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Book Chapter: The Lexus and the Olive Branch: Globalization, Democratization and Terrorism

Gregory Hess
Claremont McKenna College

S. Brock Blomberg
Claremont McKenna College

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The Lexus and the Olive Branch

Globalization, Democratization, and Terrorism

S. Brock Blomberg and Gregory D. Hess

This chapter provides an original study into how democratization and globalization influence terrorism, examining the motives of terrorists and how democratic institutions and international integration influence nonstate economic actors. We employ a gravity model to investigate the relative importance of globalization and democratization on transnational terrorism. We construct an original database of more than 200,000 observations from 1968 to 2003 for 179 countries to examine the extent to which economic, political, and historical factors influence the likelihood of citizens from one country to engage in terrorist activities against another. We find that the advent of democratic institutions, high income, and more openness in a source country significantly reduce terrorism. However, the advent of these same positive developments in targeted countries actually increases terrorism. *Ceteris paribus*, the effect of being a democracy or participating in the WTO for a source country decreases the number of transnational terrorist strikes by about two to three per year, which is more than two standard deviations greater than the average number of strikes between any two countries in a given year.

1. Introduction

World foreign direct investment flows (FDI), which amounted to less than \$13 billion in 1970, quadrupled every ten years, reaching \$54 billion in 1980 and \$209 billion in 1990. During the last half of the 1990s, however, FDI practically exploded, reaching a peak of \$1.4 trillion in 2000. Worldwide trade also increased dramatically over the same time period. Trade as a percent of GDP grew from 27 percent in 1970 to 38 percent by 1980 to 45 percent by the year 2000.

During the same time period in question, democratization across the globe has increased. The percent of countries that are nondemocracies, as calculated by Freedom House, starts at 46 percent in 1972. The percent falls to 35 percent by 1980 and steadily declines to 25 percent by the year 2000. These democracy and FDI trends are often used to demonstrate the extent to which the world is democratized and economically integrated or globalized.

Although the runup of FDI, trade, and democracy in the 1990s, and especially in the second half of that decade, has several explanations, it is strikingly correlated with a decline in worldwide violence during that period. In the late 1980s and early 1990s, approximately 1.5 transnational terrorist events occurred every day. As globalization and democratization grew at an ever-faster rate, the frequency of terrorist events declined sharply, reaching fewer than 0.5 events a day by 2000. Did this shift toward a more integrated and democratic world contribute to the large increase in peace during that same period? And, if the world has since become less peaceful in the wake of 9/11, can the dropoff in FDI and the painful process of democratization be blamed?

One view is that violence harms the real economy in the same manner as any trade cost. In this case, external conflict, internal conflict, or an international terrorist attack leads to a fall in trade and, in turn, a decline in aggregate economic activity. Put differently, an increase in terrorism in country A increases the cost to doing business with country A so that country B will either purchase goods or services domestically or from another more peaceful country. Thus, violence acts as a distorting tax or tariff that limits the attainment of the benefits from free trade.

Anderson and Marcouiller (2002) have pursued this angle employing corruption and imperfect contract enforcement as impediments to international trade. They find that omitting indexes of institutional quality obscures the negative relationship between per capita income and the share of total expenditure devoted to traded goods. Their chapter, however, does not consider direct measures of conflict.¹ Blomberg and Hess (2006a) calculate that, for a given country year, the combined presence of terrorism, as well as internal and external conflict is equivalent to as much as a 30 percent tariff on trade. This is larger than estimated tariff-equivalent costs of border and language barriers and tariff-equivalent reduction through Generalized Systems of Preference and World and World Trade Organization participation. In a complementary study, Glick and Taylor (2004) consider the

¹ Nitsch and Schumacher (2004) also analyze some aspects of conflict's affect on trade but over a significantly shorter time horizon.

direct effect of very large external wars on trade from a broader historical perspective. To estimate the quantitative implications of violence and globalization on international investment, Blomberg and Mody (2005) use a gravity model of bilateral FDI flows. Three findings emerge from Blomberg and Mody's (2005) analysis. First, violence at home tends to move investment abroad. Second, violence in the host country deters both trade and FDI flows. Host-country violence hurts inflows of investment with particular force in developing countries. Finally, they find a strong positive influence of WTO membership on bilateral FDI flows. Taken together, these results suggest that while violence raises political risk and discourages investment flows, WTO membership acts as a commitment device that, by limiting the possibility of arbitrary policy changes, lowers country risk. These results are robust across a variety of specifications.

While these papers provide important evidence of violence's influence on globalization, they fail to consider the opposite effect – namely globalization's influence on terrorism. Moreover, they also do not formally examine the effect of democratization. The central contribution of our chapter is to do just that.

Other papers do examine the role of globalization and democratization in terrorism. Li and Schaub (2004) employ a sample of 112 countries from 1975 to 1997 and find that neither trade nor investment has a positive effect on terrorism. Li (2005) uses the same data to analyze the effect of democracy on terrorism. He finds that democracy can reduce terrorism.

This line of research has serious limitations. In particular, by using standard panel estimation in the analysis, these papers are unable to separate globalization or democratization's effect on terrorism from the host and the source-country perspective. For example, suppose increased economic integration has the consequence of harming individuals in import-competing industries. Further, suppose these individuals join forces with a terrorist organization and express their displeasure through a terrorist attack on a trading partner. This attack on the host country from a neighboring source country will not be appropriately taken into account in estimations that only control for host-country trade values. In fact, to truly understand the impetus for any transnational event, one must understand the motivation from the point of view of both the host of the attack and the source of the attack. The standard treatment of the data is unable to address this crucial issue.

How then can we possibly make sense of these conflicting theoretical claims, and the even less satisfying empirical record? Here we make use of the concept of the "directed dyad" that differentiates explicitly between

the characteristics of the state that is the source of the terrorist activity and the state that is the target. By separating out the effects of democracy and globalization on the source and target states, we generate clearer and more precise hypotheses and results than are available using standard panel regression techniques.

We start by focusing our attention on "transnational terrorism," recognizing that this type of terrorism is fundamentally dyadic in nature. Hence it is amenable to investigation using an approach similar to the gravity of model of international trade.

Our focus is on the determinants of transnational terrorism. Following the definition Mickolus et al. (2002) adopted, a transnational 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 government 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. (2)

Transnational terrorism requires, therefore, a flow of resources across international borders – whether it is foreign terrorists attacking domestic (and other foreign) targets or domestic nationals attacking the property and lives of foreign nationals on domestic soil. As a result, it seems appropriate in any investigation of the determinants of transnational terrorism to consider the characteristics of both the source and target countries. Moreover, the characteristics of a country that might make it a likely target country may indeed be very different from the characteristics that make a country a likely source of international terrorism. The features of the polity that make a country a terrorist producer may be different from the political structures, institutions, and environment that make a state a terrorist target.

To analyze the importance of both democratization and globalization in determining terrorism, we embed the analysis in the workhorse model of trade and finance – the gravity model. The gravity model is useful because it allows researchers to examine the net flow of activity among countries while netting out domestic terrorist activities. Netting out is useful because there is no comprehensive dataset that includes country-level measures of domestic terrorism over a long time horizon. In its simplest form, a gravity model postulates that bilateral activity, usually trade or investment, is positively related to the size of the two economies and negatively influenced by the

distance between them. We extend this analysis by considering terrorism as the bilateral activity between each country-year-pair. In addition to including the size and distance variables in basic gravity equations, our baseline specification includes other control variables commonly used. Importantly, they rely on estimates that include bilateral country-pair dummies, which control not only for distance but also for all unobserved common relationships between the countries.

