.637 [1.009]		0.522 [1.242]	-0.446 [1.131]
REL		-1.241 [0.945]	-1.863 [1.160]		0.604 [1.149]	0.464 [1.347]		-2.033 [1.282]	-3.071** [1.397]
ASIA			0.606 [0.591]			-0.457 [0.803]			1.745** [0.774]
AFRICA			1.178* [0.626]			-0.206 [0.939]			1.600* [0.866]
Observations	114	109	108	41	39	39	73	70	69

Notes: clustered standard errors are presented in parentheses. ***, ** and * represent statistical significance at the .01, .05 and .10 levels, respectively. Each column is the basic model estimated over full country sample 1968-2003. Columns 1-9 were estimated using the Tobit Method to allow for substantial number of zero value observations. Column's 1, 4, 7 are basic model, Column's 2, 5, 8 are Modernization models [MOD], and Column's 3, 6 and 9 are Regional models [REG]. Columns 1-3 are estimated over entire sample of countries. Columns 4-6 are estimated for low income sample and Columns 7-9 are estimated for not low income sample. Included in the regression are: Logs of Real GDP [LN(GDP)] and Real GDP per capita [LN(GDP/N)] and trade/GDP [LN(OPEN)], amount of language fractionalization (LANG), amount of religious fractionalization (REL), literacy rate (EDUC) and measure of democracy (DEM is dummy variable which is 1 if polity>7 or executive+legislative veto points >14, 0 otherwise) and dummy variables for Asia [ASIA] and sub-Saharan Africa [AFRICA].

Table 6: International Terrorist Incidents Panel Regressions: 1968-2003 Full Country Sample

	All								
	Low Income			Not Low Income			REG		
	Base	MOD	REG	Base	MOD	REG	Base	MOD	REG
	1	2	3	4	5	6	7	8	9
LN(GDP)	1.437*** [0.197]	1.103*** [0.182]	1.178*** [0.199]	1.180*** [0.181]	1.236*** [0.212]	1.292*** [0.225]	1.385*** [0.229]	0.970*** [0.216]	0.984*** [0.229]
LN(GDP/N)	0.499*** [0.179]	0.298 [0.208]	0.012 [0.251]	-0.674* [0.402]	-1.371*** [0.509]	-1.744*** [0.511]	0.426* [0.242]	0.656*** [0.250]	0.643*** [0.294]
LN(OPEN)	-2.248*** [0.423]	-2.495*** [0.448]	-2.376*** [0.441]	-0.677 [0.451]	-0.798 [0.530]	-0.862* [0.520]	-2.726*** [0.529]	-2.911*** [0.535]	-2.898*** [0.540]
DEM	1.253*** [0.394]	0.910** [0.393]	0.904** [0.392]	0.617 [0.495]	0.232 [0.488]	-0.075 [0.478]	1.316*** [0.480]	1.104** [0.522]	1.079** [0.522]
EDU		0.035*** [0.010]	0.034*** [0.011]		0.007 [0.011]	-0.001 [0.012]		0.038** [0.015]	0.038** [0.016]
LANG		1.765** [0.746]	2.409*** [0.816]		-3.172*** [1.051]	-1.912* [1.068]		3.171*** [0.963]	3.168*** [1.024]
REL		-7.688*** [1.098]	-7.379*** [1.153]		-0.247 [0.956]	0.622 [1.072]		-10.821*** [1.591]	-10.879*** [1.668]
ASIA			-1.437** [0.680]			-3.166*** [0.982]			-0.1 [0.868]
AFRICA			-1.037 [0.703]			-3.368*** [0.916]			0.035 [1.007]
Observations	2966	2842	2841	1008	942	942	1958	1900	1899

Notes: clustered standard errors are presented in parentheses. ***, ** and * represent statistical significance at the .01, .05 and .10 levels, respectively. Each column is the basic model estimated over full country sample 1968-2003. Columns 1-9 were estimated using the Tobit Method to allow for substantial number of zero value observations. Column's 1, 4, 7 are basic model, Column's 2, 5, 8 are Modernization models [MOD], and Column's 3, 6 and 9 are Regional models [REG]. Columns 1-3 are estimated over entire sample of countries. Columns 4-6 are estimated for low income sample and Column's 7-9 are estimated for not low income sample. Included in the regression are: Logs of Real GDP [LN(GDP)] and Real GDP per capita [LN(GDP/N)] and trade/GDP [LN(OPEN)], amount of language fractionalization (LANG), amount of religious fractionalization (REL), literacy rate (EDUC) and measure of democracy (DEM) is dummy variable which is 1 if polity>7 or executive+legislative veto points >14, 0 otherwise) and dummy variables for Asia [ASIA] and sub-Saharan Africa [AFRICA].

