

# No Good Deed Goes Unpunished: Refugees, Humanitarian Aid, and Terrorism

Conflict Management and Peace Science  
30(1) 53–75

© The Author(s) 2013

Reprints and permissions:

sagepub.co.uk/journalsPermissions.nav

DOI: 10.1177/0738894212456951

cmp.sagepub.com



**Seung-Whan Choi**

Department of Political Science, University of Illinois at Chicago

**Idean Salehyan**

Department of Political Science, University of North Texas

## Abstract

We examine the consequences of hosting refugees for domestic and international terrorism. In line with the old saying, “no good deed goes unpunished”, we argue that the infusion of aid resources provides militant groups with opportunities for looting and for attacking foreign targets. A cross-national, time-series data analysis of 154 countries for the years 1970–2007 shows evidence that countries with many refugees are more likely to experience both domestic and international terrorism. This finding implies that while the international community should strive to reduce the number of refugees by preventing the eruption of major conflict events, individual countries should find a way of maintaining the balance between humanitarianism toward refugees and providing safe, secure environments for refugees and those that assist them.

## Keywords

humanitarian aid, refugees, terrorism

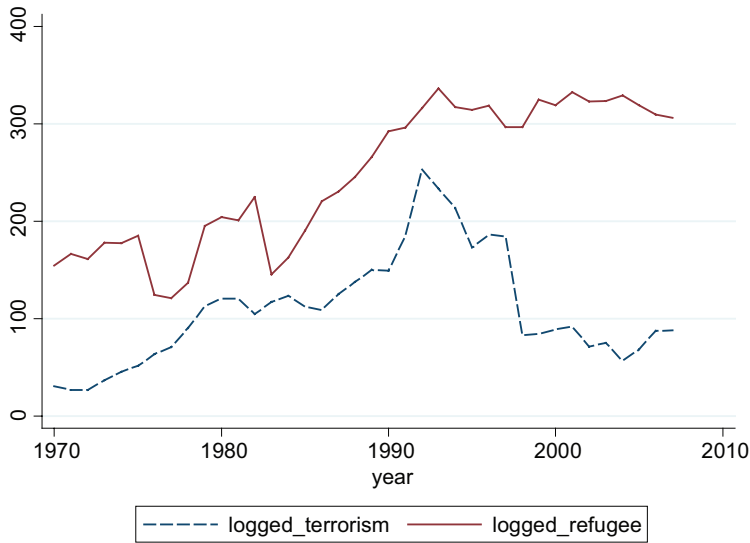
Refugee crises are typically thought of in humanitarian terms. Men, women, and children are forced to flee their homes and livelihoods because of the traumatic experience of political violence and persecution. While the humanitarian dimensions of refugee flight are clearly important, a growing number of scholars have noted the security *consequences* of forced migration (e.g. Weiner, 1992; Lischer, 2005; Salehyan and Gleditsch, 2006; Salehyan, 2009). Refugees are certainly the victims of violence, but they can also spread conflict and instability to their host countries, particularly if hosts are unwilling or unable to contain security externalities. As one of the most dramatic examples, the protracted conflict in the Democratic Republic of the Congo

---

## Corresponding author:

Idean Salehyan, University of North Texas, Denton, TX 76203, USA.

Email: idean@unt.edu



**Figure 1.** Global Trend of Terrorism and Inflows of Refugees, 1970–2007.

was triggered by a large wave of migrants fleeing violence and instability in Rwanda (Prunier, 2008). Similarly, refugees from Darfur and associated cross-border violence have destabilized neighboring Chad.

The literature on transnational influences on violent conflict is relatively recent as most studies continue to focus on domestic variables. When existing studies examine the causes of political violence—i.e. terrorism, insurgency, and civil war—they often focus on domestic factors such as the state of the economy, regime type, ethnic cleavages, and physical terrain rather than the broader regional and international environment (e.g. Fearon and Laitin, 2003; Enders and Sandler, 2006; Piazza, 2008, 2011; LaFree and Ackerman, 2009). Although a few studies link refugee influxes to the spread of civil war (e.g. Salehyan and Gleditsch, 2006; Buhaug and Gleditsch, 2008), they neglect to explore lower-level political violence, such as sporadic terrorism and guerilla attacks. This is unfortunate given that such violence occurs frequently enough to threaten national security and it may evolve into large scale violence if not properly contained.