The purpose of estimating a gravity equation for terrorism is to estimate the importance of democratization and globalization on terrorism and to compare these relative magnitudes with other factors previously highlighted as relevant in explaining terrorism, for example, GDP or GDP per capita. In this way, we begin with a baseline terrorism model in which development is the main engine in determining terrorism. Then we add measures of globalization and democratization to determine the significance of each. In addition, we add new variables and consider specifications suggested by recent advances in the interpretation of gravity models.²

Our approach allows us to examine the following hypotheses:

H1: The effects of democracy and globalization on terrorism differ for source and target countries

H2: Terrorism falls with democracy and globalization in the source countries

H3: Terrorism rises with democracy and globalization in the target countries.

We find that differences in income, democracy, and openness go a long way toward explaining transnational terrorism. We find that the presence of democratic institutions in a source country significantly reduces terrorism. However, the presence of these same institutions in host countries actually increases terrorism, providing more support for our earlier conjecture.

We also find that source-country openness has a negative and statistically significant effect on terrorism. Once again, however, host-country openness often has a positive and statistically significant effect on terrorism. *Ceteris paribus*, the effect of being a democracy or participating in the WTO for a source country, decreases the number of terrorist strikes by about two to three,

² For examples in the trade literature, see among others, Anderson (1979) who championed use of the gravity equation in structural trade models. Blomberg and Hess (2006a) focus on trade, especially on comparing the costs of conflict with measures for trade promotion. Alternatively, Blomberg, Hess, and Orphanides (2004) investigate the effect of various forms of conflict such as terrorism, internal wars, and external wars on a country's economic growth.

which is more than two standard deviations greater than the average number of strikes between any two countries in a given year.

2. The Data and Empirical Regularities

In this section, we describe our data sources and examine some basic empirical regularities of the resulting dataset. This issue is described in greater detail in our companion chapter. Hence, we refer the reader to Blomberg and Hess (2007) for a more detailed account. Terrorism is adopted from the ITERATE dataset (see Mickolus et al. [1993]). The ITERATE project began as an attempt to quantify characteristics, activities, and effects of transnational terrorist groups. The dataset is grouped into four categories. First, incident characteristics 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.

A central contribution of our chapter is to employ the data in a different manner than has been previously employed in the literature. Overall, the variables we construct measure the net effect of terrorism between countries. We consider several bilateral definitions of terrorism. First, we define terrorism, T , as the number of events in a host country, h , from attackers who are nationals of source country, s . To check robustness, we also measure T as the number of victims rather than number of incidents in a given year. Second, we define terrorism as the number of events perpetrated on individuals from host country, h , from attackers who are nationals of source country, s .

Before proceeding, several caveats are in order. First, one may be concerned that the nationality of the source attacker may not represent the views of the country for which he is associated. While a possibility, this problem is no less severe than what we encounter when we try to measure any international variable. For example, how do we properly account for the nation of origin of a Mercedes-Benz manufactured in Alabama using parts imports from Asia? Second, one may be concerned that there could be more than one nationality included in the attacking force, making the source country of the terrorist incident hard to determine. This concern turns out to be less of an issue in practice for the following reason: 98 percent of attacks are reported with only one source country.³ Finally, one may be concerned

³ Experimenting with different classification for source country had no discernable effect on the results. Hence, we did not include source countries for multiple country attacks.

that we could be undercounting the number of incidents because not all attacks are identified with a particular group. Even so, the vast majority of attacks do have an identified source country, amounting to more than 8,000 incidents. It is also likely that incidents that are reported without association to any particular group are unsuccessful terrorist attacks and are less likely to be economically significant. As the definition of terrorism in ITERATE requires knowledge of a political agenda, the events without associated countries are unlikely to have any direct effect on the relationship between any two countries in particular.

2.1. Globalization, Democratization, and Terrorism

As shown in our companion piece, Blomberg and Hess (2007), rich countries have had approximately four times as many incidents and incidents per capita as poor countries, and democracies have also had approximately four times as many incidents per capita as nondemocratic regimes. Why might this be so?⁴

Krug and Reinmoeller (2004) argue that globalization is an important determinant of terrorism. In their paper, they build a model to explain the internationalization of terrorism as a natural response to a globalizing economy. As countries become more economically integrated and market oriented, there is no discrimination between what certain terrorist groups might see as "bad" products and "good" products or investments. Moreover, the same advances in technology that allow for easy access of goods and services also allow for easy access to military hardware and technology.

In the short run, globalization may have the consequence of creating a series of winners and losers. These same losers will have easier access to weapons of retaliation in response to their losses, thereby multiplying the effect of globalization on terrorism.

An alternative view put forth by Crenshaw (2001) is that it is naive to believe that globalization is encouraging international terrorism. Although globalization and terrorism may be seemingly affecting one another, something more complicated is at work. Globalization does not necessarily drive the latest wave of terrorism. Instead, she argues that this wave should be seen as a series of civil wars that may be motivated by a strategically unified reaction to American power rather than by globalization.

⁴ One possibility not explored here is that there may be underreporting of terrorist events in nondemocratic regimes due to the lack of freedom of the press.

It is an empirical matter to determine which hypothesis the existing evidence supports. Tables 4.1 and 4.2 report the total number of terrorist incidents and incidents per capita parsed by globalization, democratization, and growth.⁵ If globalization, democratization, or growth are the culprits, then we would expect terrorism to be greater in liberalizing or growing economies. Tables 4.1 and 4.2 provide little evidence to support this. During the 1960s and 1970s, high globalizing and democratizing economies were more likely to be targeted by terrorism. In the 1970s; for example, democratizers had eight times the rate of terrorism per capita than nondemocratizers. There has been an interesting twist in the dynamic since the 1980s, the period of greatest peace, democratization, and globalization: namely, terror is less likely to hit high growth, democratizing, or globalizing countries. In each comparison group during the 1990s and 2000s, less-democratic, less-open, and lower-growth countries experienced more terrorism per capita. This point can be made stronger by examining Table 4.3. These columns parse the data by considering globalized versus nonglobalized democracies. Note that globalizers continue to experience higher rates of terrorism per capita than nonglobalizers, on the order of 100 to 300 percent more. Moreover, democratizers tend to experience more terrorism, although the difference between terrorist incidents per capita (T/N) for nonglobalized democracies and nonglobalized nondemocracies is quite small.

Interestingly, the gap between globalizers/nonglobalizers and democracies/nondemocracies has fallen during the period of greatest democratization and globalization. For example, during the 2000s (albeit for a short time period) there is no significant difference between nonglobalized non-democracies (NOGLOB & NODEM) and globalized democracies (GLOB & DEM).⁶

⁵ Our definitions for high or low globalization, democratization, and growth are standard measures. High (low) growth is defined as average growth per capita $>$ ($<$) 1.5 percent per year; high (low) democratic is defined for countries with polity $>$ ($<$) 7 and/or the executive plus legislative index of political competitiveness $>$ ($<$) 14; high (low) globalized is defined as countries with trade as a percentage of GDP $>$ ($<$) 30 percent. The general qualitative results are not sensitive to changes in these cutoff values.

⁶ To see this in a different way, a working paper version of this chapter reports the total number of terrorist incidents, incidents per capita, democracy, and GDP per capita of the source countries. This allows us to directly examine the motivation of the terrorist-originating countries and provides two interesting facts. First, there is little correlation among measures of globalization, democracy, development, and terrorism among the twelve countries that are the source of the most terrorist incidents per capita. These high incidence source countries are not particularly democratic/nondemocratic, developed/developing or open/closed. For example, for these twelve countries, six have higher than average incomes and six have higher than average incomes; six have lower than average openness and six have lower than average values.