Table 7: International Violent Terrorist Incidents Panel Regressions: 1968-2003

	All			Low Income			Not Low Income		
	Base	MOD	REG	Base	MOD	REG	Base	MOD	REG
	1	2	3	4	5	6	7	8	9
LN(GDP)	28.053*** [3.862]	25.073*** [4.049]	25.458*** [4.098]	32.908*** [5.086]	34.597*** [7.659]	37.140*** [8.104]	26.892*** [4.644]	23.331*** [4.954]	22.821*** [4.869]
LN(GDP/N)	-3.93 [3.418]	-4.787 [4.206]	-8.418* [4.605]	-13.855 [11.266]	-31.039** [15.577]	-42.768*** [14.496]	-3.191 [4.453]	0.112 [5.112]	0.822 [5.369]
LN(OPEN)	-12.548** [6.034]	-14.171** [6.236]	-12.984** [6.168]	-18.858 [12.741]	-25.601 [16.611]	-28.089* [16.811]	-9.557 [7.007]	-10.767 [7.277]	-11.429 [7.104]
DEM	14.295** [5.703]	12.558** [5.868]	12.626** [5.865]	7.176 [13.998]	-2.1 [13.508]	-11.457 [14.627]	14.796** [6.494]	15.701** [6.795]	16.231** [6.783]
EDU		0.243* [0.144]	0.189 [0.157]		0.34 [0.274]	0.081 [0.332]		0.223 [0.189]	0.163 [0.203]
LANG		25.953* [14.321]	37.284** [15.431]		-70.914* [37.316]	-32.671 [29.362]		41.107** [16.545]	40.215** [18.861]
REL		-89.630*** [15.393]	-79.118*** [16.528]		1.197 [26.432]	27.379 [36.796]		-118.671*** [20.001]	-116.112*** [21.168]
ASIA			-17.813 [12.057]			-97.207** [39.232]			3.816 [15.886]
AFRICA			-23.121* [12.936]			-100.570** [44.819]			-8.279 [14.827]
Observations	2966	2842	2841	1008	942	942	1958	1900	1899

Notes: clustered standard errors are presented in parentheses. ***, ** and * represent statistical significance at the .01, .05 and .10 levels, respectively. Each column is the basic model estimated over full country sample 1968-2003. Columns 1-9 were estimated using the Tobit Method to allow for substantial number of zero value observations. Column's 1, 4, 7 are basic model, Column's 2, 5, 8 are Modernization models [MOD], and Column's 3, 6 and 9 are Regional models [REG]. Columns 1-3 are estimated over entire sample of countries. Columns 4-6 are estimated for low income sample and Column's 7-9 are estimated for not low income sample. Included in the regression are: Logs of Real GDP [LN(GDP)] and Real GDP per capita [LN(GDP/N)] and trade/GDP [LN(OPEN)], amount of language fractionalization (LANG), amount of religious fractionalization (REL), literacy rate (EDUC) and measure of democracy (DEM is dummy variable which is 1 if polity>7 or executive+legislative veto points >14, 0 otherwise) and dummy variables for Asia [ASIA] and sub-Saharan Africa [AFRICA].

Table 8: Domestic Terrorist Incidents Panel Regressions: 1998-2003 Full Country Sample

