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Economic Sanctions, Poverty, and International Terrorism: An Empirical Analysis

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This study examines the impact of economic sanctions on international terrorism. It is argued that sanctions intensify economic hardships on the poor within countries and this increases their level of grievance and makes them more likely to support or engage in international terrorism. Further, economic sanctions are conceptualized as creating an opportunity for rogue leaders to manipulate aggrieved poor people to terrorize foreign entities who are demonized as engaging in a foreign encroachment on the sanctioned nation's sovereignty. A cross-sectional, time-series data analysis of 152 countries for the past three decades provides evidence that ceteris paribus, *economic sanctions are positively associated with international terrorism. This finding suggests that, although the main purpose of economic sanctions is to coerce rogue countries to conform to international norms and laws, they can unintentionally produce a negative ramification and become a cause of international terrorism.*

KEYWORDS economic sanctions, international terrorism, poverty

Conventionally, there is little support for a relationship between poverty and terrorism. Instead, the enabling conditions of terrorism have been linked with regime type, rule of law, economic development, and state failure.

For example, Krueger and Maleckova's (2003) survey data reveals that terrorist perpetrators from the West Bank and Gaza Strip do not necessarily possess a low socioeconomic background. Piazza's (2006) cross-national analysis, likewise, shows no evidence to support the crux of the "rooted-in-poverty" thesis and Abadie's (2006) empirical research finds no effect of economic variables such as income inequality on terrorism. Furthermore, Fair and Haqqani's (January 30, 2006) foreign policy piece emphatically underscores that "in Arab countries such as Egypt and Saudi Arabia, as well as in North Africa, terrorists do not originate in the poorest and most neglected areas." However, Lai's (2007) study reports that countries with higher levels of economic inequality are associated with higher levels of terrorism. More importantly, Piazza's recent (2011) work produces evidence for poverty in the context that countries featuring minority group economic discrimination are more vulnerable to terrorism because such groups suffer from economic pain and may seek violent revenge.[1]

Since the existing literature remains inconclusive of whether poverty feeds terrorism, this empirical research reexamines the causal connection by looking at how economic sanctions cause poverty that, in turn, motivates terrorist incidents. However, this reexamination does not start with the old premise that the poor turn to violence simply because they are poor. Instead, it is argued that the poor become violent only when additional external shocks such as economic sanctions push them over the edge. Sanctions are likely to incite a terrorist response because the hardship caused by sanctions often mobilizes many of the economically wounded, who then resort to terrorist violence to avenge their loss. Further, sanctions provide rogue leaders with a window of opportunity to manipulate aggrieved poor people toward terrorism by demonizing sanctions as an external threat to sovereignty and economic well-being. Put simply, this study asserts that use of economic sanctions as a foreign policy tool is counterproductive because it often *unintentionally* encourages acts of international terrorism in sanctioned countries.

A cross-sectional, time-series data analysis of 152 countries for the past three decades provides evidence that, all other things being equal, economic sanctions are positively associated with international terrorism. Findings are consistent and robust, irrespective of the estimation methods and terrorism data sources. This study also addresses the issue of reverse causality, that is, the probability that the presence of terrorist activities in target countries affects the onset of sanctions rather than the other way around. Furthermore, in an attempt to clarify how sanctions marginalize the poor and, then, how frustrated poor people turn to terrorism, this study implements a two-step

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[1]For an excellent recent survey on poverty and terrorism, see Krieger and Meierrieks (2011) and Piazza (2011).

analysis in which sanctions are first considered a cause of poverty and predicted poverty levels are then used in predicting the occurrence of terrorism. The overall findings of the empirical analysis suggest that, although use of economic sanctions is meant to create beneficial outcomes for domestic and international audiences (for example, by promoting humanitarianism and democracy), it can produce unexpected negative externalities by inciting terrorist activity in sanctioned countries.

This study is organized into six sections. The first section elucidates a causal linkage between economic sanctions and international terrorism. The second section explains the research design with respect to statistical model building, operationalization, and data sources. The third section presents the empirical results. The fourth section deals with reverse causality. The fifth section takes a close look at the role of poverty between economic sanctions and international terrorism. The last section sums up the main findings, discusses foreign policy implications, and suggests some ideas for future research.

ECONOMIC SANCTIONS, THE POOR, AND INTERNATIONAL TERRORISM

When a major power considers using economic sanctions as a foreign policy tool, the intention is often to coerce target governments into particular avenues of response. For example, economic sanctions may be imposed in an effort to force the target country to improve on its record of human rights violations, to enact specific economic reforms, or to end its support for international terrorist organizations (see Drury 2010; Hufbauer et al. 2008; Peksen 2009, 2011; Peksen and Drury 2010; Whang 2010, 2011). However, contrary to the aims of coercive sanctions, like increasing domestic pressure on political leadership, sanctions often end up fanning hatred of the foreigner that, in turn, incites terrorist attacks against foreign interests. The economic pain caused by economic sanctions is likely to be most painful for the poor (that is, hurting the most vulnerable segment of society), because such external economic shocks often drive their living standards further below subsistence levels; such bleak economic conditions can lead aggrieved citizens to consider their economic standing after sanctions. When realizing their horrendous economic life, aggrieved poor people are more likely to support or engage in terrorist activity.

This line of reasoning further extends the findings of previous studies on poverty. For example, Bueno de Mesquita's (2005) formal model demonstrates the paradoxical phenomenon of poverty: lack of economic opportunity and recessionary economies are positively correlated with terrorism, while many terrorists may not actually be drawn from the lowest socioeconomic groups (see also Blomberg, Hess, and Weerapana 2004;

Piazza 2011). This study believes that the paradox of poverty should be understood in the context that rapidly deteriorating financial and economic conditions cause terrorism rather than economic status. This study argues that the imposition of economic sanctions quickly precipitates the downfall of the economic welfare of poor people who have to absorb the sharp economic pain; consequently, sanctions take away the last hope of poor people. As many of these people start to believe that foreigners are more responsible for their abject poverty than anyone else, they are likely to blame foreigners for the drastically deteriorated financial and economic conditions.[2] This line of reasoning is supported by Caplan's (2007) public opinion survey of Americans and economists on the national economy; he reports that people tend to blame foreigners for their economic difficulties. In short, economic sanctions increase the hardships imposed upon the poor, creating more intensive bitter feelings of hopelessness, which often drives aggrieved poor people to seek vengeance; this vengeance can, and often does, assume the form of international terrorism against the apparent instigators of their financial and economic hardships (that is, foreign targets).[3]

The idea that economic sanctions disproportionately affect the poor and leads them to engage in terrorist activity against foreign targets may sound inconsistent with Hufbauer et al.'s (2008:105) findings that "costs to target countries averaging merely 3 percent of GNP may seem small." However, the figure is an assessment of the cost of sanctions to target countries as a whole, rather than an evaluation of the further deteriorating financial and economic conditions of the poor as a result of the sanctions imposed. To be specific, as compared to national elites, poor people are those who often suffer the most from the economic loss caused by sanctions, however small the total loss is. Indeed, Weiss et al. (1997:30) aptly points out the paradox of economic sanctions (see also Weiss 1999).