Table 4.1. *Terrorism by growth and governance: 189 country sample*

Years	All		High growth		Low growth		More democratization		Less democratization	
	T	T/N	T	T/N	T	T/N	T	T/N	T	T/N
1960s	0.72	0.20	0.77	0.29	0.48	0.51	2.21	1.78	0.76	0.40
1970s	1.72	0.43	1.47	0.52	2.60	2.17	5.29	3.27	0.99	0.47
1980s	2.20	0.46	2.07	0.57	2.42	2.16	4.41	1.92	1.50	0.64
1990s	1.57	0.28	1.29	0.32	1.99	1.25	2.09	0.60	1.45	0.69
2000s	0.73	0.12	0.69	0.15	0.80	0.57	0.67	0.22	0.61	0.43
Total	6.94	1.49	6.28	1.84	8.30	6.66	14.67	7.79	5.31	2.63

Note: T/N is the number of terrorist incidents in a given country per year, per million. A country is high growth if growth per capita > 1.5 percent in a country year. Otherwise, the country is a low-growth country. A country experiences more democratization if polity > 5 and/or the executive plus legislative index of political competitiveness > 10. Otherwise a country experiences less democratization.

Source: ITERATE, Penn World Data, Beck et al. (2001).

Table 4.2. *Terrorism by globalization: 189 countries*

Years	All		More globalized		Less globalized	
	T	T/N	T	T/N	T	T/N
1960s	0.72	0.20	0.68	1.23	0.74	0.24
1970s	1.72	0.43	2.08	1.91	1.40	0.48
1980s	2.20	0.46	2.48	1.60	1.78	0.55
1990s	1.57	0.28	1.66	0.44	1.24	0.68
2000s	0.73	0.12	0.80	0.17	0.53	0.39
Total	6.94	1.49	7.71	5.34	5.68	2.34

Note: T/N is the number of terrorist incidents in a given country per year, per million. See Table 4.1. A country is determined to be more globalized if trade as a percentage of GDP > 30 percent.

Table 4.3. *Terrorism by globalization and democratization: 210 countries*

Years	GLOB & DEM		NOGLOB & DEM		GLOB & NODEM		NOGLOB & NODEM	
	T	T/N	T	T/N	T	T/N	T	T/N
1960s	1.73	9.48	0.61	0.18	0.00	0.00	1.03	0.56
1970s	4.48	10.51	1.22	0.34	0.74	2.92	1.38	0.69
1980s	5.15	7.31	1.37	0.34	1.02	2.44	1.70	0.78
1990s	2.23	1.51	1.11	0.27	1.16	1.48	1.75	1.01
2000s	0.70	0.42	0.74	0.17	0.73	0.92	0.40	0.36
Total	14.30	29.23	5.06	1.29	3.65	7.75	6.25	3.41

Note: See Tables 4.1–4.2.

In summary, to best assess the influence of globalization, democratization, and development on terrorism, researchers must not only account for the changes in these variables but must also account for the relative size of these variables. Hence, a bilateral model, which allows for cross-country comparisons, may best help to understand the economic motives of terrorist groups. This can be seen in the gravity model described in the following section.

3. The Gravity Model

For several decades, the most frequently used empirical specification for linking trade volumes with underlying economic conditions is known as the gravity model, an analogy borrowed from physics. It has long been understood that gravitational force between two bodies depends on the mass of the two bodies and the distance between them. From international trade theory, the volume of trade between two countries depends on the size of their economies and physical distance between them. More refined specifications add variables such as income per capita, language differences, and the regime types of the two countries. In this chapter, we claim that the flow of transnational terrorism between states similarly depends on the incomes of the two countries, the distance between them, language differences, the regime types of the two states, and a number of other variables that describe the underlying economic and political conditions of both states.

We adopt an explicitly dyadic approach and we follow the insights drawn from international economics. A country's willingness to engage in international trade – to import and export – depends on key features of both the underlying economies. Following Heckscher-Ohlin, a country's trading patterns (whether it is an importer or exporter of a particular good) depends crucially on its factor endowments, relative to its trading partner. A country relatively well endowed with a particular factor will export goods that use that factor intensively. We draw the obvious analogy when considering transnational terrorism – what matters are the underlying political conditions present in both the sending and receiving country, not just in the country in which the event took place.

The notion of considering the importance of both sources of and targets for transnational terrorism is gaining popularity in economics and political science. For example, Laitin and Shapiro (2007) in this volume provide a very nice review of the microfoundations for source and targets of terror.

A central contribution of our chapter is to introduce terrorism, T, as the dependent variable into these various gravity models. To include T in the

aforementioned approaches, consider the following gravity equation for log trade x_{hst} for country pair h, s at time t and its determinants:

$$x_{hst} = f(y_{hst}, Y_{hst}, Z_{hst}, p_{hst}) \quad (1)$$

where y is log of real GDP per capita, Y is log of real GDP, Z is a vector of observables to include trade costs τ (e.g., distance and language barriers), and p are multilateral resistance terms such as prices that refer to the bilateral barrier between countries relative to the average trade barrier each country faces with all trading partners.⁷ These multilateral resistance terms may be thought of as product price variables that may create wedges to trade.

For traditional trade gravity models, one representation of equation (1) is:

$$x_{hst} = \alpha_0 + \alpha_1 Y_{ht} + \alpha_2 Y_{st} + \alpha_3 Y_{ht} + \alpha_4 Y_{st} + \delta Z_{hst} + \varepsilon_{hst} \quad (2)$$

We employ measures of Z such as distance (both physical and technological measures), and language barriers and the error may be specified to control for random or time/country fixed effects. We modify equation (2) by specifying Z and redefining the left-hand-side variable as T , so that we have:

$$\begin{aligned} T_{hst} = & \alpha_0 + \alpha_1 \cdot y_{ht} + \alpha_2 \cdot y_{st} + \alpha_3 \cdot Y_{ht} + \alpha_4 \cdot Y_{st} + \alpha_5 \cdot \log \text{distance}_{hs} \\ & + \alpha_6 \cdot \text{Comlang}_{hs} + \alpha_7 \cdot \text{area}_{hs} + \alpha_8 \cdot \text{REL}_h + \alpha_9 \cdot \text{REL}_s \\ & + \alpha_{10} \text{DEM}_{ht} + \alpha_{11} \cdot \text{DEM}_{st} + \alpha_{12} \cdot \text{GLO}_{ht} + \alpha_{13} \cdot \text{GLO}_{st} + \varepsilon_{ij t} \end{aligned} \quad (3)$$

where h, s denote countries, t denotes time, and the variables are defined as: T is the number of a terrorist attacks on country h from "a" group representing country s , Y is log of real Gross Domestic Product, y is the log of real GDP per capita, distance is the natural log of distance between two countries, Comlang is a dummy variable that is one if countries have a common language and zero otherwise, area is the natural log of the product of the size of the countries, REL is a zero to one index of religious fractionalization of a country, DEM is defined both as an index of democratization from the Polity dataset and as a dummy variable if the country exhibits competitive elections. The globalization variables, GLO, are defined both as trade/GDP and an index of integration such as trade or participation in the WTO.⁸

⁷ For convenience, we have written the variable for a country pair as Y_{hs} , but we switch to Y_h and Y_s to refer to an individual country.

⁸ We also considered measures of imports/GDP with little qualitative change in the results.

The purpose of estimating the gravity equation would be to consider the importance of DEM and GLO in affecting the likelihood of terrorism and to compare the relative magnitude to other factors highlighted in Blomberg and Hess (2007) as relevant in explaining terrorism, for example, GDP per capita.⁹

Although, we include many of the usual suspects that may influence T , to consider all possible covariates in a regression is impossible. Throughout, we include specifications that include time dummies to control for global shifts in terrorism trends. But, in addition, we present specifications that control for country-pair random effects. An important advantage of the country-pair model is that it accounts also for so-called multilateral resistance, that is, the relationship between the two countries and the rest of the world. The alternative approach of including host or source-country dummies is a special case of the country-pair dummy approach.

It is also worthwhile to note that many of the bilateral terrorist observations are zero. To correctly estimate the elasticities, then, it is necessary to consider the bias due to censoring. We employ the Tobit model that estimates the coefficients through a maximum likelihood procedure.

