Attitudes and Action: Public Opinion and the Occurrence of International Terrorism

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One Sentence Summary: We present evidence showing a robust positive relationship between the percentage of people in a country who disapprove of the leadership of another country and the number of terrorist attacks carried out by people or groups from the former country against people or property from the latter country.

Abstract: The predictors of terrorism are unclear. This paper examines the effect of public opinion in one country toward another country on the number of terrorist attacks perpetrated by people or groups from the former country against targets in the latter country. Public opinion is measured by the percentage of people in Middle Eastern and North African countries who disapprove of the leadership of nine world powers. Count models for 143 pairs of countries are used to estimate the effect of public opinion on terrorist incidents, controlling for other relevant variables and origin country fixed effects. We find a greater incidence of international terrorism when people of one country disapprove of the leadership of another country.

Introduction

Public opinion polls regularly survey people's attitudes on various issues, but relatively little research has explored whether public attitudes translate into concrete actions. For example, it is unknown whether anti-American attitudes in various parts of the world have harmed American business interests or led to a rise in terrorist attacks on American targets (*1*). This paper addresses the question of whether there is a relationship between attitudes toward a foreign country, as expressed in public opinion polls, and the occurrence of terrorism against that country.

Specifically, we examine whether the public attitudes in country "i" toward the leadership of country "j" are related to the likelihood that people or groups from country i perpetrate terrorism against people or property from country j. We use data from the Gallup World Poll on the public opinion of residents in 19 Middle Eastern and North African countries (MENA, broadly defined) towards the leaders of nine world powers (the U.S.A., U.K., Russia, Germany, France, Canada, Japan, China and India) in 2006-07. This survey asked representative samples of the public in each country whether they approved or disapproved of the job performance of the leadership in the selected countries. We link this information to the number of terrorist acts committed by people and groups from each of our sample of MENA countries against targets from each of the nine countries in 2004-2008 based on data from the National Counter Terrorism Center (NCTC). We also control statistically for the effects of several other factors that may be related to terrorism, such as economic conditions, civil liberties, and the geographic distance between countries. Our results point to a robust relationship between public opinion regarding the leadership of a country and the occurrence of terrorism.

Public opinion toward other countries is potentially influenced by many factors, including historical animosities, religious rivalries, and economic competition, but our survey data refer specifically to country i's views of the job performance of the leadership of country j. Although attitudes towards foreign leaders is not the only indicator of attitudes towards a country and its policy (*2*), the World Poll data should reflect the approval or disapproval of policies pursued by foreign governments, and the general way in which the leadership of the country is perceived.

Understanding the relationship between public attitudes and the occurrence of terrorism is important because, while terrorist acts are rare, public opinion can provide an early warning signal and alternative indicator of terrorist threats. In addition, estimating the relationship between public opinion and acts of terrorism can help us understand the circumstances that lead to terrorism. For example, general disapproval of another country's leadership and policies could create a broader pool of people who provide material support for terrorist cells or join terrorist groups, resulting in more terrorist acts. Public opinion could also act as an incentive, providing a source of approval (or disapproval) encouraging (or discouraging) individuals to participate in terrorist activities. If public opinion toward another country is unrelated to the incidence of terrorism perpetrated against that country, there would be support for the view that terrorism is carried out by a fringe group with views and support networks that lie far from the mainstream of society.

Data

The Gallup World Poll has been conducted in more than 130 countries (*3*). We have obtained access to the micro survey data for 2006 and 2007 to compute statistics on public opinion concerning foreign countries. The specific question we utilize is: "Do you approve or disapprove of the job performance of the leadership of [named country]?" Permissible answers are either approve or disapprove. The specific named countries were U.S.A., U.K., Russia, Germany, France, Canada, Japan, China and India, although Canada and India were not asked in all countries. These nine countries were selected by Gallup because they are world powers in terms of economic size, population or military strength. About 1,000 people were surveyed in each country per year, usually in face-to-face interviews. Samples were drawn to be nationally representative, and sample weights were provided to adjust for nonresponse disproportionalities. Using the available data, we calculated the (weighted) percentage of the population who disapproved of the job performance of each of the nine countries' leaders, which we refer to as the disapproval rate.