> Sanctions and humanitarianism often collide. Although in theory sanctions are motivated by an implicitly humane rationale, their implementation often wreaks great havoc and civilian suffering. Inherent

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[2]Gurr (1970:37) observes that "the frustration-aggression mechanism is in this sense analogous to the law of gravity: men who are frustrated have an innate disposition to do violence to its *source* in proportion to the intensity of their frustration" (emphasis added).

[3]It is interesting to ask why aggrieved poor people resort to terrorism rather than some other tactic, such as peaceful protest, participation in elections, creating new political movements, etc. The answer can be found in Kruglanski and Fishman's (2006:194) tool perspective that "views terrorism as a means to an end, a tactic of warfare that anyone could use. . . Its major concern is the conditions under which an individual or a group would opt for a given course of action versus its possible alternatives, given these actors' objectives." This study agrees that terrorism is the most logical "tool" for aggrieved poor people to use. When faced with the unbearably poor financial conditions as a result of the hostile atmosphere created by economic sanctions, aggrieved poor people turn to terrorist tactics to avenge because they have nothing to lose.

in sanctions policy are uncomfortable and, for the moment, still imprecise calculations about inflicting civilian pain to achieve political gain.

Broder's (June 24, 1998) *Washington Post* column reinforces Weiss's point: "if there is an economic impact on the targeted country, too often it is felt by its oppressed population, not the smug, well-insulated rulers." A specific example may be found during the Smith regime in Rhodesia. The black community, which is disproportionally the poorest segment of the population, was far more marginalized than its white counterpart after the imposition of economic sanctions (Galtung 1967; Rowe 2001). This example further illustrates that economic sanctions are likely to deprive poor people of the basic human right to life and survival and, thus, to push them off the cliff. Accordingly, it is not hard to imagine that when going through the acute economic pain as a consequence of external economic shocks, poor people will seek revenge on their own or join international terrorist groups to lash out.[4]

Furthermore, leaders in sanctioned countries have every incentive to shift the blame for deteriorating economic conditions onto the sanctioning countries rather than admit that their misguided foreign policy actions have induced the imposition of economic sanctions (Cortright and Lopez 2000; Galtung 1967). This practice of scapegoating is likely because rogue leaders can frequently manipulate the grievances of the poor, who have limited opportunities to learn of the true causes of their economic suffering, and who face seemingly insurmountable barriers in making a better life for themselves (Fandl 2004). For example, using the state-controlled news media, Fidel Castro successfully blamed the United States for the economic sanctions that created many of Cuba's economic difficulties (Choi and James 2007; Schreiber 1973; Wood 2008). Hoskins and Nutt's (1997:xvi) case study of Burundi also comes to a similar conclusion; they argue, "[economic] sanctions provided the regime with a useful propaganda tool. In an effort to garner domestic support, the Burundi regime accused [sanctioning] countries of harboring secret agendas against the Burundi people." Similarly, Weisberg (August 2, 2006) points out that sanctions imposed on isolated regimes tend to backfire because they "make it easier for dictators to blame external enemies for a country's suffering." In short, economic deprivation leads poor people to blame the immediate cause of their suffering (that is, the sanctions), not their national leaders.[5]

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[4]Hudson's (2002) survey research shows that international terrorist groups recruit members heavily from poor areas.

[5]Although it is plausible that the poor may identify domestic sources as the cause of their plight and focus their anger accordingly, this conceptualization falls out of the purview of this project.

A brief examination of the Iran case reinforces the reasoning of this study. Rather than leading to major Iranian policy changes, United States sanctions have "been used by Iranian leaders to deflect blame to the United States for their domestic economic woes" (Schott July 2012). When the United States imposed economic sanctions over the Iran hostage crisis during the period from 1979 to 1981, "Iranian Foreign Minister Sadegh Ghotzbadeh warns that increasing US economic pressure will result in quick trial of hostages. On 14 January 1980, Ghotzbadeh said Iran could hold hostages 'more or less forever'" (Case 79–1 U.S. versus Iran, Hufbauer et al. 2008). On November 21, 2011, Iran was subjected to new financial sanctions from Britain, ordering all British financial institutes to cease conducting business with Iranians and the central bank of Iran. These new sanction measures were a reaction to the recent IAEA reports detailing how Iran had undertaken research and experiments geared to developing a nuclear weapons capability. Of course, Iran immediately rejected the details of the reports and accused the IAEA of pro-Western bias. Further, Iran responded to a strengthening of British sanctions on November 28, 2011, by passing legislation that downgraded diplomatic and economic ties with Britain as well as expelling the British envoy. In the meantime, a group of Iranian protestors who were incited by their nationalist leaders stormed the British compound and replaced the British flag with an Iranian flag, prompting international condemnation (Case 2006–1 U.N., U.S [E.U.]. versus Iran, Hufbauer et al. 2008).

The Iranian case illustrates how nationalist leaders manipulate and frame economic sanctions to their political advantage. Iran's leadership, in particular, could easily manipulate the minds of the poor by condemning economic sanctions as a symbol of external aggression against their sovereignty and economic welfare. When countries are under the yoke of international sanctions, foreigners, foreign governments, and foreign institutions take on the image of illegitimate intruders, thus motivating the emergence of an opposition and provoking a backlash (Crenshaw 1990). Rogue leaders are easily capable of brainwashing the poor into viewing economic sanctions as being unjustified acts of subjugation, oppression, and imperialism. In doing so, rogue leaders are able to fan the flames of revenge toward foreign nationals and governments whose sanctions policy is perceived as being responsible for the quickly worsening financial and economic conditions of the poor. Accordingly, sanctions-aggrieved poor people are often convinced to rise up and terrorize foreigners in the name of nationalism as a way to reconcile their grievances against foreign targets (Fandl 2004; Ranstorp 1998). This line of reasoning is consistent with Topfer's (2001) assessment that poverty can "fan the flames of hate and ignite a belief that terrorism is the only solution to a community's or nation's ills . . . Desperate people can resort to desperate solutions" (quoted in Newman 2006:752). However, it is important to note that in the absence of suffering economically from international sanctions,

which exacerbate feelings of hopelessness and bitterness, the poor would have fewer incentives to turn to international terrorism. This discussion leads to the following hypothesis:

H1: *When economic sanctions are imposed, the likelihood of international terrorism increases.*

RESEARCH DESIGN

To test the international terrorism hypothesis, this study collects a sample of 152 countries for the period 1968 to 2004. Thus, the unit of analysis is the country year. This study period is chosen because the terrorism dataset is available only after 1968 (Mickolus et al. 2006) and the economic sanctions data ends in 2004 (Hufbauer et al. 2008).