4. Empirical Results

4.1. Cross-Country Empirical Motivation

We motivate our discussion by considering the link between terrorism that occurs within county h by outsiders from country s and terrorism that occurs by country h 's citizens in other countries. Crudely speaking, what we are doing is examining bilateral terrorist net imports. The purpose of this preliminary exercise is to see if the same countries that experience significant international terrorism are those whose citizens are terrorizing other countries abroad. This is useful because it sheds light on the causes of terror: whether terrorism is driven by civil strife between countries who may have been given arbitrary borders by colonial powers; whether terrorism is linked to particular countries such as the United States that may have very strong or polarizing international policies; whether terrorism is due to globalization/democratization/development such that those countries are more apt to be net importers of terrorism rather than net exporters.

⁹ All data reported are taken from sources in Blomberg and Hess (2007). A detailed discussion is provided therein.

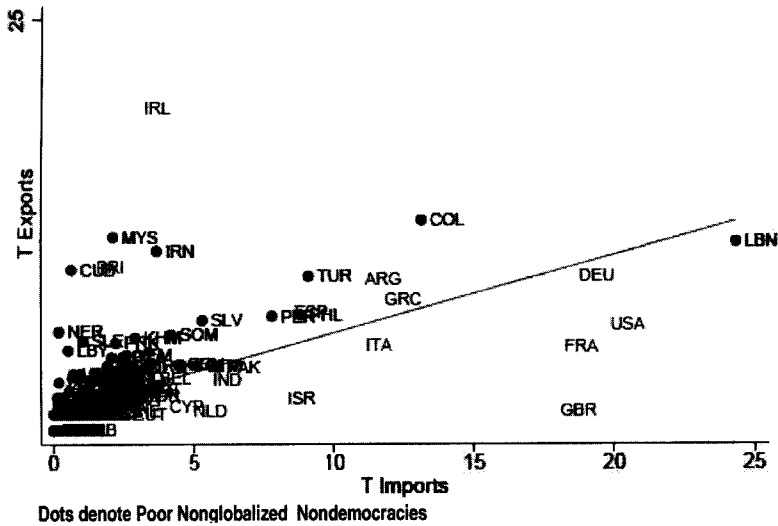


Figure 4.1a. 1968–2003 T imports and T exports.

Figure 4.1a plots countries by the number of terrorist exports versus the number of terrorist imports and a line of best fit. If countries import and export the same amount of terrorism, we would expect the data to fall along the 45-degree line. In fact, the line of best fit is measured at 43 degrees consistent with such a hypothesis. This result merely demonstrates an identity – in equilibrium, net exports, and net imports must be equated in total, though obviously not for a given country pair.

However, there are several important differences. First, there are notable net importers of terrorism – they include Israel, the United States, France, and Great Britain. There are also several notable net exporters of terrorism – Ireland, Iran, and Cuba. Though many factors may shift countries away from the diagonal line, it is interesting to note that, in general, the net importers mentioned are more democratic and wealthier than the net exporters. We denote the least democratic/wealthy/open countries with dots. Most appear to be net exporters of terrorism. Hence, when developing our gravity model, it would appear that the traditional variables included in gravity models would also apply to terrorism – namely income, trade, and institutions.

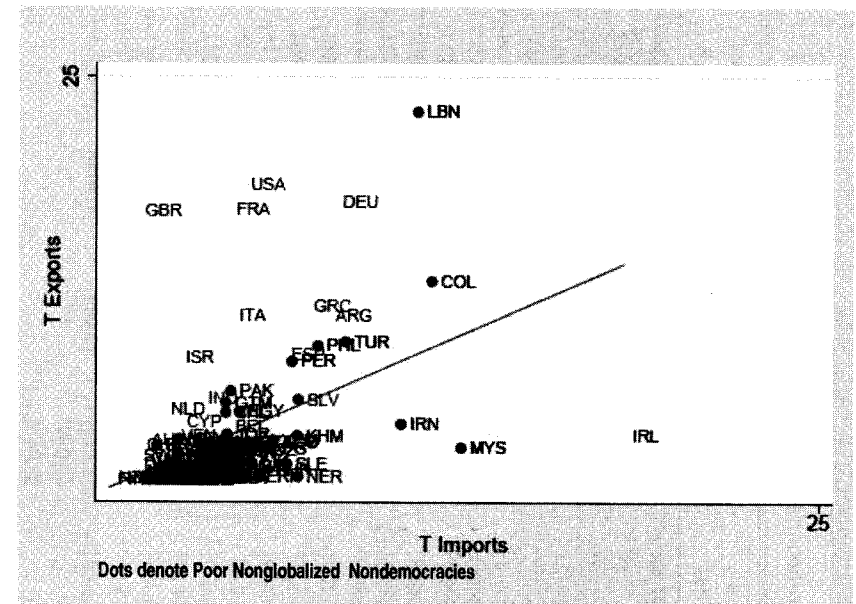


Figure 4.1b. 1968–2003 T imports and T exports: Conditional.

A different way to see this is to repeat the experiment, this time controlling for democracy, openness, and income. In this case, there does not appear to be such a difference in estimated imports or exports from terrorism. Figure 4.1b plots this conditional regression. Notice that in this case there are just as many dots below and above the estimated line.

However, while these figures may be illuminating, they do not provide any direct evidence regarding the relationship among globalization, democratization, and terrorism. The purpose of the next subsection is to address these issues.

4.2. Baseline Results

We begin by explaining the estimation results from the gravity model (3). In Table 4.4, the estimates reported in columns 1–7 include variables that do not change over time. These include distance, land mass, as well as dummy variables for language. Columns 2–7 report estimates of different subsamples – those in which either source or host country are democratic (DEM), members of the WTO or GATT (GLO), or both. Column 8 estimates

Table 4.4. Gravity model for terrorist incidents by location: 1968–2003 full country sample_h

	1	2	3	4	5	6	7	8	9
	Base	DEM	DEM	GLO	GLO	DEM&GLO	DEM&GLO	F.E.	R.E.
Y_h	0.999*** [0.235]	0.752*** [0.223]	0.721*** [0.200]	1.267*** [0.292]	0.922*** [0.225]	1.071*** [0.294]	0.684*** [0.198]	0.400** [0.158]	0.949*** [0.149]
Y_s	-1.790*** [0.329]	-1.725*** [0.330]	-1.711*** [0.323]	-2.033*** [0.393]	-1.702*** [0.317]	-2.107*** [0.426]	-1.675*** [0.318]	-1.904*** [0.292]	-1.323*** [0.161]
Y_h	2.559*** [0.499]	2.746*** [0.550]	2.646*** [0.518]	2.419*** [0.478]	2.524*** [0.494]	2.554*** [0.521]	2.621*** [0.515]	2.677*** [0.416]	1.322*** [0.154]
Y_s	1.018*** [0.201]	0.999*** [0.212]	1.176*** [0.231]	1.165*** [0.239]	1.065*** [0.212]	1.266*** [0.277]	1.201*** [0.239]	1.314*** [0.215]	0.873*** [0.133]
Distance	-3.532*** [0.683]	-3.200*** [0.637]	-3.231*** [0.637]	-3.281*** [0.642]	-3.483*** [0.678]	-3.029*** [0.608]	-3.215*** [0.637]	-3.226*** [0.510]	-2.497*** [0.194]
Comlang	3.019*** [0.719]	3.076*** [0.768]	3.179*** [0.755]	3.014*** [0.736]	3.075*** [0.727]	3.096*** [0.787]	3.245*** [0.764]	3.068*** [0.605]	1.914*** [0.340]
Border	1.332** [0.610]	1.910*** [0.724]	1.878*** [0.688]	1.682** [0.672]	1.417** [0.619]	2.174*** [0.781]	1.906*** [0.691]	1.973*** [0.615]	0.664 [0.515]
Area	-0.028 [0.069]	-0.325*** [0.121]	-0.243** [0.095]	-0.507*** [0.136]	-0.02 [0.070]	-0.670*** [0.182]	-0.231** [0.097]	-0.344*** [0.099]	0.184** [0.082]
REL _h	0.155 [0.724]	0.376 [0.859]	0.071 [0.751]	0.6 [0.772]	-0.142 [0.704]	0.9 [0.920]	-0.115 [0.734]	-0.284 [0.678]	
REL _s	-7.609*** [1.644]	-8.496*** [1.878]	-7.857*** [1.706]	-8.137*** [1.777]	-7.321*** [1.607]	-9.083*** [2.018]	-7.568*** [1.664]	-7.837*** [1.394]	
Polity _h		0.128*** [0.049]				0.108** [0.043]			
Polity _s		-0.045*** [0.013]				-0.046*** [0.013]			
DEM _h			2.131*** [0.550]				1.864*** [0.549]	2.907*** [0.584]	0.356 [0.228]
DEM _s			-1.914*** [0.507]				-1.505*** [0.467]	-1.103*** [0.410]	-1.357*** [0.284]
OPEN _h				-0.039*** [0.009]		-0.032*** [0.011]			
OPEN _s				-0.023*** [0.006]		-0.006 [0.006]			
GLO _h					1.872*** [0.545]		1.428** [0.555]	1.468*** [0.510]	0.514* [0.290]
GLO _s					-1.611*** [0.461]		-1.390*** [0.448]	-1.434*** [0.420]	-0.982*** [0.338]
Observations	208613	136962	182794	190812	208613	129542	182794	182794	183275