	All			Low Income			Not Low Income		
	Base	MOD	REG	Base	MOD	REG	Base	MOD	REG
	1	2	3	4	5	6	7	8	9
LN(GDP)	25.573*** [5.974]	25.212*** [6.227]	24.935*** [5.802]	60.124*** [21.697]	44.127** [22.069]	38.474* [19.897]	16.056*** [2.852]	22.067*** [5.031]	26.315*** [6.119]
LN(GDP/N)	-23.752*** [7.013]	-25.456*** [8.152]	-25.732*** [7.855]	-43.374** [22.022]	-57.675** [28.655]	-47.415** [23.963]	-21.749*** [4.630]	-21.205*** [7.721]	-28.079*** [9.686]
LN(OPEN)	4.005 [6.154]	-12.731 [9.280]	-14.494 [10.588]	17.561 [18.986]	5.728 [16.286]	0.773 [17.090]	-4.414 [7.369]	-11.717 [11.078]	-1.982 [11.453]
DEM	25.588*** [8.896]	33.808*** [10.845]	31.786*** [10.272]	-12.638 [15.200]	-14.904 [14.958]	-32.828* [18.117]	31.951*** [9.152]	48.203*** [15.255]	47.760*** [14.994]
EDU		1.097*** [0.324]	0.880** [0.343]		0.829 [0.596]	-0.329 [0.428]		1.689*** [0.556]	1.936*** [0.646]
LANG		29.017 [18.331]	38.211* [23.072]		40.609 [41.931]	93.082 [58.938]		35.004** [17.826]	40.099* [21.205]
REL		-93.577*** [25.690]	-76.879*** [27.599]		-156.056* [80.866]	-50.453 [50.851]		-86.531*** [28.980]	-105.310*** [38.819]
ASIA			-7.79 [12.311]			-33.641 [23.384]			-34.971** [16.029]
AFRICA			-25.803 [21.480]			-115.317** [52.930]			21.961 [31.093]
Observations	779	455	454	253	168	168	526	287	286

Notes: clustered standard errors are presented in parentheses. ***, ** and * represent statistical significance at the .01, .05 and .10 levels, respectively. Each column is the basic model estimated over full country sample 1968-2003. Columns 1-9 were estimated using the Tobit Method to allow for substantial number of zero value observations. Column's 1, 4, 7 are basic model, Column's 2, 5, 8 are Modernization models [MOD], and Column's 3, 6 and 9 are Regional models [REG]. Columns 1-3 are estimated over entire sample of countries. Columns 4-6 are estimated for low income sample and Columns 7-9 are estimated for not low income sample. Included in the regression are: Logs of Real GDP [LN(GDP)] and Real GDP per capita [LN(GDP/N)] and trade/GDP [LN(OPEN)], amount of language fractionalization (LANG), amount of religious fractionalization (REL), literacy rate (EDUC) and measure of democracy (DEM) is dummy variable which is 1 if polity>7 or executive+legislative veto points >14, 0 otherwise) and dummy variables for Asia [ASIA] and sub-Saharan Africa [AFRICA].

Table A1. Terrorism in Country Annual Average 1968-2003

Country	T	T/N	GDP/N	Trade/GDP	Polity	LIEC	EIEC	Tensys
Aruba	0.00	0.00		234.03				
Andorra	0.00	0.00						
Afghanistan	2.08	0.59	129.43	36.61	-7.11	1.75	1.54	3.04
Angola	2.42	2.67	774.38	111.63	-6.37	3.33	3.52	8.19
Albania	0.31	0.99	1030.81	48.36	-4.97	4.57	4.57	16.86
N. Antilles	0.00	0.00						
U.A.E.	0.61	5.52	31423.48	111.31	-8.00	1.61	2.00	17.50
Argentina	10.81	4.19	6979.50	17.28	1.16	5.50	5.75	7.64
Armenia	0.03	0.08	586.58	85.22	3.22	6.58	6.25	5.58
American Samoa	0.00	0.00						
Antigua and Barbuda	0.03	4.42	6991.49	158.83				
Australia	1.25	0.84	15548.48	33.97		7.00	7.00	58.50
Austria	2.53	3.32	17498.93	74.31	10.00	7.00	7.00	34.50
Azerbaijan	0.19	0.26	738.01	96.99	-4.44	6.59	5.77	5.18
Burundi	0.56	0.93	123.74	30.89	-6.54	3.36	2.43	4.75
Belgium	3.47	3.51	16671.30	129.02	10.00	7.00	7.00	58.50
Benin	0.00	0.00	321.05	45.80	-2.90	4.36	4.07	9.04
Burkina Faso	0.06	0.07	197.34	34.38	-4.65	3.21	2.68	3.68
Bangladesh	0.39	0.04	277.47	22.53	-0.79	5.02	5.30	3.71
Bulgaria	0.14	0.16	1569.26	91.02	-2.28	5.00	4.71	17.82
Bahrain	0.58	11.03	10455.00	177.50	-9.52	1.11	2.00	14.50
Bahamas, The	0.08	4.17	14051.35	129.62		6.82	6.75	16.50
Bosnia and Her.	1.36	2.60	991.48	92.38		6.00	6.00	1.00
Belarus	0.00	0.00	1218.58	121.40	0.00	4.09	5.18	3.82
Belize	0.00	0.00	2193.02	117.38		6.76	6.76	11.00
Bermuda	0.00	0.00						
Bolivia	2.25	4.46	975.45	49.53	2.31	5.50	4.96	6.61
Brazil	2.25	0.20	2973.20	18.30	0.69	7.00	6.93	15.50
Barbados	0.14	5.65	7732.95	119.41		6.79	6.79	23.50
Brunei	0.00	0.00				2.00	2.00	17.50
Bhutan	0.00	0.00	456.83	68.94	-8.00	4.00	2.00	18.50
Botswana	0.19	1.87	1828.13	110.41	8.81	6.29	6.29	23.50
C.A.R.	0.08	0.33	295.59	50.96	-4.09	3.61	3.61	5.93
Canada	1.36	0.55	17819.31	57.14	10.00	7.00	7.00	58.50
Switzerland	2.22	3.43	29748.33	67.55	10.00	7.00	7.00	58.50
Channel Islands	0.00	0.00						
Chile	4.44	3.66	3124.35	50.29	0.50	3.79	4.32	8.07
China	0.56	0.00	379.41	26.66	-7.28	3.00	3.00	7.11
Cote d'Ivoire	0.19	0.20	797.33	70.52	-8.26	4.93	4.36	16.36
Cameroon	0.08	0.08	614.05	48.89	-6.84	4.86	4.36	9.79