The dependent variable, international terrorism, is a count measure and represents the total number of international terrorist incidents that occurred in a country per year. To help increase the credibility of the findings reported below, this study employs two different data sources of international terrorism. The first one is Mickolus et al.'s (2006) International Terrorism: Attributes of Terrorist Events (ITERATE) dataset[6] and the second one is the worldwide terrorism dataset of Enders, Sandler, and Gaibulloev (2011), who systematically separated LaFree and Dugan's (2007) Global Terrorism Database (GTD)[7] into domestic and international terrorist incidents. Enders, Sandler, and Gaibulloev underscore that "no other article provides such a complete partitioning of domestic and transnational incidents" (p. 3).

It should be noted that the international aspect of terrorism does not necessarily require the involvement of notorious international terrorist organizations such as Al Queda. As long as the origin of the victims, targets, or perpetrators involved in political violence can be traced back to at least two different countries, such violence is regarded as international terrorism (LaFree and Dugan 2007). Indeed, in their authoritative book, Enders and Sandler (2006:7) make clear that "terrorism is transnational when an incident in one country involves perpetrators, victims, institutions, governments, or citizens of another country." Accordingly, it is classified as an international terrorist incident when local people who live in a sanctioned country terrorize foreign nationals or institutions on their own or in conjunction with terrorist groups. Since this kind of terrorism is generated by feelings of anger

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[6]Terrorism is referred to as the premeditated use, or threat of use, of extra-normal violence by non-state actors that is employed to garner a political, economic, religious, or ideological objective through the intimidation of a large audience (Enders and Sandler 2006).

[7]The GTD defines terrorism as an intentional act of violence, or threat of violence, by a non-state actor in order to attain a political, economic, religious, or social goal (LaFree and Dugan 2007). For more detailed information on the GTD, see http://www.start.umd.edu/gtd/.

and frustration, *any* foreign targets can emerge as terrorist victims. Simply put, any foreign nationals and entities can be subject to terrorists' emotional outburst of hatred.

The main independent variable, economic sanctions, is based on Hufbauer et al.'s (2008) data collection, which is considered to be the most comprehensive and sophisticated as regards economic sanction cases; it is then supplemented with other sources such as Drezner (1999) and O'Sullivan (2003). The economic sanctions variable is coded '1' for the imposition of economic sanctions and '0' for the lack of such sanctions.

This study includes seven control variables that are considered to be important causal factors in the existing literature of international terrorism: democracy, state failure, economic development, population, interstate dispute, post-Cold War, and a lagged term for the dependent variable to ensure that the estimated results are not subject to omitted variable bias. Since the primary purpose of this study is not to explain as much as possible the variance of terrorism but, rather, to test the prediction of the economic sanctions variable, other control factors such as human rights violations are not included in this study.[8]

While some studies find that democracy reduces acts of international terrorism, due to the presence of peaceful mechanisms for conflict resolution (for example, Choi 2010; Eyerman 1998; Li 2005; Schmid 1992), other studies report that democracy leads to more terrorist activity because of the commitment to individual freedoms (for example, Eubank and Weinberg 1994, 2001). Despite these discrepancies, this study sides with the argument that democracies with a high level of civil liberties help facilitate the planning of terrorist events, thus making themselves more vulnerable to terrorist attacks. The democracy variable is taken from the Polity IV dataset. Polity IV provides an eleven-point additive score for both democracies and autocracies in order to capture the overall quality of democratic political institutions. Each additive score ranges from 0 to 10. Subtracting the autocracy score from the democracy score gives a composite democracy score that can range from full democracy (+10) to full autocracy (−10) (Marshall and Jaggers 2007).

Previous studies argue for a positive relationship between failed states and international terrorism (for example, LaFree, Dugan, and Fahey 2007; Piazza 2008). Because failed states can exercise only a limited sovereignty over their territories and population, they provide ideal conditions for terrorism to flourish. Sudan, for example, is now feared as a sanctuary for terrorists,

[8]The most frequently used data on human right violations (that is, the Cingranelli-Richards (CIRI) index of physical integrity rights) is compiled since 1981. If this variable is included as an additional control variable, the study period would be limited to the much shorter period, 1981–2004, instead of 1968–2004. Consequently, the omission of thirteen years would make this research unable to capture a broader spectrum of terrorist activity. In addition, as the role of human right abuses is well-documented in other studies (for example, Piazza and Walsh 2010; Walsh and Piazza 2010), replicating the same results would provide little added values to the current study.

not only because the political community has vanished in the absence of fair political and judicial systems, but also because the public feels a large measure of disenfranchisement and marginalization (Rotberg 2002). The failed state variable ranges from 0 to 17 by combining the severity of ethnic wars (0–4), revolutionary wars (0–4), adverse regime changes (0–4), and genocides and politicides (0–5). The data used in this study comes from the Political Instability Task Force (2007).

Economic success often attracts more terrorist attacks because economic inequality is assessed globally in the form of poor versus rich countries (Choi and Salehyan 2013; Krieger and Meierrieks 2011; for a dissenting view, see Krueger 2007). Accordingly, several recent studies find that wealthy countries are more vulnerable to international terrorism because they are symbols of the political and economic status quo (for example, Piazza 2011). It should be noted that the main argument for economic development revolves around the notion of poor versus rich *countries* rather than around the concept of poor versus rich *people* within each country; this study conceptualizes the latter case concerning economic sanctions and their impact on the poor. The economic development variable is measured by the logged real GDP per capita, adjusted for purchasing power parity. Data for this variable is obtained from Gleditsch (2002) and updated with base data from the recent version of the Penn World Tables (Heston, Summers, and Aten August 2009).

Highly populated countries frequently encounter more difficulty providing an adequate level of security for the entire population, so they are at a greater risk of enduring terrorist plots and attacks (Eyerman 1998). For example, Savun and Phillips (2009) find evidence that highly populated countries experience more terrorist incidents than their smaller counterparts. With this in mind, the population variable, measured by the logged total population, is projected to lead to an increase in terrorism due to the relative difficulty of successfully policing a larger population. Data for this variable is taken from the U.S. Census Bureau (2008).

It is likely that the existence of a high-level armed conflict or an international war increases the level of violent attacks captured in the terrorism measures (for example, the Iraq War) (Savun and Phillips 2009). Therefore, this study includes interstate dispute in the model specification. Interstate dispute is a dummy variable coded as 1 if a country is involved in an armed interstate dispute and 0 if it is not. Data for this variable comes from Gleditsch et al. (2002).

Enders and Sandler (2006) provide evidence to the effect that the total number of terrorist attacks has decreased since the end of the Soviet funding of left-wing groups. In order to spread political ideology, during the Cold War period, left-wing groups often relied on terrorist attacks. However, the justification for continuing to carry out such terrorist missions has drastically diminished with the end of the ideological struggles that coincided with the

demise of the former Soviet Union (Fukuyama 1992). To account for the systemic decrease in terrorist activity that took place after the end of the Cold War, a post-Cold War variable is included. The post-Cold War variable is coded as 1 since 1991 and is otherwise coded as 0.