Note: Clustered standard errors by income per capita are presented in parentheses. ***, **, and * represent statistical significance at the .01, .05, and .10 levels, respectively. Each column is the basic gravity model estimated over full country sample 1968–2003. Columns 1–9 were estimated using the Tobit method to allow for zero value observations. Column 8 includes year fixed effects. Column 9 estimates the model using random effects by country-pair year income. Included in the regression are: Real GDP Y_i and Real GDP per capita y_i for host $i = h$, and source $i = s$ countries, log physical distance (distance), log physical area (area), dummy variable for language (Comlang), dummy variable for border (border), measures of religious fractionalization (REL), and measures of democracy (polity is index of democracy on 0–10 scale with 10 being most democratic) (DEM is dummy variable which is 1 if polity > 7 or executive + legislative veto points from Beck et al. (2001) > 14, 0 otherwise) and measures of globalization (OPEN is total trade / GDP) (GLO is dummy variable, which is 1 if member of WTO/GATT, 0 otherwise).

the model to include controls for time and country fixed effects. Column 9 estimates the model to control for random effects by country-pair. Each of these models are estimated using the Tobit estimator with standard errors clustered by the income per capita group of each country-pair.

Consider, first, the traditional gravity variables. Greater distance between the source and host countries reduces terrorism (as has been well documented for trade and FDI). Traditional barriers to trade such as borders and language also appear to increase terrorism. In this sense, terrorism appears to be more of a regional threat than a global one. Further, larger country size typified by higher GDP increases terrorism. One way to interpret this result is that larger means more of everything – including terrorism. Even so, terrorism is significantly more responsive to country size at the host rather than from the source perspective.

Religious fractionalization tends to decrease source-country terrorism with little effect on host-country violence. Low fractionalized countries such as Iran (.11) are associated with more source terrorism than high-fractionalized countries such as the UK (.66). This result supports the view that radicalism, at least at the source level, is a determinant in provoking violence.

Perhaps the most interesting and robust result is when analyzing differences in income. Richer host countries (higher per capita GDP) generate more terrorism whereas richer source countries generate less terrorism. This result is consistent across each specification, with the effect from source income being slightly greater in magnitude than the effect from host income. Taken literally, the estimation results from Table 4.4 imply that a one percentage point increase in a source country's income should decrease the number of terrorist events by two per year. A one percentage point increase in a host country's income would invite about one more terrorist event per year.¹⁰

This finding provides a segue into the thrust of our chapter's main question. This result could indicate that terrorism is the unfortunate consequence of a widening divide between rich and poor countries. During a process of

¹⁰ Because we have already controlled for size of the host and source countries by including their respective GDP, one interpretation for the sign of the coefficients associated with per capita GDP is that small (in population) host countries are less likely to experience terrorist attacks and large (in population) source countries are more likely to supply nationals who undertake terrorist acts. Still, it is worthwhile to note that the coefficients associated with per capita GDP remain the same sign and significance even when GDP is omitted in the regression.

sweeping change over the past twenty years as countries have become more globalized and democratized, some countries have been "left behind" while others have flourished. Perhaps, terrorists in these "left behind" economies have chosen to strike against those countries that have become more advantaged during the period in question.

We directly address this point as we consider the effect of these dynamic forces – globalization and democratization – on terrorism. There are two main results from this estimation. First, the advent of democratic institutions in a source country significantly reduces terrorism. However, the advent of these same institutions in host countries actually increases terrorism, providing more support for our earlier conjecture.

Second, source-country openness has a negative and statistically significant effect on terrorism. Once again, however, host-country openness often has a positive and statistically significant effect on terrorism. *Ceteris paribus*, the effect of being a democracy or participating in the WTO for a source country, decreases the number of terrorist strikes by about one to two events, which is more than two standard deviations greater than the average number of strikes between any two countries in a given year.

How should one interpret our findings? Do the forces of modernization (democracy, globalization, and growth) lead terrorists to attack other countries, or do terrorists from poor countries attack rich neighbors because it's a low-cost method of voicing their discontent?

Democracy's effect on a country's likelihood of being a source for transnational terrorism is not firmly established. Nondemocracies create fewer outlets for political grievances to be addressed, making violent means of political action more likely. This might lead to increased domestic terrorism but doesn't speak to the country as a source of transnational terrorism. When the autocratic government is perceived to have its authority bolstered by its foreign relations with democracies however, we might expect that the terrorist group advocating the removal of the illegitimate autocrat might indeed target its foreign allies, some of whom might be democracies. One would expect, therefore, that the presence of a nondemocracy abroad could increase transnational terrorism at home.

As to what makes a country a source of terrorists, we are unable to make strong assertions. Discussion in this regard has rarely distinguished between domestic and transnational terrorism. Where political conflict is domestic, the lack of outlets for political discontent makes violent means of protest more likely. Where a wider variety of groups get to participate in the political process, nonviolent means likely predominate first. Others have argued that

in a more democratic regime more political action of all kinds, violent and nonviolent alike, is likely. Overall, the lack of clarity on the issue stems, in our view, from treating the source and target countries in the same manner; when the effects of democracy are permitted to differ conditionally on whether the observation is a source or target, this allows a more precise view on the determinants of transnational terrorism.

Globalization also affects the costs, benefits, and resources available for terrorist activities. First, if terrorism emerges from a sense of relative deprivation, then globalization, insofar as it encourages economic growth, may mitigate terrorist tendencies. On the other hand, if globalization is associated with increased inequality across countries and groups, then we might expect globalization to lead to more violence. On the costs side of the equation, the lowered barriers to the flows of goods, money, people, and ideas makes the networks of terrorist operations cheaper to operate. Terrorist themselves find it easier to move across increasingly permeable borders; resource flows across borders necessary to finance terrorist operations become more difficult to monitor by authorities overwhelmed by the growth of the international financial system. Norms of privacy in international banking make information about these resource flows scarce. The fact that customs agents inspect only a small fraction of goods imported makes the smuggling of terrorist material cheaper, while the freer flow of information makes the knowledge and techniques of terrorist action more easily transferred. Globalization, like democracy, affects the costs, benefits, and resources constraints of terrorists in many ways. The literature has focused on some of these mechanisms and the evidence has been substantially inconclusive.

The popular discourse seems to put some of the blame for transnational terrorism on "globalization" – this increased flow of goods, services, ideas, people, and culture across international borders. The *Economist* suggests that the relative ease with which resources and people move around the world increases the risks associated with transnational terrorism, while Paul Martin (2002), as Canadian Finance Minister, claimed that the terrorists themselves are hostile to the process of globalization, witnessed by the choice of target by the 9/11 hijackers – a center of world trade and finance.