We focus on public opinion in MENA countries because the occurrence of terrorism directed at the nine powers was rare outside of the MENA region. Specifically, we have data on Afghanistan, Algeria, Cyprus, Egypt, Iran, Israel, Jordan, Kuwait, Lebanon, Mauritania, Morocco, Pakistan, Palestine, Saudi Arabia, Sudan, Tunisia, Turkey, the United Arab Emirates, and Yemen. We drop Afghanistan from our regression analysis because GDP is not available for the country. Disapproval of the performance of foreign leadership varied across the countries, from a disapproval rate of 13 percent (Morocco regarding Canada) to a high of 91 or 92 percent (UAE regarding

U.S. and Cyprus regarding U.S.). There was also considerable variation within countries. For example, looking just at Saudi Arabians, the disapproval rate ranged from 34 percent concerning Japan to 88 percent concerning the U.S. Table 1 reports the average disapproval rate (and minimum and maximum) in each MENA country and the average disapproval rate (and minimum and maximum) of the leadership of the nine powers.

[Table 1 about here]

We collected data on the number of terrorist incidents perpetrated by people or groups from each of the MENA countries directed against people or property from each of the nine powers from January 2004 to August 2008 from the NCTC's Worldwide Incidents Tracking System (WITS). The WITS database is the most comprehensive source of information on international terrorist events publicly available. A terrorist attack is defined by the NCTC as an incident "in which subnational or clandestine groups or individuals deliberately or recklessly attacked civilians or noncombatants." State terrorism is excluded by this definition and therefore not addressed by our analysis

Our analysis sample consists of up to 18 x 9 = 162 country-by-country cells. For purposes of our analysis, we refer to the 18 MENA countries as the origin countries and the nine powers as the target countries, whether those countries were attacked intentionally or unintentionally. Because of missing data on public opinion (omission of questions concerning Canada and India) in some origin countries, the sample is reduced to 144 cells. Restricting attention to these cells, there is a total of 952 terrorist attacks in this period. However, 841 of these incidents were perpetrated by groups from Pakistan against targets from India. The next highest number of incidents was 13 attacks carried out by Palestinians with victims from the U.S. The Pakistan-India cell is clearly an

outlying observation. Moreover, the fact that Pakistan and India share a border suggests that a different process could be at work for these two countries. Consequently, in most of our analysis we drop the Pakistan-India pair, but we report on how including them affects our results. This leaves us with 143 country pairs. A total of 111 terrorist attacks were perpetrated by the origin countries against the target countries in this sample, involving 27 pairs (19 percent) of countries.

Other variables used in our analysis include average GDP per capita from 1997 to 2001, population, and civil rights of origin and target countries, and percent Muslim of the population in the origin countries.[1] In addition, we computed the distance between the capital cities of the origin and target countries using the Halversine formula. These variables have been identified as possibly related to the occurrence of terrorism in past research and hence are included as control variables in our analysis (*6-12*).

Statistical Analysis

If the country pairs are divided into quartiles based on the disapproval rate of the leadership of the nine powers by people in the MENA countries, the number of terrorist attacks arising from the MENA countries against people or property in the nine targets rises with disapproval (see Figure 1). The bivariate correlation between the number of attacks from country i against country j and the corresponding disapproval rate is 0.24 (p-value < 0.01).

[1] GDP per capita is the average from 1997 to 2001 and is derived from World Bank data. Civil rights are from the Freedom House and are on a 1-7 inverse scale. Percent Muslim and population are from the CIA World Factbook (https://www.cia.gov/library/publications/the-world-factbook/).

To control for potentially confounding variables and to model the count nature of terrorist incidents, we estimated negative binominal regression models (see Table 2). We also estimated zero-inflated negative binomial models, but a Vuong test typically did not reject the simpler negative binomial model. The general form of the models is:

(1) $E(y_{ij} \mid \mathbf{x}) = \exp(x_{ij}\beta_1 + x_i\beta_i + x_j\beta_j)$

where y_{ij} is the number of terrorist incidents perpetrated by people from country i on people or property of country j, **x** represents the explanatory variables (e.g., distance between countries and GDP per capita), i indexes the specific MENA country, and j indexes the target country. Variables that have an ij subscript are specific to the pair, such as country i's view of the job performance of the leaders of country j. Other variables are specific to the origin (i) or target (j) country. A negative binomial was selected to accommodate over dispersion of the dependent variable. We also estimate a fixed effects specification that includes dummy variables for each origin country in lieu of $x_i\beta_i$.