This study also controls for the past history of terrorism by adding a lagged dependent variable on the right-hand side of the equation. The lagged dependent variable has the potential to "soak up" the explanatory power of theoretically interesting independent variables (Achen 2000); however, it is theoretically appropriate that, as previous research demonstrates, countries with past incidents of international terrorism are likely to be more vulnerable to terrorism in the present or in the future (Savun and Phillips 2009).[9]

Since the dependent variables are operationalized as the total number of terrorist events per year, this study employs a negative binomial maximum-likelihood regression model with Huber-White robust standard errors, clustered by country. This estimation method is chosen over Poisson regression as the variance of the terrorism data is much larger than its mean. Negative binomial regression adds a dispersion parameter to model the unobserved heterogeneity among observations, allowing the variance to exceed the mean; this essentially corrects for the over dispersion found in Poisson regression models (Hilbe 2007; Long and Freese 2006). All the predictors are lagged one year behind the outcome variable in order to ensure that the predictors cause the outcome variable rather than the other way around.

EMPIRICAL RESULTS

This section discusses the statistical significance of estimated coefficients and presents an analysis of their substantive effects. While Models 1 to 3 in Table 1 display empirical results based on the ITERATE data, Models 4 to 6 are estimated with the GTD data. Model 1 presents negative binomial (NB) regression estimates. As hypothesized, the economic sanctions variable is statistically significant at the .001 level and in the expected direction. When countries are placed under economic sanctions, they are more likely to experience international terrorist incidents. A more nuanced interpretation is that, upon the imposition of economic sanctions, the poor become deprived of any opportunities for upward life. Consequently, there is little for the poor

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[9]It may be argued that for economic sanctions to have an adverse effect on the sanctioned state and then for the poor to organize a terrorist event, it is likely that more than a year will lapse. When 2- to 5-year lags are included in the model specification, the results show that the first- and second-year lags are significant. This finding is consistent with Mueller and Mueller's (1999:49) assessment that upon the imposition of economic sanctions, "in a matter of months or years whole economies can be devastated, as happened in Haiti in 1991 and Serbia in 1992." The implication of this finding is that poor people tend to be outraged by their economic ordeal in the first two years of sanctions, as their terrorist action is influenced by short-term memory rather than long-term memory.

TABLE 1 The Effect of Economic Sanctions on International Terrorism

Variable	ITERATE			GTD		
	NB Model 1	ZINB Model 2	FE Model 3	NB Model 4	ZINB Model 5	FE Model 6
Economic Sanctions$_{t-1}$	0.655***	0.290**	0.344***	0.540***	0.319**	0.195***
	(0.129)	(0.115)	(0.078)	(0.173)	(0.134)	(0.037)
Democracy$_{t-1}$	0.003	0.010	0.018***	0.042***	0.025**	0.043***
	(0.009)	(0.009)	(0.006)	(0.009)	(0.008)	(0.003)
State Failure$_{t-1}$	0.194***	0.081***	0.135***	0.220***	0.104***	0.155***
	(0.032)	(0.024)	(0.015)	(0.035)	(0.032)	(0.008)
Economic Development$_{t-1}$	0.252*	0.193*	0.070	0.234***	0.034	−0.053
	(0.086)	(0.086)	(0.049)	(0.076)	(0.066)	(0.069)
Population$_{t-1}$	0.381***	0.147**	0.105**	0.323***	0.179***	1.195***
	(0.054)	(0.052)	(0.039)	(0.055)	(0.044)	(0.035)
Interstate Dispute$_{t-1}$	−0.141	0.007	−0.076	−0.019	−0.029	0.165***
	(0.169)	(0.171)	(0.118)	(0.148)	(0.143)	(0.051)
Post-Cold War$_{t-1}$	−0.502***	−0.217	−0.526***	−0.167	−0.309***	−0.642***
	(0.135)	(0.144)	(0.066)	(0.112)	(0.101)	(0.028)
Terrorism$_{t-1}$	0.196***	0.126***	0.023***	0.118***	0.081***	0.017***
	(0.022)	(0.014)	(0.002)	(0.017)	(0.008)	(0.001)
Constant	−6.473***	−2.909***	−2.531***	−5.501***	−1.518*	16.613
	(0.864)	(0.846)	(0.568)	(0.828)	(0.730)	(no estimtn)
Economic Sanction$_{t-1}$		−1.065**			−0.216	
		(0.440)			(0.250)	
Democracy$_{t-1}$		0.006			−0.032*	
		(0.016)			(0.015)	
State Failure$_{t-1}$		−0.895***			−0.280***	
		(0.279)			(0.085)	
Economic Development$_{t-1}$		−0.222*			−0.416***	
		(0.101)			(0.104)	

(*Continued*)

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TABLE 1 (Continued)

Variable	ITERATE			GTD		
	NB Model 1	ZINB Model 2	FE Model 3	NB Model 4	ZINB Model 5	FE Model 6
Population$_{t-1}$		−0.420*** (0.100)			−0.290*** (0.073)	
Interstate Dispute$_{t-1}$		−0.198 (0.631)			−0.442 (0.404)	
Post-Cold War$_{t-1}$		0.687** (0.238)			−0.156 (0.179)	
Terrorism$_{t-1}$		−1.530*** (0.222)			−1.795*** (0.202)	
Constant		6.374*** (1.192)			6.979*** (1.060)	
Wald Chi^2	430.83	213.63	360.52	433.50	450.03	4362.67
Prob > Chi^2	0.001	0.001	0.001	0.001	0.001	0.001
Log Pseudolikelihood	−4646.72	−4464.63		−5799.19	−5544.64	
Log Likelihood			−3851.30			−7652.94
Dispersion = 1	2.86	1.59		2.35	1.23	
Observations	4,357	4,357	3,801	4,367	4,367	4,017
Nonzero Observations		1,226			1,556	
Zero Observations		3,131			2,811	

Note: *$p < .05$, **$p < .01$, ***$p < .001$, one-tailed tests.

to live for and this sort of frustration is likely to generate rage. Aggrieved poor people are eventually likely to terrorize foreign entities that become either the targets of vengeance or are scapegoated by the national leadership. In short, it appears that the poor's despair often leads them to become international terrorists as a means of revolting against the social injustice that they view as being a primary reason for their economic misery.[10] All of the control variables, except for democracy and interstate dispute, achieve significance. Failed states suffer from more terrorist incidents, advanced economies are at a greater risk of international terrorism, highly populated countries are more likely to be plagued by terrorist attacks, the post-Cold War period has experienced less terrorism, and countries with a terrorist history are more vulnerable to international terrorism.

Model 1 employs negative binomial regression under the assumption that all countries should have an equal chance to experience terrorist incidents. However, it is highly probable that an excess of nonevents might occur in the distribution of the dependent variable because only a few countries are actually victims of terrorism. In such situations, both statistically and logically, a standard negative binomial regression estimation method loses some of its effectiveness; this is because the prevalence of zero counts in the data can pose a statistical challenge if not estimated appropriately. Zero-inflated negative binomial regression is one of the widely used estimators designed to address the issue of excessive zeros.