Others argue that globalization encourages terrorism for yet further reasons. If globalization increases world inequality, then it will increase feelings of relative deprivation. These feelings produce political action, some of it violent. Or merely, globalization results in a kind of cultural imperialism significantly reducing the quality of life of people committed to a particular set of norms governing social behavior, norms that foreign influences break.

Our chapter cannot hope to disentangle each of these issues. Rather, it is the first to document three phenomena:

- The effects of democracy and globalization on terrorism differ for source and target countries
- Terrorism falls with democracy and globalization in the source countries
- Terrorism rises with democracy and globalization in the target countries.

Moreover, as the results in Table 4.5 demonstrate, our baseline estimates of the traditional gravity specification in equation (3) reported in Table 4.4 are generally robust across modifications to take into account region, time, and income class. The estimates reported in columns 1 through 6 of Table 4.5 are for the results from a gravity specification where we include measures of globalization and democratization in each specification.¹¹

Greater distance, borders, and language appear to have similar statistically significant effects in Table 4.5 as in Table 4.4. Larger country size continues to increase terrorism. Richer host countries continue to generate more terrorism in each case except when only rich countries are considered.¹² Poorer source countries continue to generate more terrorism.¹³

Finally, and most importantly, the influence on globalization and democratization are similar across the subsamples. As can be seen from the appropriate rows of the table, the estimate associated with host democracy is statistically significant at below the .01 level in most cases, and the coefficient estimates are positive in each case (except in Latin America), varying between 1.5 in Asia income countries to 0.5 in the Middle East and North Africa. The estimate associated with source democracy is statistically significant at below the .01 level in most cases, and the coefficient estimates vary between $-.1$ in Latin America income countries to -1.5 in the Middle East and North Africa.

The estimates associated with globalization continue to be positive for host countries, ranging from 0.5 in sub-Saharan Africa to 1.3 in Latin America. They are statistically significant at below the 0.01 level in each case but

¹¹ The regions we consider are, respectively, South East Asia, East Asia, the Middle East, North Africa, Latin America and the Caribbean, and High and Low Income countries. The latter classification is from Rose (2004) and is obtained from the World Bank Development Indicators.

¹² This may be because rich countries are less likely to commit terrorist acts.

¹³ Again, except for the low-income sample, which may be less likely to strike against its poor counterparts.

Table 4.5. Robustness checks: Gravity model for terrorist incidents: 1968–2003 full country sample

	1 Asia	2 ssafr	3 menaf	4 latca	5 highi	6 lowin	7 1968–85	8 1986–2003
y_h	0.475** [0.197]	0.568** [0.221]	0.394*** [0.120]	0.371** [0.180]	-0.561** [0.237]	0.696*** [0.163]	0.568** [0.250]	0.615*** [0.229]
Y_s	-0.505*** [0.161]	-0.064 [0.205]	-1.185*** [0.180]	-0.680*** [0.221]	-4.364*** [0.328]	-0.335*** [0.128]	-1.904*** [0.290]	-1.866*** [0.238]
Y_h	0.645*** [0.146]	0.881*** [0.212]	1.121*** [0.144]	0.792*** [0.132]	3.386*** [0.233]	0.727*** [0.108]	3.227*** [0.250]	2.310*** [0.191]
Y_s	0.676*** [0.157]	0.465** [0.192]	1.232*** [0.173]	0.614*** [0.149]	0.299 [0.211]	0.644*** [0.112]	0.925*** [0.216]	1.458*** [0.195]
Distance	-1.529*** [0.313]	-2.386*** [0.522]	-1.455*** [0.208]	-1.196*** [0.209]	-4.168*** [0.331]	-1.856*** [0.278]	-2.516*** [0.318]	-3.785*** [0.328]
Comlang	1.575*** [0.381]	1.566*** [0.453]	0.289 [0.315]	0.848*** [0.328]	4.227*** [0.595]	1.907*** [0.325]	2.184*** [0.585]	4.188*** [0.490]
Border	1.436** [0.662]	-0.326 [0.658]	1.250*** [0.399]	1.883*** [0.413]	-1.255 [0.937]	1.260*** [0.468]	1.275 [0.869]	1.904*** [0.684]
Area	0.159 [0.110]	0.027 [0.112]	-0.169* [0.094]	-0.12 [0.078]	0.129 [0.133]	0.160* [0.089]	-0.585*** [0.139]	-0.008 [0.133]
REL_h	-1.452* [0.783]	0.043 [0.817]	-1.940*** [0.593]	0.027 [0.724]	-0.444 [1.131]	-1.041* [0.585]	-0.876 [1.195]	-0.727 [0.944]
REL_s	-0.546 [0.827]	0.824 [0.848]	-1.254* [0.696]	-1.474** [0.688]	-5.657*** [1.257]	-0.562 [0.592]	-5.915*** [1.266]	-8.594*** [1.049]
DEM_h	0.629* [0.353]	0.473 [0.413]	1.145*** [0.274]	1.256*** [0.303]	3.206*** [0.637]	0.895*** [0.291]	2.410*** [0.582]	2.376*** [0.545]
DEM_s	-0.252 [0.386]	-0.451 [0.491]	-0.785** [0.342]	-0.673** [0.279]	-0.209 [0.794]	-0.459 [0.303]	-1.178* [0.671]	-1.275** [0.572]
GLO_h	1.403*** [0.524]	0.448 [0.619]	0.760** [0.299]	-0.689** [0.274]	3.040*** [0.913]	0.561 [0.352]	3.168*** [0.777]	0.15 [0.599]
GLO_s	-0.427 [0.491]	-1.555*** [0.543]	-1.631*** [0.325]	0.002 [0.305]	-2.708*** [0.927]	-0.141 [0.343]	-0.617 [0.689]	-2.190*** [0.592]
Observations	44410	70575	28159	60120	91435	83911	67952	114842

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 gravity model estimated over subsamples where either the host or source country is in the respective region: Asia, (sub-Saharan Africa) ssafr, (Middle East and North Africa) menaf, (Latin America and Caribbean) latca; income: highi, lowin; and time: 1968–1985, 1986–2003. See Table 4.4.

one, sub-Saharan Africa. The influence from source-country globalization remains positive, though less often statistically significant. All of these effects are more pronounced in high-income countries than in low-income countries. Columns 8 and 9 explore the effect when we split the sample in 1985. Interestingly, the estimated effect of the gap from globalization and democratization is much larger in absolute value in the source country, though still statistically significant, for the 1985–2003 subsample. The coefficient is two times larger in absolute value for the second half of the sample. This may be because despite the trends in globalization and democratization, the motives and technology available to terrorists may have changed.

4.3. Analyzing the Robustness Across Different Measures of Terrorism

In Table 4.6, we consider an alternative measure of terrorism. Rather than define the host as the nation where the terrorist attack occurred, we define it according to the nationality of the victim, no matter where the attack occurred. In national income accounting terms, we consider a GNP measure of host terrorism rather than the GDP measure of host terrorism described earlier. We employ the exact same specification as in Table 4.4. We find that in general, the coefficients have the same sign, of similar magnitude, and statistical significance as those in Table 4.4.

The remarkable similarity in results between Tables 4.4 and 4.6 also give us some information about possible measurement issues. As discussed in Section 3, there may be some concerns that we are unable to capture the intent of the terrorist given the inherent challenges to using media-based measures of terrorism. Yet, when we select a different way of measuring the target for terrorism, namely by the nationality of the victim, we get precisely the same results. Obviously, this cannot account for all the possible problems associated with measuring terrorism, but the similarity is noteworthy. Other possible measurement issues are analyzed in Tables 4.7 and 4.8.