Table A2. Terrorism in Country Annual Average 1968-2003

Country	T	T/N	GDP/N	Trade/GDP	Polity	LIEC	EIEC	Tensys
Congo, Rep.	0.19	0.65	977.61	107.88	-5.35	3.25	2.46	5.04
Colombia	13.14	3.85	1684.04	32.17	7.81	7.00	7.00	15.50
Comoros	0.00	0.00	412.68	56.60	-1.92	4.94	4.22	6.00
Cape Verde	0.00	0.00	956.44	72.95		5.04	3.78	7.11
Costa Rica	1.75	7.36	3266.82	74.97	10.00	7.00	7.00	40.50
Cuba	0.64	0.63		32.67	-7.00	3.39	3.00	28.93
Cayman Islands	0.00	0.00						
Cyprus	3.81	58.04	7943.14	104.63	9.41	6.96	6.75	28.50
Czech Republic	0.00	0.00	5164.87	112.53	-1.71	7.00	7.00	6.50
Germany	18.44	2.32	17923.82	48.81	10.00	7.00	7.00	40.50
Germany, F.R.	0.00	0.00		51.40				
Djibouti	0.22	7.14	1061.39	103.53	-7.09	4.52	4.44	7.24
Dominica	0.00	0.00	2879.35	114.78				
Denmark	1.06	2.07	23308.77	65.99	10.00	7.00	7.00	58.50
Dominican Republic	0.83	1.68	1613.59	63.26	3.38	6.86	6.39	23.50
Algeria	2.50	0.95	1708.84	55.04	-7.19	4.46	3.82	6.54
Ecuador	1.47	1.92	1248.92	53.18	4.94	5.93	6.11	10.32
Egypt, Arab Rep.	4.50	0.88	1074.00	50.28	-5.13	5.96	5.96	12.93
Eritrea	0.19	0.70	166.65	99.86	-6.00	2.00	2.00	5.00
Spain	8.28	2.19	10040.41	38.74	5.76	6.46	6.46	11.75
Estonia	0.06	0.37	3639.32	151.40	6.00	7.00	7.00	5.50
Ethiopia	2.33	0.59	96.52	32.05	-6.22	2.89	3.00	5.32
Finland	0.00	0.00	16997.04	57.27	10.00	7.00	7.00	58.50
Fiji	0.14	1.92	1867.81	104.47	6.50	5.71	5.93	5.14
France	17.92	3.29	17232.41	42.06	8.34	7.00	7.00	58.50
Faeroe Islands	0.00	0.00						
Micronesia	0.00	0.00	1962.76	87.70				
Gabon	0.14	1.54	4295.06	97.00	-7.55	5.05	4.29	13.14
United Kingdom	17.75	3.11	18094.81	52.34	10.00	7.00	7.00	20.50
Georgia	0.50	0.94	1154.97	79.24	4.56	6.85	5.70	3.40
Ghana	0.11	0.09	240.58	47.37	-3.21	3.36	4.14	5.11
Guinea	0.08	0.12	386.99	51.34	-6.81	3.14	3.96	10.89
Gambia, The	0.00	0.00	314.79	102.59	5.13	4.75	6.50	8.36
Guinea-Bissau	0.00	0.00	171.40	51.98	-5.08	3.18	3.18	5.57
Equatorial Guinea	0.06	1.35	1524.21	112.86	-6.19	3.39	2.46	11.46
Greece	11.50	11.84	8436.38	43.30	6.00	7.00	7.00	24.50
Grenada	0.03	3.10	2787.47	114.24		5.14	5.46	10.11
Greenland	0.00	0.00						
Guatemala	5.08	7.01	1534.21	41.07	0.58	6.36	6.46	12.00
Guam	0.00	0.00						
Guyana	0.06	0.74	788.68	161.48	-0.81	6.57	6.57	16.50
Hong Kong, China	0.39	0.77	15331.19	222.35				
Honduras	2.33	5.86	887.67	72.99	3.13	5.50	5.75	8.79