[Table 2 about here]

Consistent with findings of the past literature, terrorist incidents are less likely between pairs of countries that are separated by greater geographic distance (*7*). In addition, terrorism is unassociated with GDP per capita in the origin country but positively associated with GDP per capita in the target country and the degree of civil liberties in the target country.

Most importantly, we find a sizable and robust positive relationship between the number of terrorist incidents occurring from country i against country j and the rate at which people in country i disapprove of the job performance of country j's leaders. A 20

percentage point increase in the disapproval rate of a country's leaders, the equivalent of one standard deviation in this sample, is associated with a 93 percent (= 100 x {exp(0.66) - 1}) increase in the number of terrorist attacks (see column 2; $p<.05$). The estimated magnitude of this effect remains a sizable 82 percent if unrestricted country-of-origin dummies are included in the model (see column 3; $p<.01$).

We estimated several alternative statistical models to explore the robustness of the effect of disapproval rate on the number of terrorist incidents. First, we dropped observations on each origin country, one at a time, and re-estimated both models in Table 2 some 18 times. In these estimates the coefficient on the disapproval rate ranged from 2.59 to 4.45 in the column 2 model and from 2.34 to 4.36 in the column 3 model with country dummies. Thus, no single origin country was responsible for the positive coefficient. Second, we weighted the observations by the number of observations used to compute the disapproval rate. Weighting caused the effect of the disapproval rate to become larger and more statistically significant.

Third, we included the Pakistan-India cell in the sample. When the sample is augmented to include this pair, the coefficient (standard error) on the disapproval rate in the model in column 2 rises to 3.75 (1.39) and in column 3 rises to 3.50 (1.31). Fourth, we created a binary indicator that equaled 1 if there was a terrorist attack by people from country i against country j and 0 otherwise. If we use this variable as the dependent variable and estimate a logit model, the disapproval rate has a positive effect on the occurrence of terrorism ($p<.05$) if the explanatory variables are those in column 2 of Table 2, and a positive but statistically insignificant effect if the explanatory variables are those in column 3 (which include MENA country dummy variables). Finally, we

estimated the models in Table 2 using a Poisson model instead of the negative binomial model and found qualitatively similar results.

Discussion

Our results indicate a positive correlation between the percentage of people in one country who disapprove of the leadership of another country and the number of terrorist attacks carried out by people from the former country against targets from the latter country. This correlation was robust to controlling for several features of the origin and target countries and alternative statistical techniques. Our inclusion of unrestricted origin country dummies absorbs omitted variables, such as radical Islamic education or male-female educational differences in the origin country, as long as those variables exert a constant effect across potential targets. The finding that the effect of public disapproval hardly changes after we control for country-of-origin dummies suggests that omitted origin-country variables are not biasing our estimates, although it is possible that origin country variables interact with specific targets and therefore are not fully absorbed by the country fixed effects.

Assuming for the moment that the correlation between public opinion and terrorism is not a statistical artifact of omitted variables or reverse causality, there are alternative theoretical interpretations. Greater disapproval of another country's leaders and policies could result in more terrorist incidents for at least two reasons. On one hand, it could increase the number of people in a society who provide material support and encouragement for terrorist cells. On the other hand, it could increase the number of people willing to join terrorist cells and carry out terrorist acts themselves. Of course,

both of these effects could occur simultaneously, but understanding the mechanism by which public opinion relates to terrorism can help to inform counterterrorism policies. For example, if more people are willing to join terrorist groups as a result of a shift in public opinion, then counterterrorism policy could profitably be directed toward disrupting terrorism recruitment, but if material support is the key channel by which public opinion matters then disrupting terrorism financing may be a higher priority.