Model 2 reports zero-inflated negative binomial regression estimates in two parts: the *Not Always-0 Group* (that is, the top part of the model) that might have a zero terrorist count but also have a nonzero probability that it has a positive count, and the *Always-0 Group* (that is, the bottom part) that has an outcome of 0 with a probability of 1.[11] Although the presence of excessive zeros in the international terrorism data is considered in Model 2, the economic sanctions variable still exerts the exacerbating effect on international terrorism. Model 3 takes into account Green, Kim, and Yoon's (2001:442) criticism that "analyses of [cross-sectional, time-series] data that make no allowance for fixed unobserved differences between [states] often produce biased results." The conditional fixed-effects negative binomial regression estimator in Model 3 does not cause economic sanctions to become insignificant since its coefficient is still distinguishable

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[10]This study also creates three more sanction variables by identifying economic sanctions imposed by the United States, unilateral sanctions, and multilateral sanctions, separately. As shown in Appendix A, the empirical results for these sanctions variables are quite similar to those in Model 1, namely, irrespective of the type of sanctions, their impact on terrorism is counterproductive.

[11]The Vuong (1989) test may be used to make a statistical choice between negative binomial regression and zero-inflated negative binomial regression (see Greene 2003; Hilbe 2007; Long and Freese 2006). However, because this study estimates robust standard errors, the Vuong test cannot be applied. When Vuong tests are performed without the robust option, zero-inflated negative binomial regression is preferred to negative binomial regression.

from zero. Economic sanctions are positively associated with international terrorism.

After replacing the ITERATE with the Global Terrorism Database (GTD), in measuring the dependent variable, Models 4 to 6 replicate Models 1 to 3. The overall results in these three models are virtually identical to the previous three models: there is a positive and significant relationship between sanctions and terrorism.[12] For example, Iraq experienced an increase of 436% in international terrorism during those periods when sanctions were imposed (that is, 1980–1982 and 1990–2002); this dramatic increase in international terrorist activity is not surprising when considering Hoskins' (1997:112–113) gloomy report: "annual per capita income was estimated at $355 in 1988 . . . and fell to $65 in 1991 and $44 in 1992. These levels are far below the international poverty line of $100 established by the World Bank . . . most Iraqi families have been unable to generate the funds necessary to meet their basic minimum requirements of food and other essential commodities." It appears that economic sanctions, indeed, destroyed the last hope of the poor and then instilled enmity in their hearts; they then either turned to terrorist violence against foreign targets or joined international terrorist groups to avenge their suffering. This finding also appears to confirm the theoretical expectation that international terrorism is a result of local antagonism toward the meddling of the outside world in the internal affairs of a target country. When local impoverished people view a foreign power's encroachments as unjustified acts of subjugation, oppression, and imperialism, they tend to adopt tactics of violent resistance, including terrorist attacks. Most of the control variables here appear to be statistically significant and in the hypothesized direction.

While attaining statistical significance is an essential factor in determining the importance of independent variables, passing this milestone does not ensure that these variables exert a meaningful influence over the dependent variable in a substantive sense. To specifically determine the extent to which these factors influence the dependent variable, researchers should also report the degree to which the dependent variable is affected by the independent variable. In Table 2, this study looks into the substantive effects of the variables that achieved significance in Models 1 and 4 of Table 1. It turns out that the substantive effects are consistent with the statistically significant effects. As a specific example, when the substantive effect of the economic sanctions variable of Model 1 (whose coefficient is 0.655) is calculated, as reported in Table 1, this study finds evidence that countries under economic sanctions

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[12]Although this study has focused on the causal link between sanctions and international terrorism, it can also be speculated that the imposition of sanctions may instigate domestic terrorist incidents. This possibility is tested in Appendix B. Model 1 evaluates the sanction effect on domestic terrorism and Model 2 considers both domestic and international terrorism. The overall results support the speculation that when the poor are frustrated by economic sanctions, they are also likely to terrorize domestic targets.

TABLE 2 The Substantive Effects

	Negative Binomial Regression	
Variable	ITERATE In Model 1	GTD In Model 4
Economic Sanctions$_{t-1}$		
From no imposition to imposition	**93%**	72%
Democracy$_{t-1}$		
One standard deviation increase	N/A†	37%
Two standard deviation increase		88%
State Failure$_{t-1}$		
One standard deviation increase	41%	48%
Two standard deviation increase	99%	118%
Economic Development$_{t-1}$		
One standard deviation increase	33%	31%
Two standard deviation increase	78%	71%
Population$_{t-1}$		
One standard deviation increase	77%	62%
Two standard deviation increase	212%	162%
Post-Cold War$_{t-1}$		
From Cold War to post-Cold War	−39%	N/A
Terrorism$_{t-1}$		
One standard deviation increase	145%	122%
Two standard deviation increase	502%	394%

Note: †Not applicable because the variable is not statistically significant.

are likely to experience more meaningful and influential international terrorist incidents when compared with a typical country. Upon the imposition of economic sanctions, the likelihood of international terrorism increases by 93% (see the bold value).

REVERSE CAUSALITY

This study has developed a plausible rationale and supporting systematic empirical evidence as to why economic sanctions can be expected to increase the likelihood of international terrorism. However, it is conceivable that a complex reciprocal relationship exists, with sanctions and terrorism enforcing and reinforcing each other. Economic sanctions are projected to provoke more terrorist attacks, while the presence of terrorist activity in the sanctioned country may also be a cause for inducing economic sanctions. In fact, some existing studies contend that international terrorism is one of the reasons economic sanctions are imposed on terrorism-prone countries (for example, Hufbauer et al. 2001).[13] Simply put, economic sanctions may be endogenous to terrorist activity in the target country.

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[13]After the occurrence of the September 11 terrorist attacks, some sanctions researchers began to extend their research inquiry into the area of terrorism and reported conflicting findings. For example, de Jonge

The best way to account for this endogeneity bias is to build simultaneous equations models.[14] However, standard simultaneous equations models are designed based on the assumption that the two endogenous variables are continuous measures. Unfortunately, because the endogenous variables in this study are a count measure (that is, terrorism), and a dichotomous measure (that is, economic sanctions), the standard simultaneous equations models are inappropriate.[15] For this reason, this study utilizes two steps in the model-building process after consulting Russett, Oneal, and Davis (1998) and Choi and James (2004). The first step evaluates the impact of six factors on economic sanctions, namely, terrorism, interstate dispute, democracy, trade, economic growth, and a lagged term of economic sanctions. This first step produces predicted values for economic sanctions that will be used in the second step. The second step incorporates a one-year lagged term of the predicted values, as produced by the first step, for economic sanctions plus the same seven predictors that were employed in the previous models in Table 1 (that is, democracy, state failure, economic development, population, interstate dispute, post-Cold War, and a lagged term for international terrorism).