Table A3. Terrorism in Country Annual Average 1968-2003

Country	T	T/N	GDP/N	Trade/GDP	Polity	LIEC	EIEC	Tensys
Croatia	0.28	0.60	3885.36	102.81	-4.00	7.00	7.00	5.50
Haiti	0.86	1.44	673.87	39.39	-5.13	4.77	3.36	5.86
Hungary	0.22	0.21	3684.35	86.82	-1.35	5.29	4.71	16.11
Indonesia	2.14	0.12	482.43	49.80	-6.50	6.57	2.43	16.96
Isle of Man	0.00	0.00						
India	5.36	0.08	295.44	16.65	8.31	6.93	6.93	71.50
Ireland	2.97	9.06	13213.86	114.08	10.00	7.00	7.00	14.50
Iran	3.69	0.90	1451.29	38.86	-6.59	4.61	3.86	11.64
Iraq	3.39	1.82			-8.13	3.75	2.00	11.46
Iceland	0.06	2.32	22417.94	72.38	10.00	7.00	7.00	14.50
Israel	8.03	20.81	13658.71	88.16	9.03	7.00	7.00	86.50
Italy	10.83	1.94	14251.69	42.98	10.00	6.96	6.96	68.50
Jamaica	0.44	2.19	3042.16	91.77	9.78	6.05	6.05	24.68
Jordan	3.00	12.77	1753.43	119.70	-7.09	3.71	2.00	30.57
Japan	1.67	0.14	27922.16	21.32	10.00	6.96	6.96	30.50
Kazakhstan	0.00	0.00	1265.16	89.90	-3.44	5.64	3.00	6.00
Kenya	0.61	0.28	338.32	59.96	-5.84	5.36	4.07	7.64
Kyrgyz Republic	0.17	0.34	327.83	81.86	3.89	5.50	6.27	3.82
Cambodia	2.92	2.89	259.65	61.37	-3.53	4.21	3.29	6.21
Kiribati	0.00	0.00	640.84	118.69				
St. Kitts and Nevis	0.00	0.00	5103.48	132.16				
Korea, Rep.	0.00	0.00	5715.60	60.82	-0.68	6.82	6.50	9.04
Kuwait	1.89	11.36	23260.43	98.45	-8.45	3.04	2.00	12.79
Lao PDR	0.33	0.86	262.56	48.30	-7.04	3.19	2.59	4.19
Lebanon	24.36	75.06	3435.22	72.50	4.14	4.21	3.54	4.39
Liberia	0.69	2.73	483.28		-5.44	3.61	3.07	3.43
Libya	0.53	1.66		75.29	-7.00	1.93	2.07	19.50
St. Lucia	0.00	0.00	3520.27	140.43		6.83	6.83	12.00
Liechtenstein	0.00	0.00						
Sri Lanka	0.97	0.60	564.60	69.39	6.03	6.57	7.00	39.50
Lesotho	0.19	1.48	340.84	124.10	-3.63	2.96	3.29	8.89
Lithuania	0.03	0.08	3262.03	104.45	10.00	7.00	6.80	5.50
Luxembourg	0.14	3.78	26797.98	205.86	10.00	7.00	7.00	24.50
Latvia	0.11	0.44	3025.18	104.87	7.89	7.00	6.27	4.36
Macao, China	0.00	0.00	13193.97	157.31				
Morocco	0.86	0.39	990.55	53.84	-7.97	6.36	2.00	23.43
Monaco	0.00	0.00						
Moldova	0.03	0.06	566.30	122.45	6.44	6.09	6.45	6.00
Madagascar	0.03	0.02	302.78	41.81	-1.35	5.07	5.30	8.19
Maldives	0.00	0.00	2156.14	116.25		4.00	3.00	13.93
Mexico	2.69	0.43	4813.69	34.45	-1.78	6.75	6.71	49.50
Marshall Islands	0.00	0.00	2045.95					