Figures 2 and 3 provide a useful analytical tool for distinguishing these cases. Each figure illustrates the latent distribution of disapproval toward country j for people from country i before and after a change in country j's policies that people in country i dislike. It is plausible that international terrorism directed at country j is greeted with greater encouragement and legitimacy as the level of disapproval toward country j held by the median person in country i increases. Suppose further that hatred toward country j must exceed a certain threshold, say C, for someone to join a terrorist group and directly participate in terrorism. In Figure 2, the *entire* latent distribution of disapproval has shifted to the right, indicating greater dissatisfaction with country j. In this case, the number of people who hold extreme negative views and who are willing to participate in terrorist attacks against country j has increased considerably (i.e., those above C). In Figure 3, the view of the median person has shifted by more than in Figure 2, yet the number of people who hold extreme views in excess of C has not changed.

Under these circumstances, in the Figure 3 case increased terrorism would only rise because the proportion of people willing to provide material or psychological support for terrorism has increased. In Figure 2, terrorism could increase because the number of

people willing to carry out terrorist attacks increased as well as the number of people who facilitate or tacitly encourage terrorism.

The Gallup survey data on the public's views toward the leadership of other countries does not allow us to distinguish between these two cases because we do not know the depth of disapproval toward country j. Instead, we only observe the fraction of people who approve or disapprove of the leadership and policies of another country. Thus, our measure reflects the median person's view but not the extent of extreme views.

The fact that we observe a correlation between the percentage disapproving of another country and terrorist attacks on that country is consistent with either scenario illustrated in Figure 2 or Figure 3. Distinguishing between these two cases is important and should be a priority for future research. As Katzenstein and Keohane (*1*) state, "it seems likely that the nature of terrorist politics differs between societies in which there is widespread sympathy for their goals, such as Pakistan and Saudi Arabia, and those in which they are no more than a tiny, if feared, minority as was true in Europe and Japan in the 1970s and 1980s." Nevertheless, our results are inconsistent with one hypothesis: that public opinion is irrelevant for terrorism because terrorists are extremists who act independently of their countrymen's attitudes towards the leadership of the countries that they attack. To explore the reason why public opinion is correlated with terrorism further, it would be useful to collect additional data on public attitudes that probes the intensity of disapproval of foreign countries and assesses various dimensions of disapproval (e.g., leaders, policies, form of government, people, and so on).

Another extension of the analysis presented here would be to take advantage of changes in the leadership and policies of a country. For example, the election of Barack

Obama – who opposed the war in Iraq, criticized the use of torture and detention of alleged terrorists at Guantanamo Bay, and offered to engage in "aggressive personal diplomacy" with leaders of Middle Eastern countries such as Iran -- may well lead to a reduction in public disapproval toward the leadership of the U.S. in the MENA region. Will changes in terrorist activity accompany changes in public sentiment toward the U.S., if public sentiment does indeed change? Relatedly, when longitudinal data become available, researchers will be able to examine more systematically the potential role of reverse causality; that is, whether attacks by terrorists from country i on country j cause citizens in country i to downgrade their approval of the leadership of country j.

References:

1. P. J. Katzenstein, R. O. Keohane, The Political Consequences of Anti-Americanism, in *Anti-Americanisms in World Politics*, P. J. Katzenstein, R. O. Keohane, Eds. (Cornell Univ. Press, Ithaca, 2006), pp. 273-305.

2. G. Chiozza, Disaggregating Anti-Americanism: An Analysis of Individual Attitudes toward the United States in *Anti-Americanisms in World Politics*, P. J. Katzenstein, R. O. Keohane, Eds. (Cornell Univ. Press, Ithaca, 2006), pp. 93-128.

3. The Gallup World Poll is described at www.gallup.com/consulting/worldpoll/24046/about.aspx.

4. The WITS data are available from wits.nctc.gov.

5. GDP per capita is the average from 1997 to 2001 and is derived from World Bank data. Civil rights are from the Freedom House and are on a 1-7 inverse scale. Percent Muslim and population are from the CIA World Factbook (https://www.cia.gov/library/publications/the-world-factbook/).