Even as previous research finds that refugees may contribute to the transnational diffusion of arms and combatants, studies overlook the question of whether the inflow of refugees induces terrorist attacks. The two recent surveys by Krieger and Meierrieks (2011) and Gassebner and Luechinger (2011) indicate no previous studies that analyze the relationship between terrorism and refugee migration. As shown in Figure 1, there is a global trend in which terrorist events and refugee flows are related during the period from 1970 to 2007; an upward swing of terrorist attacks and refugee influxes took place until the early 1990s and then the former slowed down much more quickly than the latter. A simple correlation analysis shows that these two factors are correlated with each other (the correlation coefficient is 0.46). Nonetheless, such patterns warrant further systematic analysis.

Our research examines how refugees are associated with domestic and international terrorism during the past four decades. While others have looked at the consequences of refugee flows for full-blown civil wars and insurgencies, sporadic violent attacks and terrorist incidents can

contribute to general instability and can escalate to more severe crises. Sporadic attacks against refugees or aid workers may not be sufficient to be included in most civil war data, but they can have devastating effects on the communities in question and significantly disrupt humanitarian relief efforts. Militant groups can mobilize among refugee communities and migrants may be subject to anti-foreigner attacks. In addition, we argue that the infusion of aid workers, food, shelter, and other humanitarian supplies makes host countries more prone to terrorist attacks, as militants seek to exploit these resources. While refugee assistance is essential to forestall humanitarian catastrophes and should be lauded, without proper security measures in place, aid workers and the resources they provide are subject to attack.

To measure terrorist activities, this study utilizes the worldwide terrorism dataset recently compiled by Enders et al. (2011), who systematically separated LaFree and Dugan's (2007) Global Terrorism Database (GTD) into domestic and international terrorist incidents. To operationalize the influence of refugees, this study relies on the United States Committee for Refugees and Immigrants' *World Refugee Survey* (Marshall, 2008). A cross-national, time-series data analysis of 154 countries during the period from 1970 to 2007 shows evidence that, *ceteris paribus*, countries with high numbers of refugees are more likely to experience both domestic and international terrorism. Our results are robust to a number of alternative modeling specifications. This finding implies that while the international community should strive to reduce the number of refugees by preventing the eruption of major conflict, humanitarian efforts must be accompanied by robust security provisions.

This study proceeds in several sections. The first section defines key terms of terrorism and refugees. The second section reviews the existing literature. The third section puts forward a conceptual linkage between refugees and terrorism. The fourth section explains the research design with statistical model building, operationalization, and data sources. The fifth section presents a discussion of the empirical results. The sixth section provides several illustrative examples of terrorist attacks on refugee aid resources. The last section sums up the main findings and presents policy implications.

## Defining Terrorism and Refugees

Terrorism and refugees are contentious concepts that require clarification. Terrorism is often an ill-defined term and must be clearly delineated. This study follows LaFree and Dugan's (2007) definition of terrorism as an intentional act of violence or threat of violence by a non-state actor to attain political, economic, religious, or social goals. This is a very broad definition that encompasses many different types of groups and activities. LaFree and Dugan rely on this definition to compile the Global Terrorism Database (GTD) that combines domestic and international terrorism but excludes state terrorism.<sup>1</sup> When the perpetrators and targets are from the same country, the act of violence is defined as domestic terrorism. An example is the Oklahoma City bombing committed by American-born Timothy McVeigh. International terrorism is a situation in which a terrorist incident in Country A involves perpetrators, victims, institutions, governments, or citizens of Country B (Enders and Sandler, 2006: 7; Dugan, 2010), such as Hezbollah's attacks against American, French, and other allied troops in Lebanon in the 1980s.

It is important to note that the GTD's broad definition of terrorism also includes attacks during "conventional" civil wars and insurgencies. For instance, violence by UNITA in Angola and the PKK in Turkey—even directed at state security forces—is included in the database. The advantage of using the GTD, as opposed to conventional measures of civil war, is that the former is not a

dichotomous “state of affairs”. Most civil war datasets code a country as being in a civil war or not, based on some threshold for violence, such as 1,000 battle-deaths. The GTD encompasses attacks during civil wars, but also one-off events and low-level violence that does not meet the threshold for inclusion in other datasets. Moreover, such count measures of events rather than a binary classification enable researchers to gauge the frequency of violence incidents.

A refugee is defined by international law as one who, “owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion, is outside the country of his nationality, and is unable to or, owing to such fear, is unwilling to avail himself of the protection of that country”.<sup>2</sup> In practice, determining exactly who is a refugee can be difficult as people leave their homes for a variety of considerations including persecution, disaster, social unrest, and civil war. Most analysts and relief agencies (including the UN High Commissioner for Refugees) take a much broader view and consider anyone fleeing general violence, including civil war, genocide, and insurgent attacks—even if individual persecution cannot be ascertained—to be a refugee. We adopt this broader definition in our analysis.