To be specific, the predicted values for economic sanctions from the first step are estimated by taking into account terrorism, democracy, interstate dispute, trade, economic growth, and a lagged term for economic sanctions all at time t-1; these six lagged independent variables are chosen to provide a high level of confidence that they serve as a cause of the dependent variable rather than vice versa. The independent variables, namely, economic sanctions, terrorism, democracy, interstate dispute, and a lagged term of economic sanctions are fully discussed in the previous section. Accordingly, this section is limited to an explanation of the trade and economic growth variables alone. When the target state's economy is heavily dependent upon trade, economic sanctions are less likely to be imposed since they have the potential to disrupt the world economy with little impact on the target country; this trend is likely because the target countries can easily find alternative suppliers of goods and services (Elliott 1998). More importantly,

Oudraat (2004) suggests that economic sanctions may be an effective weapon against international terrorism, while Einisman (2000) and Fandl (2004) present their legal perspectives on why economic sanctions are ineffective for fighting terrorism, and O'Sullivan's (2003) case studies on Iran, Iraq, Libya, and Sudan show that the record on economic sanctions is mixed. Unfortunately, these studies fall short of offering systematic evidence to support the sanctions-terrorism connection because their findings are mixed and because only a small number of case studies or historical accounts are introduced as examples.

[14]Building simultaneous equations models assumes that political and economic events occur on an annual basis. However, this assumption may confuse cause and effect in the data analysis. An alternative approach may be a dyadic set up with monthly data on the date that sanctions are imposed and the dates of terrorist attacks. As this approach would require a quite different arrangement, it is left for future research.

[15]Although Keshk's (2003) two-stage probit least squares model offers some advantages over standard simultaneous equations models, it is still not appropriate for this study because its endogenous variables need to be dichotomous and continuous measures.

such trade dependent countries are unlikely to be sanctioned because almost all of them are liberal economies, which themselves often impose coercive sanction measures on rogue countries. Countries with high economic growth rates are unlikely to be under economic sanctions since they maintain a stable political and economic relationship with other countries in pursuit of economic prosperity (Fandl 2004; O'Sullivan 2003).

To estimate, in the first step, the economic sanctions model whose dependent variable is dichotomous, this study uses logit regression with Huber-White robust standard errors, clustered by country.[16] To estimate the terrorism model in the second step, a negative binomial regression model is employed, as introduced in the previous section. To account for the endogeneity bias, the predicted values of economic sanctions are used for estimation in this second step, instead of the original economic sanctions variable.

Table 3 reports the results of the two steps of model-building used in studying the sanctions-terrorism connection; the top part of the table reports the economic sanctions equation's estimated coefficients and standard errors from the first step, while the bottom part of the table displays the terrorism equation estimates from the second step. Model 1 shows the results obtained with respect to the impact of economic sanctions on international terrorism as measured by the ITERATE, while Model 2 shows the results that are obtained with the dependent variable operationalized with the GTD. Although endogeneity bias is taken into consideration, the detrimental effect of economic sanctions still remains statistically significant across models (see the bold values). Economic sanctions emerge as a cause of international terrorism, regardless of the measurement of the dependent variable. It is worth noting that the international terrorism variable, in the first step, achieves significance. This result is not surprising given that international terrorism is considered one of the reasons that the outside world imposes economic sanctions in the first place.

A CLOSE LOOK AT THE ROLE OF POVERTY BETWEEN SANCTIONS AND TERRORISM

Consistent with the argument that "poverty can breed resentment and desperation and support for political extremism" (Newman 2006), this study has, so far, alluded to poverty as being an intervening variable between economic sanctions and international terrorism. In order to further clarify the role of poverty, this study employs a two-step statistical analysis in which the causal

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[16]This study also implements a peace-years correction (also known as logit splines) to take into consideration temporal dependence in the sanction data (Beck, Katz, and Tucker 1998). Since the results do not significantly deviate from those in Table 3, they are not reported in order to save space.

TABLE 3 Two-Step Analysis of Economic Sanctions and International Terrorism

	Negative Binomial Regression	
Variable	ITERATE Model 1	GTD Model 2
First Step: Economic Sanctions$_t$		
Terrorism$_{t-1}$	0.038***	0.025**
	(0.011)	(0.010)
Democracy$_{t-1}$	−0.050***	−0.053***
	(0.015)	(0.016)
Interstate Dispute$_{t-1}$	0.717*	0.711*
	(0.389)	(0.397)
Trade$_{t-1}$	−0.008*	−0.008*
	(0.003)	(0.004)
Economic Growth$_{t-1}$	−0.003	−0.004
	(0.015)	(0.015)
Economic Sanctions$_{t-1}$	6.107***	6.096***
	(0.296)	(0.294)
Constant	−3.766***	−3.762***
	(0.305)	(0.316)
Wald Chi^2	548.12	555.26
Prob > Chi^2	0.001	0.001
Log Pseudolikelihood	−403.87	−405.28
Pseudo R^2	0.71	0.71
Observations	3,653	3,661
Second Step: International Terrorism$_t$		
Predicted Economic Sanction$_{t-1}$	**0.728*****	**0.696*****
	(0.145)	**(0.178)**
Democracy$_{t-1}$	0.001	0.044***
	(0.010)	(0.009)
State Failure$_{t-1}$	0.247***	0.253***
	(0.041)	(0.042)
Economic Development$_{t-1}$	0.377***	0.275***
	(0.081)	(0.076)
Population$_{t-1}$	0.376***	0.301***
	(0.058)	(0.058)
Interstate Dispute$_{t-1}$	−0.092	−0.012
	(0.193)	(0.170)
Post-Cold War$_{t-1}$	−0.704***	−0.343***
	(0.125)	(0.097)
Terrorism$_{t-1}$	0.180***	0.109***
	(0.023)	(0.016)
Constant	−7.464***	−5.570***
	(0.855)	(0.849)
Wald Chi^2	474.87	537.57
Prob > Chi^2	0.001	0.001
Log Pseudolikelihood	−3690.25	−4868.38
Dispersion = 1	2.76	2.10
Observations	3,506	3,513

Note: *p < .05, **p < .01, ***p < .001, one-tailed tests.

directions go from sanctions to poverty and, then, from poverty to terrorism. By modeling poverty as a function of economic sanctions, democracy, and economic development, the first step examines whether the imposition of economic sanctions is linked to an increase of poverty. The Gini index, which measures net income inequality within each country, is used to assess the level of poverty and it ranges from 0 to 100. Economic sanctions are likely to degrade the economic well-being of the poor rather than the rich; this disproportionate economic hit should make the income distribution further widen. In this context, the Gini index is an appropriate measure that captures the theoretical argument about the poor who are among the hardest-hit victims due to the drastically worsening financial and economic conditions after the imposition of sanctions, as discussed in the previous section.[17] For this reason, this study has proceeded to use the two concepts of poverty and income inequality interchangeably. Data was collected from Solt's (2009) Standardized World Income Inequality Database. The measurements for democracy and economic development are the same as before. The first step is used to generate predicted values for poverty, which serves as a main predictor of terrorism in the second step. The second step incorporates a one-year lagged term of the predicted values for poverty, along with the same control variables that appeared in the previous models. The second step is designed to explore whether poverty indeed provokes terrorist incidents, while controlling for other causal factors.