6. A. Krueger, What Makes a Terrorist: Economics and the Roots of Terrorism (Princeton Univ. Press, Princeton, 2007).

7. A. Krueger, D. Laitin, *Kto Kogo?:* A Cross-Country Study of the Origins and Targets of Terrorism, in *Terrorism, Economic Development, and Political Opennes,* edited by P. Keefer, N. Loayza, Eds. (Cambridge Univ. Press, Cambridge, 2008), pp. 148-173.

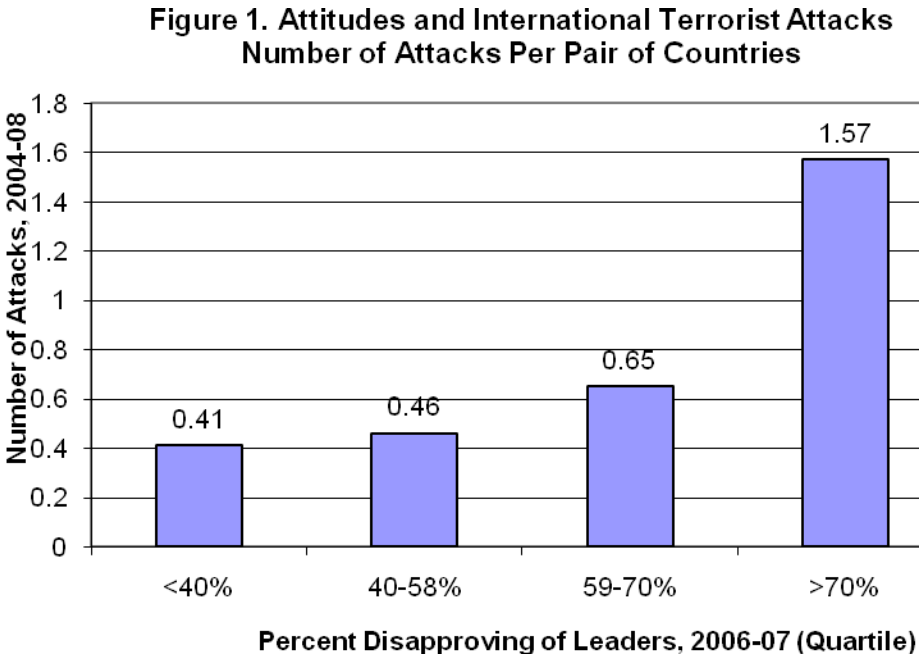
8. A. Abadie, Poverty, Political Freedom, and the Roots of Terrorism, *American Economic Review* **96** (2), 50-56 (2006).

9. A. Krueger, J. Malečková Education, Poverty and Terrorism: Is There a Causal Connection? *Journal of Economic Perspectives* **17 (**4), 119-144 (2003).

10. J. A. Piazza, Rooted in Poverty? Terrorism, Poor Economic Development and Social Cleavages, *Terrorism and Political Violence* **18** (1), 219-237 (2006).

11. P. Derin, *Does Terrorism Have Economic Roots?* Unpublished Working Paper, Boston University (2008).

12. C. Berrebi, Evidence about the Link Between Education, Poverty and Terrorism among Palestinians, Peace Economics, *Peace Science and Public Policy*, **13** (1) (2007).



Note: One quarter of country pairs are in each range presented. Authors' calculations from Gallup World Poll data and NCTC WITS data.

Figure 2. Two hypothetical distributions of disapproval of country j. The median person's level of disapproval and the number of extremists increases are higher in the dashed distribution. Disapproval must exceed C for someone to become a terrorist.