## Literature Review

Forced migration has a significant impact on states, international organizations, and non-governmental organizations due to humanitarian and security concerns (Crisp, 2000; Lischer, 2005). However, the existing literature on refugees and security remains in its infancy, as international relations scholars have only recently considered the security implications of international migration (e.g. Weiner, 1992; Salehyan, 2009; Greenhill, 2010). Undoubtedly, the events of 11 September 2001 prompted researchers to review border security policies and the potential for terrorist networks to take advantage of immigration systems (Givens et al., 2008).

Several studies document the framing of refugees as potential terrorist threats by numerous states in legislative and policy responses (see Brouwer, 2002; Freilich et al., 2006; Nezer, 2006). Adelman (2002: 5) characterizes this trend as the “overlap between refugee and security concerns”. This overlap instigated changes in the way that asylum claims are handled, the number of asylum claims granted, and the detainment and exclusion of certain refugees on the basis of their region of origin, most notably from the Middle East and the South Asia (Andreas and Biersteker, 2003; Brouwer, 2002; Sidebotham, 2004; Welch and Schuster, 2005). For example, after the Terrorism Act of 2000, Muslim refugees in Britain are increasingly being targeted as potential terrorist threats (Fekete, 2001; Collyer, 2005; Nezer, 2006). On the contrary, some studies show no evidence for a direct relationship between forced migrants arriving in Europe and the risk of terrorism in the EU. For example, Howard (2010) contends that there is no causal link despite post-9/11 fears (see also Guild, 2003).

The literature that examines the relationship between refugees and security can be traced back to the period before the 9/11 terrorist attacks. Whitaker (1998) argues that “golden age” of generous refugee resettlement efforts by Western democracies was largely a by-product of Cold War security and propaganda. That is, in the ideological war between democracy and communism, refugees were a key component in this confrontation as defectors fleeing leftist regimes were greeted openly (Jessen-Petersen, 1994: 1–2; Rosenblum and Salehyan, 2004). However, the collapse of the former Soviet Union made many countries rethink their refugee policies. Selective refugee policies were characterized as less humanitarian and more concerned with granting asylum claims to, more or less, potential “ideal” citizens.<sup>3</sup> Armed conflicts have also been linked to refugee flows. Dowty and Loescher (1996) assert that humanitarian aid and intervention were

often invoked by the international community in the post-Cold War era on the grounds of preventing massive refugee flows and regional instability. For example, the US justified interventions in Haiti in 1994 and Kosovo in 1999 because of the large displacement of people and the regional externalities that they posed. These studies have mainly focused on refugees to developed countries, rather than a global analysis. More recently, studies have linked refugee flows to the transnational spread of civil and interstate war (Lischer, 2005; Salehyan and Gleditsch, 2006; Buhaug and Gleditsch, 2008; Salehyan, 2008). Yet, these studies focus on large-scale civil wars and state failure rather than sporadic political violence and terrorism, which do not necessarily target government forces.

Although these existing studies of refugees examine both security and humanitarian dimensions, they have neglected to address the possibility that refugees and the infusion of humanitarian resources may help attract terrorist attacks. This is an important issue since humanitarian activities such as the infusion of aid workers, food, and shelter may affect the internal security of host countries (Lischer, 2005), which then have less incentive to maintain humanitarian refugee policies. In the next section, we offer a more detailed theoretical argument on the refugee–terrorism connection.

## Why Hosting More Refugees Provokes Terrorist Incidents

There may exist numerous reasons why refugee crises invite terrorist attacks. First, the conflict from which the refugees fled may spill across borders as militants attack refugee encampments in order to punish or intimidate their political rivals. Second, insurgent groups and terrorist organizations may recruit from within the refugee camps. Previous studies have shown that poor young males with few economic opportunities are most likely to join violent factions (Humphreys and Weinstein, 2008). Low opportunity costs for joining along with finding a sense of purpose may incline people to leave the camps and enlist in an armed group. Third, the presence of refugees and foreigners in general may prompt right-wing anti-immigrant groups to attack people who are ethnically and culturally different. These three factors are those most commonly discussed in the literature on refugees and the spread of conflict.