Table A4. Terrorism in Country Annual Average 1968-2003

Country	T	T/N	GDP/N	Trade/GDP	Polity	LIEC	EIEC	Tensys
Macedonia, FYR	0.11	0.55	1716.01	87.20	6.00	7.00	6.41	6.00
Mali	0.03	0.03	208.74	48.48	-3.55	4.25	4.04	11.11
Malta	0.31	8.57	5572.17	172.24		7.00	7.00	24.50
Myanmar	0.00	0.00		11.46	-7.00	2.25	2.50	7.32
Mongolia	0.00	0.00	483.37	120.46	-2.31	4.43	4.29	5.50
N. Mariana Is.	0.00	0.00						
Mozambique	1.92	1.44	168.36	44.21	-4.20	4.37	3.78	5.11
Mauritania	0.06	0.37	328.28	101.09	-6.72	3.39	3.89	6.18
Mauritius	0.00	0.00	2719.27	117.42	9.56	6.89	6.96	24.50
Malawi	0.03	0.04	147.39	61.97	-5.97	4.75	3.43	15.93
Malaysia	2.14	1.70	2363.38	132.13	3.88	6.57	6.57	22.50
Mayotte	0.00	0.00						
Namibia	0.39	2.39	1769.47	115.37	7.80	7.00	6.33	6.50
New Caledonia	0.00	0.00	11246.77	45.08				
Niger	0.19	0.24	228.08	42.87	-4.61	3.07	3.75	5.61
Nigeria	0.94	0.08	343.49	54.58	-3.93	2.71	3.25	3.86
Nicaragua	1.22	3.94	1062.50	62.58	-1.27	5.89	5.84	7.18
Netherlands	4.67	3.38	17359.28	103.85	10.00	7.00	7.00	25.50
Norway	0.50	1.21	26985.38	73.90	10.00	7.00	7.00	17.50
Nepal	0.33	0.18	178.77	34.74	-2.63	5.18	4.75	4.50
New Zealand	0.14	0.47	15326.22	57.19	10.00	7.00	7.00	86.50
Oman	0.03	0.28	6457.46	94.36	-9.72	1.39	2.00	18.50
Pakistan	5.86	0.58	400.39	33.17	1.61	4.32	4.43	8.88
Panama	1.69	7.56	3309.54	155.29	-1.44	5.93	5.64	7.79
Peru	7.81	3.99	2056.89	33.50	0.73	5.93	5.93	9.82
Philippines	8.83	1.60	899.12	62.60	-0.03	5.71	5.18	11.50
Palau	0.00	0.00	6061.08	81.58				
Papua New Guinea	0.17	0.41	656.31	88.92	10.00	6.86	6.86	14.50
Poland	0.44	0.12	3683.58	51.86	-1.81	5.39	4.71	6.39
Puerto Rico	1.22	4.03	10397.36	139.52				
Korea, Dem. Rep.	2.22	1.15			-9.00	3.00	3.00	28.07
Portugal	2.11	2.16	7081.89	60.88	6.00	6.78	6.81	13.07
Paraguay	0.42	1.13	1350.37	52.32	-3.38	7.00	6.46	32.50
French Polynesia	0.00	0.00	11911.62	29.11				
Qatar	0.03	1.02		80.45	-10.00	1.00	2.00	10.75
Romania	0.28	0.12	1872.10	60.57	-3.16	5.29	4.61	11.93
Russian Federation	2.39	0.17	1944.46	56.73	4.38	6.64	7.00	6.00
Rwanda	0.17	0.26	242.57	31.24	-6.42	2.79	2.57	9.07
Saudi Arabia	1.39	0.85	10931.46	76.21	-10.00	1.32	2.00	8.89