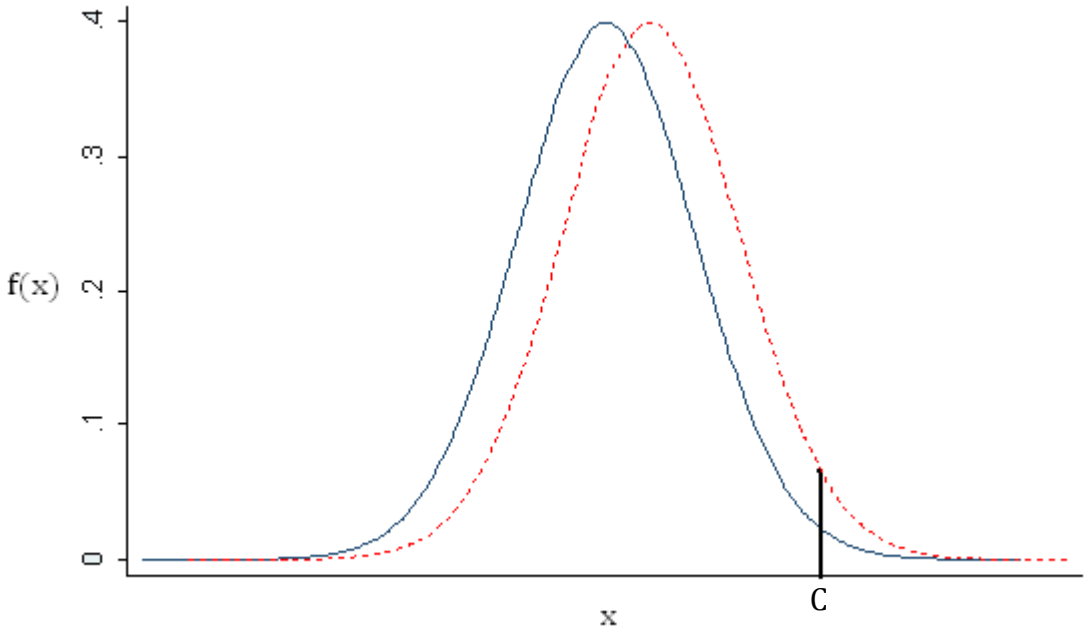


Figure 3. Two hypothetical distributions of disapproval of country j with different medians but the same number of extremists. Disapproval must exceed C for someone to become a terrorist.

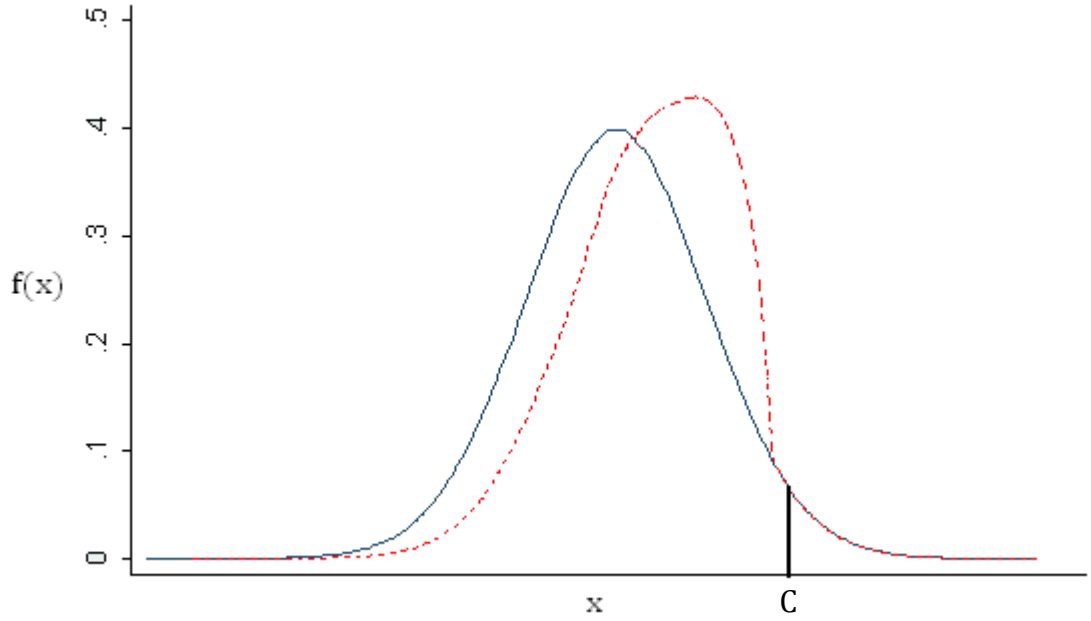


Table 1. Percentage Disapproving of Other Countries' Leadership Disaggregated by Origin and Potential Target Country