In this study, we propose an additional factor—humanitarian aid—that has not been discussed much among analysts. We argue that the infusion of aid resources during refugee crises—including food, medical supplies, and vehicles—provides opportunities for looting and theft by violent groups. In addition, relief workers are often targets of abduction, to be held for ransom. The rebellion-as-crime, or “greed”, literature in conflict research has primarily focused on the capture and sale of valuable commodities such as drugs and conflict diamonds (Collier and Hoeffler, 2003; Lujala et al., 2005). Yet, aid resources, particularly in violent contexts, are often another prime target for theft and provide an easy opportunity for militants to acquire resources.

In addition to the theft of humanitarian resources and the abduction of aid workers for ransom, humanitarian workers may also become a target because of their ethnicity, nationality, or religion. Rather than travelling abroad to conduct attacks in their selected country, extremists can choose to target expatriates in their midst. For instance, following widespread outrage over the publication of offensive cartoons of the Prophet Muhammad by a Danish newspaper, aid agencies from Denmark operating in Muslim countries were put on alert (McLaughlin and Kilner, 2006). Refugee communities often attract workers from Western industrialized nations who work with non-governmental organizations, international relief organizations, or religious charities. Insurgents or terrorists seeking international targets may focus their attacks on such individuals.

Aid agencies are keenly aware of these risks. The International Committee of the Red Cross publishes a comprehensive set of safety guidelines for workers in conflict zones (Roberts, 2006). Moreover, scholars are beginning to document and conduct analyses of attacks against aid workers (Fast, 2010); others have noted that humanitarian relief to refugees can inadvertently be channeled to militant groups (Lischer, 2005). Yet, to date, there has not been a systematic quantitative study of the link between refugee flows and terrorist attacks. We do not claim that one mechanism is more or less important than the others, but that there are several non-exclusive paths to violence. Thus, our main hypothesis is that: *as the number of refugees increases in a country, the number of terrorist attacks will also increase*. We note that this should apply to both domestic terrorism and international terrorism. Domestic militants may predate on refugee communities for purely local goals. Internationally-minded groups may begin to target foreign assets and individuals.

## Research Design

To test the refugee hypothesis, this study collects data on 154 countries during the period from 1970 to 2007 (see Appendix 1 for the country list). This data collection makes the country-year the unit of analysis. We employ three different but related dependent variables. The first variable is a count measure that captures the total number of domestic and international terrorist incidents that occurred in a country per year. The second and third variables disaggregate the first measure into domestic and international terrorist incidents. The data come from the worldwide terrorism dataset of Enders et al. (2011), who systematically separated LaFree and Dugan's (2007) Global Terrorism Database (GTD)<sup>4</sup> into domestic and international terrorist incidents. Enders et al. (2011: 3) underscore that "no other article provides such a complete partitioning of domestic and transnational incidents".<sup>5</sup>

The main independent variable, refugees, records the number of refugees that a country receives from other countries. In order to correct the positive skew in the data and to avoid the mathematical problem of log-transforming zeros, this study takes the natural log of the number of refugees after adding 1 to the base. Data on refugee flows come from the *World Refugee Survey* from the Population Data Unit of the United States Committee for Refugees and Immigrants (Marshall, 2008).<sup>6</sup> Ideally, we would also like data on the number of aid workers and humanitarian supplies to refugees in a country, but unfortunately such data are not available for all countries during the time period.

To ensure the estimated results are not subject to omitted variable bias and thus flawed, this study includes six control variables: democracy, state failure, economic development, population, a post-Cold War indicator, and a lagged term for the dependent variable.<sup>7</sup> Some studies show that democracy is inversely related to terrorism since democracy provides peaceful channels of conflict resolution (e.g. Schmid, 1992; Eyerman, 1998; Li, 2005; Choi, 2010). Conversely, other studies report that democracy allows more terrorist activity due to the commitment to individual freedoms which facilitates action (e.g. Eubank and Weinberg, 1994, 2001). We remain agnostic about the influence of democracy, since it is not our main variable of interest. The democracy variable is taken from the Polity dataset and is a 21-point variable ranging from pure autocracy (-10) to pure democracy (+10) (Marshall and Jaggers, 2007).

Previous studies find empirical support for the positive relationship between failed states and terrorism (e.g. LaFree et al., 2007; Piazza, 2008). Since the political leadership of failed states is too weak to exercise legal authority over much of its territory, it is bound to attract a variety of terrorist activities (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). Data come from the Political Instability Task Force (2007).