Table A5. Terrorism in Country Annual Average 1968-2003

Country	T	T/N	GDP/N	Trade/GDP	Polity	LIEC	EIEC	Tensys
Sudan	1.92	0.81	307.64	27.96	-5.07	3.14	3.25	7.82
Senegal	0.11	0.15	439.24	67.28	-2.84	6.14	6.07	13.07
Singapore	0.36	1.29	12474.80		-2.00	6.00	6.00	20.50
Solomon Islands	0.11	2.75	662.69	126.76		6.88	6.88	12.50
Sierra Leone	1.06	2.24	236.33	47.23	-5.52	4.43	3.64	5.54
El Salvador	5.31	11.37	1908.01	58.11	3.26	6.09	6.09	7.43
San Marino	0.00	0.00						
Somalia	4.19	5.51		57.15	-6.39	2.41	2.71	14.00
Sao Tome & Pr.	0.00	0.00	326.33	82.87				
Suriname	0.19	4.90	2133.25	90.33		5.56	5.19	3.70
Slovak Republic	0.00	0.00	3532.72	114.71	7.43	7.00	7.00	5.50
Slovenia	0.00	0.00	8527.48	118.47	10.00	7.00	7.00	5.50
Sweden	1.50	1.79	20970.47	62.63	10.00	7.00	7.00	58.50
Swaziland	0.81	12.08	1112.25	157.60	-8.22	2.07	2.00	8.39
Seychelles	0.03	4.22	4932.81	137.04				
Syrian Arab Republic	1.28	1.45	939.12	54.64	-8.88	6.21	3.00	15.43
Chad	0.28	0.57	196.26	45.22	-6.25	1.84	3.18	3.93
Togo	0.22	0.67	312.55	87.23	-5.83	3.93	3.96	11.21
Thailand	1.81	0.35	1220.07	66.74	3.07	6.02	6.09	5.04
Tajikistan	1.14	1.94	304.56	120.32	-4.33	6.81	7.00	4.11
Turkmenistan	0.00	0.00	768.04	98.14	-8.78	5.00	3.00	6.00
Timor-Leste	0.00	0.00	435.85					
Tonga	0.00	0.00	1358.50	87.54				
Trinidad & Tobago	0.25	2.33	5563.23	84.38	8.53	6.82	6.82	22.50
Tunisia	0.64	0.84	1445.27	76.25	-6.72	4.86	2.50	15.43
Turkey	9.11	1.91	2263.38	30.65	6.22	6.36	6.29	7.11
Taiwan, China	0.69	0.36	7093.99	90.75	-2.56	3.79	3.86	5.64
Tanzania	0.25	0.13	265.07	48.10	-5.97	3.82	4.00	10.04
Uganda	0.89	0.57	204.36	32.05	-4.30	3.86	3.96	4.75
Ukraine	0.11	0.02	928.77	82.84	6.33	7.00	7.00	6.00
Uruguay	1.47	5.13	4846.29	37.84	2.67	5.21	5.54	7.75
United States	19.56	0.88	25808.69	18.79	10.00	7.00	7.00	32.50
Uzbekistan	0.00	0.00	584.39	58.11	-9.00	4.00	4.09	6.00
St. Vincent & Gren.	0.00	0.00	2110.01	134.43				
Venezuela, RB	2.92	1.77	5639.01	47.01	8.66	7.00	6.93	36.50
Virgin Islands (U.S.)	0.00	0.00						
Vietnam	0.06	0.01	297.72	78.55	-7.03	3.36	3.36	4.61
Vanuatu	0.00	0.00	1165.17	103.97		6.86	6.86	11.50
West Bank and Gaza	0.00	0.00	1330.75	78.99				
Samoa	0.00	0.00	1201.62	92.77		6.14	6.14	8.36
Yemen, Rep.	2.61	1.77	487.25	77.15	-2.00	4.05	4.13	6.14
Serbia and Mont.	0.00	0.00	894.45	61.45	-6.09			
South Africa	0.89	0.28	3094.27	50.48	5.07	6.64	6.64	14.50
Congo, Dem. Rep.	0.31	0.10	217.88	38.63	-8.92	2.86	2.64	17.57
Zambia	0.67	1.08	438.99	74.01	-4.28	4.82	4.64	13.89
Zimbabwe	1.25	1.68	571.43	54.01	-0.79	6.25	6.21	11.57