A. MENA Countries' Views of Nine Powers

Country	Average	Low	High	Low/High Country
Afghanistan	58.4%	47.9%	78.1%	(Japan, Russia)
Algeria	53.6%	37.9%	78.4%	(Japan, U.S.)
Cyprus	50.6%	30.1%	91.9%	(Russia, U.S.)
Egypt	64.2%	40.7%	85.3%	(China, U.S.)
Iran	45.3%	19.6%	77.2%	(Japan, U.K.)
Israel	50.1%	26.4%	72.3%	(U.S., Russia)
Jordan	75.3%	60.9%	88.9%	(France, India)
Kuwait	63.1%	46.5%	82.2%	(Japan, U.K.)
Lebanon	42.7%	20.4%	62.7%	(France, U.S.)
Mauritania	40.5%	30.3%	49.2%	(France, Russia)
Morocco	27.3%	13.2%	66.8%	(Canada, India)
Pakistan	61.7%	14.9%	79.9%	(China, U.S.)
Palestine	70.2%	59.3%	86.2%	(Japan, U.S.)
Saudi Arabia	60.5%	34.0%	87.9%	(Japan, U.S.)
Sudan	45.2%	26.8%	63.9%	(Japan, U.S.)
Tunisia	58.6%	40.3%	85.4%	(China, U.K.)
Turkey	62.7%	40.7%	78.0%	(Japan, U.K.)
United Arab Emirates	63.3%	38.3%	91.2%	(Japan, U.S.)
Yemen	63.3%	39.4%	87.7%	(China, U.S.)

B. Disapproval of Leadership by MENA Countries

Country	Average	Low	High	Low/High Country
Canada	51.6%	13.2%	79.7%	(Morocco, Jordan)
China	42.3%	14.9%	70.9%	(Pakistan, Jordan)
France	47.9%	13.8%	68.1%	(Morocco, Turkey)
Germany	53.1%	16.2%	71.6%	(Morocco, Jordan)
India	63.8%	35.5%	88.9%	(Sudan, Jordan)
Japan	40.1%	19.6%	64.9%	(Iran, Jordan)
Russia	59.3%	30.1%	80.5%	(Cyprus, Jordan)
United Kingdom	71.3%	23.5%	90.2%	(Morocco, Cyprus)
United States	71.4%	26.1%	91.9%	(Morocco, Cyprus)

Notes: Based on authors' tabulations of the Gallup World Poll, 2006-07. Each observation is an origin country-by-target country cell. Sample sizes vary from 428 to 1,925 at the cell level.

Table 2. Negative Binomial Models to Explain the Number of Terrorist Incidents between Origin and Target Countries

Explanatory Variable	Mean [S.D.]	Coefficient Estimate (Standard Errors)	
	(1)	(2)	(3)
Disapproval Rate	0.55	3.30	3.00
	[0.20]	(1.67)	(1.67)
Log Distance	1.15	-0.82	-0.99
	[0.55]	(0.25)	(0.37)
Origin Log Population	16.26	-0.14	---
	[1.42]	(0.29)	
Origin Civil Liberties (inverse scale)	5.16	0.57	---
	[1.38]	(0.29)	
Origin Log GDP Per Capita	7.69	-0.11	---
	[1.26]	(0.14)	
Origin Proportion Muslim	0.84	-1.03	---
	[0.26]	(1.10)	
Target Log Population	18.89	0.37	0.55
	[1.12]	(0.20)	(0.24)
Target Civil Liberties (inverse scale)	2.75	-0.12	-0.21
	[1.68]	(0.30)	(0.28)
Target Log GDP Per Capita	9.23	0.41	0.50
	[1.62]	(0.22)	(0.24)
17 MENA Country Dummies		No	Yes
Pseudo R-Square		0.13	0.25

Notes: Sample size is 143 origin-by-target country cells. Standard errors in column (2) allow for correlated errors within origin countries. Mean [s.d.] of dependent variable is 0.78 [1.90]. Distance is measured in thousands of miles.