Several recent studies show that developed countries are more likely to experience terrorism since they are symbols of the political and economic status quo and because they provide more terrorist targets than less developed countries (e.g. Choi, 2010; Piazza, 2011). Economic success attracts more terrorist attacks because economic inequality is assessed globally in the form of poor versus rich countries (Krieger and Meierrieks, 2011; for a dissenting view, see Krueger, 2007). This economic development variable is measured by the logged real GDP per capita, adjusted for purchasing power parity. Data for this variable are obtained from Gleditsch (2002) and are updated with base data from the new 6.3 version of the Penn World Tables (Heston et al., 2009).

Since highly populated countries encounter more difficulty providing an adequate level of security to the entire population, they are at a greater risk of terrorist plots and attacks (Eyerman, 1998). This positive correlation may also be due to a scale effect. More populous countries simply tend to experience more terrorism (in absolute numbers) because they harbor more terrorists and provide more targets than small countries. Although Savun and Phillips (2009) are not the only ones who report the positive effect of population (see also Krieger and Meierrieks, 2011; Gassebner and Luechinger, 2011), they provide evidence that, irrespective of the type of terrorist attacks, 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 expected to increase terrorism. Data for this variable are taken from the US Census Bureau (2008).

Enders and Sandler (2006) provide evidence that the total number of terrorist attacks has decreased with the end of Soviet funding of left-wing groups (see also Choi, 2010, 2011; Young and Findley, 2011). To account for a systemic decrease in terrorist activity after the end of the Cold War, a post-Cold War variable is included. The post-Cold War variable is coded 1 after 1991 and is otherwise coded 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. Although the lagged dependent variable has the potential to “soak up” the explanatory power of theoretically interesting independent variables (Achen, 2000), it is theoretically appropriate because, as previous research demonstrates, countries with past incidents of terrorism are likely to be more vulnerable to terrorism in the present or in the future (Savun and Phillips, 2009; Young and Findley, 2011).

Since the dependent variable is 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, which essentially corrects for the over-dispersion found in Poisson regression models (Long and Freese, 2006; Hilbe, 2007). Theoretically, it is unlikely that violent incidents will cause refugee *inflows* to the country concerned. However, all the predictors are lagged one year behind the outcome variable to ensure that the predictors cause the outcome variable rather than the other way around.

The terrorism data may be prone to the problem of excessive zero observations. Indeed, 56 percent of the cases are non-events. To assuage this potential problem, for robustness, this study turns to the rare event logit model developed by Tomz et al. (1999), expanded upon by King and Zeng (2001), and recently applied in Choi's (2010) study on international terrorism and the rule of law.<sup>8</sup> The rare event logit effectively addresses the issue of excessive zeros in the data. To run this logit technique, the event count dependent variable is converted into a binary measure, coded 1 if any attacks are recorded and 0 otherwise. To deal with temporal dependence in our data, we employ Carter and Signorino's (2010) method of including the cubic polynomial of time.<sup>9</sup>

## Empirical Results

We now turn to a discussion of our results. Model 1 in Table 1 employs negative binomial regression and serves as a base model in order to examine whether inflows of refugees are positively related with terrorism in general; Models 2 to 7 report various types of robustness tests. Model 1 presents results in which the refugee variable is statistically significant at the 0.001 level and in the hypothesized direction. It appears that as countries host more refugees, they are more likely to encounter terrorist incidents, domestic or international. Model 1 also indicates that all six control variables achieve significance, consistent with theoretical expectations. Democracy is positively associated with terrorism; failed states suffer from more terrorist incidents; developed countries experience more terrorism; highly populated countries are more likely to be plagued with terrorism; the post-Cold War period is exposed to less terrorism; and countries with a terrorist history are more vulnerable to terrorism.<sup>10</sup>

Model 2 shows estimated results of the rare event logit model that deals with the issue of excess zeros in the terrorism data. Not surprisingly, the significance of the refugee variable remains the same along with all the control variables. Model 3 substitutes terrorist incidents with terrorist casualties as the dependent variable, which is an annual total of persons killed and wounded in terrorist attacks. This variable intends to capture a new phenomenon of terrorism that has replaced the “old terrorism” of the 1970s and 1980s: the number of incidents is on the decline but the lethality of incidents is rising (Frey and Luechinger, 2005; Crain and Crain, 2006; Frey et al., 2007). Thus, this variable is an alternative measure to total event counts because it can measure the unequal degree of severity in each terrorist incident rather than aggregate terrorist events of differing lethality. The estimated results in Model 3 indicate that countries with more refugees are more likely to be exposed to terrorist casualties. Models 4 to 6 replicate Model 1 after controlling for three different fixed-effects, namely region, country, and year.<sup>11</sup>

In general, fixed-effects can control for omitted variables that differ between countries or time periods (Green et al., 2001). Following the methodological insights of Green et al., we employ fixed-effects in three alternative ways: region, country, and year. As shown in Table 1, each of these fixed-effect negative binomial regression models still provides evidence that refugee inflows are a cause of increased terrorism. Model 7 employs generalized estimating equations (GEEs) that account for first-order correlation instead of negative binomial regression for estimation; the refugee variable is statistically significant with a positive sign. Therefore, our main result is robust to a number of modeling choices.