Table 4 presents estimated results using OLS regression in the first step and negative binomial regression in the second step. It should be noted that due to the lack of income inequality data for some countries and years, the total observations in Table 4 are fewer than those in the previous tables, which reduces comparability across countries over a longer time period.[18] Nonetheless, based on the ITERATE data, the top part of Model 1 tests the question of whether economic sanctions are positively associated with income inequality. When the first step of Model 1 regresses income inequality on economic sanctions, it produces results in which the sanctions variable is statistically significant at the .001 level and in the hypothesized direction; the implication of this result is that when economic sanctions are imposed, poor

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[17] Although many previous studies find no strong relationship between the Gini index and terrorist attacks (for example, Abadie 2006), recent research points in the opposite direction. For example, Derin-Güre (2009) uncovers some evidence that more terrorism is likely to occur in countries with high income inequality; and Lai (2007) shows that countries with higher levels of economic inequality are more likely to experience higher levels of terrorism.

As the Gini index suffers from many missing observations, GDP per capita may be proposed as another indicator of poverty. However, because the argument of this study is that economic sanctions have a particularly deleterious impact on distribution of wealth within a country—not overall poverty—and this prompts increased support of terrorism by aggrieved poor people, GDP per capita is not an accurate indicator, as it is a measure of overall poverty of each country or economic development.

[18] The limited data for income inequality is the main reason the two-step tests are not put forward as the main empirical analysis of this study.

TABLE 4 Two-Step Analysis of Economic Sanctions, Income Inequality, and International Terrorism

| | Negative Binomial Regression | | | |
| | ITERATE | | GTD | |
Variable	Model 1	Model 2	Model 3	Model 4
First Step: Income Inequality$_t$				
Economic Sanctions$_{t-1}$	6.895***	4.568***	6.652***	4.479***
	(0.602)	(0.542)	(0.597)	(0.538)
Democracy$_{t-1}$		0.026		0.016
		(0.033)		(0.032)
Economic Development$_{t-1}$		−4.796***		−4.732***
		(0.223)		(0.218)
Constant	38.473***	80.186***	38.618***	79.706***
	(0.225)	(1.887)	(0.221)	(1.846)
F-Statistic	131.36	283.53	124.11	284.45
Prob > F-Statistic	0.001	0.001	0.001	0.001
Observations	2,460	2,460	2,563	2,563
Second Step: International Terrorism$_t$				
Predicted Income Inequality$_{t-1}$	**0.090*****	**0.138*****	**0.090*****	**0.119*****
	(0.023)	**(0.034)**	**(0.024)**	**(0.035)**
Democracy$_{t-1}$	0.001	−0.002	0.043***	0.041***
	(0.015)	(0.015)	(0.009)	(0.009)
State Failure$_{t-1}$	0.284***	0.289***	0.254***	0.258***
	(0.049)	(0.049)	(0.042)	(0.041)
Economic Development$_{t-1}$	0.317**	0.980***	0.274***	0.835***
	(0.122)	(0.195)	(0.076)	(0.183)
Population$_{t-1}$	0.378***	0.376***	0.303***	0.303***
	(0.073)	(0.074)	(0.058)	(0.058)
Interstate Dispute$_{t-1}$	−0.198	−0.187	−0.002	0.007
	(0.231)	(0.231)	(0.170)	(0.173)
Post-Cold War$_{t-1}$	−0.732***	−0.730***	−0.344***	−0.341***
	(0.152)	(0.151)	(0.097)	(0.098)
Terrorism$_{t-1}$	0.173***	0.174***	0.109***	0.110***
	(0.022)	(0.022)	(0.016)	(0.016)
Constant	−10.437***	−18.050***	−9.030***	−15.048***
	(1.617)	(3.011)	(1.240)	(2.857)
Wald Chi^2	367.47	366.56	535.66	525.76
Prob > Chi^2	0.001	0.001	0.001	0.001
Log Pseudolikelihood	−2726.85	−2726.35	−4869.35	−4873.25
Dispersion = 1	2.75	2.75	2.11	2.12
Observations	2,315	2,315	3.513	3.513

Note: *$p < .05$, **$p < .01$, ***$p < .001$, one-tailed tests.

people are more likely to be the victims of economic suffering. The next question is whether this heightened poverty level indeed contributes to an increase in international terrorism? The second step of Model 1 is designed to answer this question by regressing terrorism on a one-year lagged term of the predicted values for income inequality and six control variables. As expected, the predicted poverty variable achieves significance with a positive sign indicating that as the level of income inequality increases the risk of international

terrorism increases. In an attempt to avoid the potential bias stemming from omitted variables, Model 2 modifies the first step model by adding two additional factors related to poverty, while keeping the same model specification in the second step. Despite this modification, the economic sanctions variable in the first step still turns out to be statistically significant at the .001 level and in the hypothesized direction; the predicted poverty variable in the second step remains significant at the .001 level with a positive sign. These findings provide further evidence corroborating the fact that economic sanctions are a causal factor in the emergence of terrorism. When more tests are performed with GTD data in Models 3 to 4, this study finds results that are similar to ITERATE data, verifying the detrimental impact of economic sanctions on international terrorism.

CONCLUSION

This study has introduced economic sanctions as another important but neglected cause of international terrorism. In fact, this is the first empirical research that has explored the possibility that, other than internal causal factors such as regime type and state failure, external shocks such as economic sanctions can also trigger acts of international terrorism. Using economic sanctions as a foreign policy tool can infuriate impoverished people in the sanctioned state, who are then more likely to turn to terrorist violence. This conceptualization underlines the violent reactions that originate from aggrieved poor people upon the imposition of sanctions, which is in line with Huntington's (1968:375) observation: "where the peasant lives in poverty and suffering, revolution is likely." However, this study goes one step further by arguing that economic sanctions intensify the economic misery of the poor rather than the rich and thus the imposition of economic sanctions serves as a trigger for frustrated poor people to turn to terrorist violence. This detrimental effect of economic sanctions is tested with a cross-sectional, time-series dataset for 152 countries over the past three decades. Irrespective of the estimation methods, terrorism data sources, and sanction types, the empirical results offer supporting evidence, in a consistent manner, for the hypothesized positive relationship between sanctions and terrorism.

While the empirical analysis in this study looks into international terrorism committed only by non-state actors, its results also offer a similar policy implication for state or state-sponsored terrorism. After Hufbauer et al. (November 2001) reviewed multiple historical cases as a way to evaluate the link between sanctions and state-sponsored terrorism, they concluded that "unilateral US sanctions, by themselves, have not deterred countries from engaging in terrorist activities." Of course, this conclusion contradicts the statement from the United States Department of State (1986:27) to the effect that: "economic sanctions are an integral part of [the] peaceful measures that

we can take up to deter states from supporting terrorism." This study believes that the proponents of economic sanctions are caught in a trap imposed by their own logic, given the fact that the imposition of economic sanctions deteriorates already hostile economic conditions for the poor, which then serves as a catalyst for fueling more terrorist incidents. Put differently, the benefits of imposing sanctions, increased pressure on political leaders in rogue governments, are largely overshadowed by the costs incurred by intensifying feelings of despair among the poor of that country—those who are then more likely to use terrorism to exact revenge. On balance, economic sanctions do more harm than good since they encourage additional terrorist incidents, whether they are initiated by subnational groups or a terrorist country. Accordingly, the findings reported in this study appear to be a challenge to foreign policy decision makers who need to weigh the benefits and costs of an economic sanctions policy in the midst of the War on Terror.