In Table 4.7, we consider a different measure of terrorism to account for the intensity of the violence. In this case, we define terrorism as the number of victims rather than the number of incidents.¹⁴ The advantage to considering this measure is that it may better account for the actual damage of each attack inflicted on its country. The disadvantage would be that often terrorists may be less interested in targeting victims than in getting a response from its target. At the very least, it provides a robustness check to our early results.

¹⁴ For comparative purposes, we divide the left-hand-side variable by ten so that the coefficients are of similar magnitude to terrorism in Tables 4.4–4.6.

Table 4.6. Gravity model for terrorist incidents by nationality: 1968–2003 full country sample

	1	2	3	4	5	6	7	8	9
	Base	DEM	DEM	GLO	GLO	DEM&GLO	DEM&GLO	F.E.	R.E.
Y _h	1.901*** [0.099]	1.809*** [0.116]	1.650*** [0.106]	2.080*** [0.111]	1.831*** [0.101]	2.060*** [0.133]	1.638*** [0.107]	1.198*** [0.107]	0.947*** [0.072]
Y _s	-1.713*** [0.097]	-1.660*** [0.114]	-1.678*** [0.104]	-1.794*** [0.119]	-1.669*** [0.097]	-1.712*** [0.138]	-1.654*** [0.104]	-1.461*** [0.107]	-1.092*** [0.085]
Y _h	2.373*** [0.083]	2.371*** [0.096]	2.349*** [0.087]	2.157*** [0.093]	2.336*** [0.083]	2.132*** [0.114]	2.333*** [0.087]	2.121*** [0.088]	0.447*** [0.063]
Y _s	0.465*** [0.071]	0.430*** [0.085]	0.508*** [0.077]	0.454*** [0.088]	0.421*** [0.074]	0.385*** [0.105]	0.475*** [0.079]	0.565*** [0.081]	1.199*** [0.059]
distance	-1.946*** [0.126]	-1.668*** [0.144]	-1.720*** [0.133]	-1.793*** [0.131]	-1.929*** [0.126]	-1.630*** [0.148]	-1.732*** [0.133]	-1.756*** [0.135]	-1.036*** [0.091]
comlang	2.898*** [0.213]	2.909*** [0.242]	2.948*** [0.220]	2.777*** [0.223]	2.883*** [0.213]	2.789*** [0.253]	2.942*** [0.220]	2.769*** [0.222]	2.027 [0.000]
border	1.389*** [0.338]	2.114*** [0.380]	1.813*** [0.352]	1.658*** [0.348]	1.417*** [0.338]	2.169*** [0.388]	1.801*** [0.352]	2.074*** [0.354]	1.285*** [0.233]
Area	0.406*** [0.046]	0.322*** [0.059]	0.314*** [0.052]	0.004 [0.056]	0.449*** [0.048]	0.03 [0.067]	0.346*** [0.054]	0.196*** [0.055]	0.207*** [0.048]
REL _h	2.674*** [0.418]	3.174*** [0.477]	2.649*** [0.433]	3.224*** [0.426]	2.283*** [0.423]	3.883*** [0.489]	2.438*** [0.438]	1.167*** [0.447]	
REL _s	-4.505*** [0.417]	-5.037*** [0.488]	-4.733*** [0.436]	-4.639*** [0.439]	-4.518*** [0.420]	-5.196*** [0.508]	-4.741*** [0.440]	-4.256*** [0.448]	

(continued)

Table 4.6 (continued)

	1 Base	2 DEM	3 DEM	4 GLO	5 GLO	6 DEM&GLO	7 DEM&GLO	8 F.E.	9 R.E.
polity _h		0.092*** [0.013]				0.078*** [0.013]			
polity _s		-0.025*** [0.007]				-0.022*** [0.007]			
DEM _h			2.194*** [0.245]				951*** [0.258]	1.831*** [0.264]	0.589*** [0.134]
DEM _s			-0.889*** [0.235]				-0.891*** [0.244]	-0.658*** [0.245]	-0.772*** [0.132]
OPEN _h				-0.036*** [0.004]		-0.033*** [0.005]			
OPEN _s				-0.027*** [0.004]		-0.023*** [0.005]			
GLO _h					1.520*** [0.279]		0.890*** [0.304]	0.855*** [0.304]	0.370** [0.173]
GLO _s					-0.236 [0.248]		-0.031 [0.267]	-0.17 [0.270]	-0.138 [0.166]
Observations	209471	137648	183563	191629	209471	130218	183563	183563	184044

Note: Clustered standard errors are presented in parentheses. ***, **, and represent * statistical significance at the .01, .05, and .10 levels, respectively. See Table 4.5. The data for terrorism in these results differ in this case because we determine the target based on the nationality of the victim.

Table 4.7. Gravity model for victims of terrorism: 1968–2003 full country sample

	1 Base	2 DEM	3 DEM	4 GLO	5 GLO	6 DEM&GLO	7 DEM&GLO	8 F.E.	9 R.E.
y _h	1.145*** [0.173]	0.924*** [0.196]	0.857*** [0.179]	1.413*** [0.190]	1.058*** [0.174]	1.286*** [0.221]	0.817*** [0.181]	0.420** [0.169]	2.009*** [0.217]
y _s	-2.047*** [0.181]	-1.984*** [0.204]	-1.920*** [0.192]	-2.177*** [0.217]	-1.940*** [0.182]	-2.248*** [0.250]	-1.879*** [0.193]	-2.105*** [0.187]	-2.454*** [0.280]
Y _h	2.745*** [0.158]	2.965*** [0.182]	2.837*** [0.166]	2.477*** [0.166]	2.702*** [0.159]	2.631*** [0.200]	2.804*** [0.167]	2.735*** [0.158]	1.467*** [0.208]
Y _s	1.120*** [0.137]	1.120*** [0.159]	1.303*** [0.149]	1.180*** [0.162]	1.182*** [0.144]	1.280*** [0.195]	1.331*** [0.154]	1.397*** [0.148]	2.344*** [0.185]
distance	-3.736*** [0.246]	-3.379*** [0.265]	-3.375*** [0.249]	-3.314*** [0.240]	-3.662*** [0.245]	-3.110*** [0.264]	-3.343*** [0.249]	-3.122*** [0.232]	-4.572*** [0.336]
comlang	2.982*** [0.394]	2.971*** [0.438]	3.106*** [0.403]	2.797*** [0.394]	3.030*** [0.393]	2.830*** [0.443]	3.172*** [0.404]	2.725*** [0.377]	4.029*** [0.517]
border	0.835 [0.574]	1.371** [0.638]	1.444** [0.592]	1.150** [0.570]	0.932 [0.573]	1.548** [0.639]	1.475** [0.591]	1.417** [0.553]	1.502** [0.708]
Area	0.008 [0.088]	-0.304*** [0.110]	-0.228** [0.099]	-0.543*** [0.105]	0.011 [0.091]	-0.698*** [0.127]	-0.216** [0.102]	-0.348*** [0.097]	0.505*** [0.135]
REL _h	-0.549 [0.744]	-0.424 [0.841]	-0.713 [0.764]	-0.028 [0.734]	-0.867 [0.751]	0.245 [0.842]	-0.921 [0.772]	-1.255* [0.735]	
REL _s	-7.486*** [0.819]	-8.301*** [0.931]	-7.683*** [0.843]	-7.706*** [0.832]	-7.073*** [0.824]	-8.618*** [0.948]	-7.307*** [0.848]	-7.117*** [0.820]	
polity _h		0.125*** [0.023]				0.102*** [0.022]			

(continued)

Table 4.7 (continued)

	1 Base	2 DEM	3 DEM	4 GLO	5 GLO	6 DEM&GLO	7 DEM&GLO	8 F.E.	9 R.E.
polity _s		-0.054*** [0.011]				-0.052*** [0.011]			
DEM _h			2.180*** [0.402]				1.882*** [0.415]	3.102*** [0.410]	0.389 [0.404]
DEM _s			-2.368*** [0.438]				-1.882*** [0.461]	-1.194*** [0.432]	-2.456*** [0.497]
OPEN _h				-0.047*** [0.006]		-0.041*** [0.009]			
OPEN _s				-0.032*** [0.007]		-0.016* [0.008]			
GLO _h					1.943*** [0.467]		1.515*** [0.497]	1.572*** [0.466]	0.211 [0.499]
GLO _s					-1.974*** [0.440]		-1.627*** [0.477]	-1.653*** [0.445]	-1.824*** [0.567]
Observations	208613	136962	182794	190812	208613	129542	182794	182794	183275

Note: Clustered standard errors are presented in parentheses. ***, **, and * represent statistical significance at the .01, .05, and .10 levels, respectively. See Table 4.5. The data for terrorism in these results differ in this case because we determine the target based on the number of victims.