In our next set of models, we disaggregate terrorist incidents into two different types, namely domestic versus international. While Models 1 to 3 in Table 2 explain the causes of domestic terrorism, Models 4 to 6 look into the effect of refugees on international terrorism. As in Models 1 to 3 in Table 1, these models are negative binomial regression, rare event logit, and negative binomial regression with terrorist casualties. As far as domestic terrorism is concerned, the hypothesis about refugees is supported across models except for casualties: refugees are a cause of domestic terrorism if not terrorist casualties. Models 4 to 6 report results that are obtained when the dependent variable is international terrorism; the results are consistent with those in the previous models. The impact of refugee flows on international terrorism is positive.

Our empirical analysis has so far relied on the GTD data. Another widely used source of terrorist activity is the International Terrorism: Attributes of Terrorist Events (ITERATE) database from Mickolus et al. (2008). As a way to check the robustness of our findings on international terrorism, we use the ITERATE dataset.<sup>12</sup> Model 1 in Table 3 show estimated coefficients and standard errors that are obtained from negative binomial regression. The results are quite similar to those shown



**Table 1.** The Effect of Refugees on Terrorism, 1970–2007.

Variable	NB† Incidents Model 1	REL†† Binary Model 2	NB Casualties Model 3	NB w/ Region FE Model 4	NB w/ Country FE Model 5	NB w/Year FE††† Model 6	GEEs†††† Incidents Model 7
Refugee <sub>t-1</sub>	0.079*** (0.021)	0.108*** (0.018)	0.081** (0.033)	0.075*** (0.022)	0.092*** (0.011)	0.064* (0.030)	0.088** (0.031)
Democracy <sub>t-1</sub>	0.041*** (0.007)	0.042*** (0.005)	0.037*** (0.008)	0.041*** (0.008)	0.038*** (0.004)	0.050*** (0.007)	0.036 (0.032)
State Failure <sub>t-1</sub>	0.162*** (0.018)	0.243*** (0.027)	0.215*** (0.023)	0.159*** (0.018)	0.136*** (0.011)	0.175*** (0.023)	0.511*** (0.054)
Econ Development <sub>t-1</sub>	0.194*** (0.042)	0.209*** (0.034)	0.106* (0.053)	0.063 (0.060)	0.292*** (0.029)	0.178*** (0.048)	0.105 (0.106)
Population <sub>t-1</sub>	0.253*** (0.036)	0.264*** (0.026)	0.306*** (0.050)	0.265*** (0.037)	0.040* (0.022)	0.321*** (0.044)	0.720*** (0.078)
Post-Cold War <sub>t-1</sub>	-0.375*** (0.077)	-0.436*** (0.074)	-0.163 (0.099)	-0.366*** (0.079)	-0.299*** (0.045)	-18.684 not estimated	-0.872*** (0.215)
Terrorism <sub>t-1</sub>	0.007*** (0.000)	1.864*** (0.071)	0.000*** (0.000)	0.007*** (0.001)	0.005*** (0.000)		
Americas <sub>t-1</sub>				0.023 (0.224)			
Europe <sub>t-1</sub>				-0.178 (0.239)			
Africa <sub>t-1</sub>				-0.696** (0.233)			
Asia <sub>t-1</sub>				-0.559** (0.236)			
Oceania <sub>t-1</sub>				-0.815*** (0.257)			
Constant	-2.352*** (0.483)	-5.451*** (0.370)	-0.487 (0.604)	-1.018 (0.645)	-4.197*** (0.327)	-2.055*** (0.555)	-6.140*** (0.922)
Wald Chi <sup>2</sup>	960.64		357.55	1106.17	1053.59	not estimated	408.26
Prob > Chi <sup>2</sup>	0.001		0.001	0.001	0.001	not estimated	0.001
Log Likelihood	-10683.61		-10864.79	-10596.90	-9089.16	-10639.90	
Dispersion = 1	40.85		555.89	39.76		51.01	
Observations	5,259	5,259	5,040	5,258	5,162	5,259	5,259

Robust standard errors are in parentheses. \*p < .05, \*\*p < .01, \*\*\*p < .001, one-tailed tests. †Negative Binomial Regression, †† Rare Event Logit, ††† Fixed-Effect, †††† Generalized Estimating Equations.

with the GTD measure: the inflow of refugees is positively associated with international terrorism.