It should be noted that the empirical analysis has been performed without identifying the exact identities of the sanction initiators and the terrorist target involved. As a result, this study does not discuss which specific foreign nationals or interests are targeted by aggrieved poor people. Since the monadic data analysis presented in this study purports to examine the overall aggravating impact that sanctions have on terrorism without differentiating specific sanction initiators and victims, future research should probe the dyadic relationship between sender and target countries in the context of backfiring. Dyadic data analysis should enable researchers to further explore the question of whether the targets of international terrorism are directly related to the citizens of countries that initiate and impose economic sanctions. However, employing a dyad framework is challenging due to the fact that in any given terrorist incident, the identities of the perpetrator and the victims are often unknown. In fact, Dugan (2010:16) laments that "nearly half of the attacks in the GTD are unattributed to any terrorist organization." If the data limitations (a difficulty of converting the monadic data into a dyadic format) are ignored, researchers would end up with an unreliable data, which is subjected to a problem of selection bias distorting statistical results and thus leading to a wrong statistical inference. The bottom line is that a dyad analysis has to be withheld until the missing information about the perpetrator and the victims is properly collected and documented in the future.

However, it is still worth doing some preliminary analysis in order to determine whether the monadic findings reported so far are comparable to those from a dyadic setting. Without creating a complete dyadic dataset, this study conducted some tests that purport to address the question of whether people from the sanction initiator were the target of terrorist attacks. To be specific, this study looks into the direct relationship between United States economic sanctions and United States victims of terrorism overseas. The United States case is chosen because it is the country that uses economic

sanctions as a major foreign policy tool and because United States victims are more reliably identifiable in the terrorism datasets than any other nationals. The preliminary results in Appendix C provide some supporting evidence.[19] United States economic sanctions are likely to induce terrorist attacks against United States citizens and institutions abroad. This finding is, to a large extent, consistent with that from a monadic setting reported in the previous section. Future research should try to compile a more complete dataset of terrorism and sanctions that can be used for a full dyadic analysis.

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[19]Models 1 and 2 in Appendix C replicate Models 1 and 4 in Table 1 after replacing the dependent variable from general terrorist incidents to United States victims of terrorism and the main independent variable from general economic sanctions to United States sanctions as well as adding a military intervention variable that measures the total number of United States military interventions into the country in question (Choi forthcoming; Pickering and Kisangani 2009).

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APPENDIX A The Effect of Economic Sanctions on International Terrorism: Robustness Tests

	Negative Binomial Regression		
Variable	U.S. Sanctions Model 1	Unilateral Sanctions Model 2	Multilateral Sanctions Model 3
Economic Sanctions$_{t-1}$	0.511***	0.536***	0.618***
	(0.153)	(0.146)	(0.201)
Democracy$_{t-1}$	0.002	0.002	−0.002
	(0.010)	(0.010)	(0.010)
State Failure$_{t-1}$	0.208***	0.205***	0.204***
	(0.035)	(0.035)	(0.032)
Economic Development$_{t-1}$	0.234**	0.233**	0.269***
	(0.087)	(0.086)	(0.087)
Population$_{t-1}$	0.385***	0.381***	0.385***
	(0.055)	(0.054)	(0.052)
Interstate Dispute$_{t-1}$	−0.126	−0.119	0.031
	(0.173)	(0.171)	(0.192)
Post-Cold War$_{t-1}$	−0.455***	−0.455***	−0.514***
	(0.132)	(0.132)	(0.131)
Terrorism$_{t-1}$	0.200***	0.199***	0.206***
	(0.022)	(0.022)	(0.022)
Constant	−6.332***	−6.294***	−6.587***
	(0.879)	(0.878)	(0.865)
Wald Chi^2	412.43	408.12	396.30
Prob > Chi^2	0.001	0.001	0.001
Log Pseudolikelihood	−4660.96	−4658.68	−4664.86
Dispersion = 1	2.91	2.90	2.93
Observations	4,357	4,357	4,357

Note: *$p < .05$, **$p < .01$, ***$p < .001$, one-tailed tests.

APPENDIX B The Effect of Economic Sanctions on Domestic and International Terrorism

Variable	Negative Binomial Regression	
	Domestic Terrorism Model 1	Domestic and International Terrorism Model 2
Economic Sanctions$_{t-1}$	0.912***	0.782***
	(0.216)	(0.201)
Democracy$_{t-1}$	0.050***	0.046***
	(0.012)	(0.010)
State Failure$_{t-1}$	0.249***	0.243***
	(0.047)	(0.042)
Economic Development$_{t-1}$	0.197*	0.237**
	(0.093)	(0.082)
Population$_{t-1}$	0.466***	0.427***
	(0.062)	(0.057)
Interstate Dispute$_{t-1}$	−0.175	−0.110
	(0.258)	(0.209)
Post-Cold War$_{t-1}$	0.181	0.086
	(0.129)	(0.116)
Terrorism$_{t-1}$	0.033***	0.027***
	(0.006)	(0.005)
Constant	−5.866***	−5.428***
	(0.956)	(0.874)
Wald Chi^2	426.20	445.74
Prob > Chi^2	0.001	0.001
Log Pseudolikelihood	−7884.86	−9311.17
Dispersion = 1	4.25	3.13
Observations	4,357	4,357

Note: *$p < .05$, **$p < .01$, ***$p < .001$, one-tailed tests.

APPENDIX C The Effect of U.S. Economic Sanctions on U.S. Victims of Terrorism Overseas

	Negative Binomial Regression	
Variable	ITERATE Model 1	GTD Model 2
U.S. Economic Sanctions$_{t-1}$	0.383* (0.187)	0.620* (0.305)
U.S. Military Intervention$_{t-1}$	0.670*** (0.214)	0.918*** (0.267)
Democracy$_{t-1}$	0.027* (0.012)	0.039* (0.018)
State Failure$_{t-1}$	0.155*** (0.043)	0.163** (0.057)
Economic Development$_{t-1}$	0.351*** (0.088)	0.355** (0.124)
Population$_{t-1}$	0.376*** (0.061)	0.464*** (0.083)
Interstate Dispute$_{t-1}$	−0.039 (0.269)	−0.367 (0.371)
Post-Cold War$_{t-1}$	−0.694*** (0.143)	−0.538** (0.220)
U.S. Victims of Terrorism$_{t-1}$	0.305*** (0.043)	0.163 (0.115)
Constant	−7.798*** (0.874)	−8.834*** (1.234)
Wald Chi^2	350.91	186.03
Prob > Chi^2	0.001	0.001
Log Pseudolikelihood	−3226.42	−2815.54
Dispersion = 1	3.32	5.39
Observations	4,357	4,367

Note: *$p < .05$, **$p < .01$, ***$p < .001$, one-tailed tests.