Table 4.8. Gravity model for terrorist victims of U.S.: 1968–2003 full country sample

	1 Base	2 DEM	3 DEM	4 GLO	5 GLO	6 DEM&GLO	7 DEM&GLO	8 F.E.	9 R.E.
y _h	0.921** [0.403]	0.674 [0.487]	0.6 [0.421]	1.011** [0.435]	0.810** [0.403]	0.547 [0.535]	0.521 [0.424]	0.125 [0.403]	0.008*** [0.003]
y _s	-1.821*** [0.429]	-1.441*** [0.521]	-1.504*** [0.463]	-1.619*** [0.501]	-1.680*** [0.435]	-1.155* [0.625]	-1.522*** [0.467]	-1.833*** [0.462]	-0.023*** [0.003]
Y _h	3.020*** [0.378]	3.601*** [0.482]	3.144*** [0.401]	2.844*** [0.399]	3.032*** [0.383]	3.640*** [0.548]	3.166*** [0.407]	3.165*** [0.395]	0.022*** [0.002]
Y _s	1.277*** [0.333]	1.405*** [0.423]	1.611*** [0.371]	1.120*** [0.386]	1.472*** [0.355]	1.223** [0.505]	1.737*** [0.388]	1.855*** [0.381]	0.018*** [0.002]
distance	-3.688*** [0.580]	-3.289*** [0.668]	-3.207*** [0.592]	-3.176*** [0.564]	-3.567*** [0.576]	-2.823*** [0.660]	-3.123*** [0.590]	-2.988*** [0.563]	-0.010*** [0.003]
comlang	3.576*** [0.961]	4.318*** [1.161]	3.679*** [0.991]	3.519*** [0.955]	3.568*** [0.960]	4.526*** [1.174]	3.752*** [0.994]	3.488*** [0.947]	-0.001 [0.006]
border	-0.03 [1.467]	0.243 [1.792]	0.926 [1.520]	0.447 [1.437]	0.206 [1.457]	0.713 [1.778]	1.062 [1.516]	0.897 [1.442]	-0.006 [0.009]
area	0.047 [0.211]	-0.424 [0.282]	-0.257 [0.237]	-0.563** [0.248]	-0.017 [0.216]	-0.919*** [0.325]	-0.325 [0.247]	-0.455* [0.242]	-0.001 [0.002]
REL _h	-0.392 [1.771]	-0.114 [2.149]	-0.712 [1.835]	-0.157 [1.737]	-0.528 [1.792]	-0.279 [2.144]	-0.713 [1.856]	-0.947 [1.799]	

(continued)

Table 4.8 (continued)

	1	2	3	4	5	6	7	8	9
	Base	DEM	DEM	GLO	GLO	DEM&GLO	DEM&GLO	F.E.	R.E.
REL _s	-8.385*** [2.008]	-10.211*** [2.528]	-8.458*** [2.078]	-8.675*** [2.041]	-7.502*** [2.012]	-10.664*** [2.592]	-7.799*** [2.088]	-7.698*** [2.056]	
polity _h		0.057 [0.045]				0.043 [0.042]			
polity _s		-0.075** [0.029]				-0.074*** [0.028]			
DEM _h			2.922*** [0.988]				2.868*** [1.023]	3.965*** [1.027]	0.008 [0.005]
DEM _s			-4.579*** [1.116]				-3.721*** [1.165]	-2.744** [1.094]	-0.033*** [0.006]
OPEN _h				-0.042*** [0.015]		-0.017 [0.020]			
OPEN _s				-0.051*** [0.018]		-0.048** [0.024]			
GLO _h					1.46 [1.076]		0.54 [1.154]	0.807 [1.108]	0.002 [0.005]
GLO _s					-3.637*** [1.090]		-2.662*** [1.187]	-2.896** [1.132]	-0.024*** [0.006]
Observations	208613	136962	182794	190812	208613	129542	182794	182794	183275

Note: Clustered standard errors are presented in parentheses. ***, **, and * represent statistical significance at the .01, .05, and .10 levels, respectively. See Table 4.5. The data for terrorism in these results differ in this case because we determine the target based on the number of U.S. victims.

The results in Table 4.7 continue to support the earlier findings. The sign and statistical significance of each relevant coefficient is similar to those discussed earlier. However, the magnitude of the coefficients associated with income per capita, globalization, and democratization are slightly larger – on the order of 10 percent greater. Because the left-hand-side variables in both Tables 4.6 and 4.7 have been scaled to be of similar magnitude, one can only conclude that the effect of these variables is greater on the number of victims than it is on the number of incidents.

To place some perspective on the magnitude of these results, a one-percentage point increase in income in a host country causes the number of victims to rise by about one. A one-percentage point increase in the income of the source country causes the number of victims to fall twofold or by about two. The advent of a democracy or participation in the WTO in a host country causes the number of victims to rise twofold or by about two. Participation in the WTO in a source country causes the number of victims to fall twofold or by about two.

Finally, Table 4.8 considers the same measure as the number of victims but does this only for victims who are U.S. citizens. This provides a final robustness check as the United States may be the most likely target country for terrorism and the media may be exceptionally likely to report terrorist attacks that affect U.S. citizens. The results in Table 4.7 mirror our earlier findings, but the magnitudes are different. It appears that being a democracy for the source country is greater than in the full sample. The magnitude of the democratization effect is much larger when the sample is restricted to U.S. victims of terrorism. Finally, it appears that openness provides a greater hedge to terrorist attacks from source countries than in the previous regressions.

5. Conclusion

Thomas Friedman (2000) has been influential in understanding how the forces of globalization are helping to shape the evolution of world events. He writes:

on October 11, 1998, at the height of the global economic crisis, Merrill Lynch ran full-page ads in major newspapers through America to drive this point home. The ads read:

The World Is 10 Years Old

It was born when the Wall fell in 1989. It's no surprise that the world's youngest economy – the global economy – is still finding its bearings. The intricate checks

and balances that stabilize economies are only incorporated with time. Many world markets are only recently freed, governed for the first time by the emotions of the people rather than the fists of the state. From where we sit, none of this diminishes the promise offered a decade ago by the demise of the walled-off world. . . . The spread of free markets and democracy around the world is permitting more people everywhere to turn their aspirations into achievements. And technology, properly harnessed and liberally distributed, has the power to erase not just geographical borders but also human ones. It seems to us that, for a 10-year-old, the world continues to hold great promise. In the meantime, no one ever said growing up was easy. (*Lexus and the Olive Tree*, 1)

Do these “growing pains” imply that we should observe more conflict around the globe, and in particular, terrorist attacks, as a consequence? Our chapter seeks to answer this question. We construct a new database on bilateral conflict and estimate a gravity model for terrorism. We find that development, democracy, and openness are each positive influences in creating a more peaceful environment for countries that are a source of terrorism. We also find that these same factors make a country more likely to be a target for terrorism.

What do these results mean for policy makers? Our chapter is one of the first of its kind to document the need for development, democracy, and openness in encouraging peace for terrorist nations. This means that policies that can encourage more liberal institutions to facilitate political and economic freedom will have a pacifying influence on a terrorist state. As such, these factors can help to reduce the supply of terrorist activity.

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