Model 2 replicates Model 1 for a shorter time period that spans from 1975 to 1997. This model serves two purposes. One is to check whether the effect of refugees still remains robust to the shorter time period (i.e. sample selection bias) and another is to make it a base model for Models 3 to 8 in

**Table 2.** The Effect of Refugees on Domestic and International Terrorism, 1970–2007.

Variable	Domestic Terrorism			International Terrorism		
	NB <sup>†</sup>	REL <sup>††</sup>	NB	NB	REL	NB
	Incidents Model 1	Binary Model 2	Casualties Model 3	Incidents Model 4	Binary Model 5	Casualties Model 6
Refugee <sub>t-1</sub>	0.061** (0.022)	0.077*** (0.019)	0.048 (0.037)	0.064** (0.027)	0.097*** (0.019)	0.074* (0.035)
Democracy <sub>t-1</sub>	0.045*** (0.008)	0.043*** (0.006)	0.043*** (0.010)	0.041*** (0.008)	0.039*** (0.006)	0.032*** (0.010)
State Failure <sub>t-1</sub>	0.166*** (0.019)	0.216*** (0.025)	0.204*** (0.025)	0.193*** (0.024)	0.229*** (0.025)	0.227*** (0.026)
Econ Development <sub>t-1</sub>	0.150*** (0.048)	0.132*** (0.036)	0.029 (0.060)	0.230*** (0.053)	0.244*** (0.036)	0.217*** (0.058)
Population <sub>t-1</sub>	0.284*** (0.038)	0.274*** (0.027)	0.332*** (0.049)	0.256*** (0.041)	0.277*** (0.026)	0.300*** (0.052)
Post-Cold War <sub>t-1</sub>	-0.188* (0.084)	-0.173* (0.076)	-0.073 (0.112)	-0.639*** (0.092)	-0.621*** (0.077)	-0.310** (0.112)
Terrorism <sub>t-1</sub>	0.008*** (0.000)	1.999*** (0.074)	0.001*** (0.000)	0.030*** (0.003)	1.718*** (0.074)	0.000*** (0.000)
Constant	-2.549*** (0.517)	-5.339*** (0.393)	-0.377 (0.630)	-4.124*** (0.575)	-6.151*** (0.390)	-2.830*** (0.764)
Wald Chi <sup>2</sup>	872.32		328.52	427.72		252.96
Prob > Chi <sup>2</sup>	0.001		0.001	0.001		0.001
Log Likelihood	-8993.00		-9598.96	-6603.10		-6148.48
Dispersion = I	47.22		520.49	7.74		192.87
Observations	5,259	5,259	5,149	5,259	5,259	5,140

Robust standard errors are in parentheses. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ , one-tailed tests. <sup>†</sup>Negative Binomial Regression, <sup>††</sup> Rare Event Logit.

which additional variables of interest are introduced as controls. As far as the significance levels and the causal relationships are concerned, the results of Model 2 are nearly identical to Model 1.

Model 3 shows replicated results of Model 2 after adding a terrorism hot spot variable that is dichotomous: 1 for a country that is part of a hot spot neighborhood in a given year according to  $G_i^*$  statistics<sup>13</sup> and 0 otherwise. “A terrorism hot spot is defined as a neighborhood of countries that experiences a larger number of terrorist incidents than one would expect of an average neighborhood in the international system according to a random process” (Braithwaite and Li, 2007: 285). The reason we introduce such a spatial factor is to assuage the concern that neighboring an unstable country generates both international refugees and more terrorism events. The existence of spatial dependence causes potential problems, which are discussed by Franzese and Hays (2007) and Plümper and Neumayer (2010). It may be the case that the refugee variable simply captures a “neighborhood effect”, where being near a conflict hot spot also increases a country’s vulnerability to terrorism (see Bapat, 2007; Braithwaite and Li, 2007; Braithwaite, 2010). However, this neighborhood effect does not need to come from the inflow of refugees, but from economic and political shocks that result from violence in the region. In order to isolate the direct effect of refugee presence from the broader influence of proximity to a terror hot spot, we include a measure of proximity to a terror hot spot as a control, as shown in Braithwaite and Li (2007).

**Table 3.** The Effect of Refugees on International Terrorism, 1970–2007: ITERATE.

Variable	Negative Binomial Regression										NB w/Cubic Polynomial of Time			
	1970–2007					1975–1997					1970–2007		1975–1997	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11			
Refugee <sub>t-1</sub>	0.078** (0.027)	0.066** (0.028)	0.058** (0.025)	0.049* (0.025)	0.053* (0.026)	0.065** (0.023)	0.057** (0.024)	0.059** (0.024)	0.062** (0.024)	0.056** (0.024)	0.061* (0.024)			
Democracy <sub>t-1</sub>	0.031*** (0.008)	0.040*** (0.009)	0.035*** (0.009)	0.033*** (0.008)	0.038*** (0.008)	0.034*** (0.008)	0.031*** (0.008)	0.037*** (0.008)	0.029*** (0.006)	0.027*** (0.007)	0.027*** (0.007)			
State Failure <sub>t-1</sub>	0.187*** (0.023)	0.193*** (0.028)	0.188*** (0.023)	0.184*** (0.021)	0.197*** (0.024)	0.146*** (0.023)	0.149*** (0.021)	0.161*** (0.025)	0.137*** (0.027)	0.141*** (0.028)	0.113*** (0.032)			
Econ Development <sub>t-1</sub>	0.330*** (0.049)	0.340*** (0.055)	0.293*** (0.051)	0.267*** (0.051)	0.265*** (0.054)	0.332*** (0.049)	0.303*** (0.048)	0.303*** (0.052)	0.243*** (0.048)	0.204*** (0.055)	0.236*** (0.052)			
Population <sub>t-1</sub>	0.234*** (0.042)	0.215*** (0.044)	0.219*** (0.040)	0.225*** (0.036)	0.227*** (0.041)	0.189*** (0.039)	0.196*** (0.036)	0.200*** (0.040)	0.158*** (0.040)	0.153*** (0.041)	0.135*** (0.041)			
Post-Cold War <sub>t-1</sub>	-1.020*** (0.090)	-0.668*** (0.087)	-0.636*** (0.083)	-0.576*** (0.082)	-0.641*** (0.086)	-0.626*** (0.083)	-0.574*** (0.081)	-0.626*** (0.087)	-0.710*** (0.088)	-0.561*** (0.081)	-0.553*** (0.082)			
Terrorism <sub>t-1</sub>	0.021*** (0.004)	0.018*** (0.005)	0.015*** (0.004)	0.018*** (0.004)	0.016*** (0.004)	0.015*** (0.004)	0.018*** (0.004)	0.016*** (0.004)						
Hot Spot_Land <sub>t-1</sub>			0.663*** (0.122)			0.631*** (0.129)				0.727*** (0.131)	0.711*** (0.136)			
Hot Spot_Land and Sea <sub>t-1</sub>			0.823*** (0.103)				0.775*** (0.110)							
Hot Spot_950KM <sub>t-1</sub>					0.648*** (0.102)			0.606*** (0.112)						
Interstate Dispute <sub>t-1</sub>						-0.038 (0.113)	-0.035 (0.106)	-0.172 (0.143)			-0.035 (0.105)			
Civil Conflict <sub>t-1</sub>						0.521*** (0.127)	0.447*** (0.120)	0.487*** (0.137)			0.358** (0.127)			

(continued)

Table 3. (continued)

Variable	Negative Binomial Regression					NB w/Cubic Polynomial of Time					
	1970–2007		1975–1997			1970–2007		1975–1997			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
t											
t <sup>2</sup>											
t <sup>3</sup>											
Constant	-4.443*** (0.561)	-4.443*** (0.561)	-4.318*** (0.628)	-3.965*** (0.592)	-3.945*** (0.617)	-4.214*** (0.595)	-4.098*** (0.583)	-4.099*** (0.615)	-1.872*** (0.497)	-1.666** (0.617)	-1.879*** (0.610)
Wald Chi <sup>2</sup>	439.61	298.84	452.88	715.90	373.11	584.87	798.89	507.38	735.56	665.64	786.12
Prob > Chi <sup>2</sup>	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Log Likelihood	-7328.25	-5042.24	-4997.10	-4948.65	-4984.26	-4963.99	-4922.27	-4954.97	-7146.2	-4903.78	-4888.72
Dispersion = 1	6.91	6.45	5.89	5.41	5.90	5.68	5.28	5.73	7.31	6.11	6.00
Observations	5,150	3,054	3,054	3,054	3,054	3,054	3,054	3,054	5,150	3,054	3,054

Robust standard errors are in parentheses. \*p < .05, \*\*p < .01, \*\*\*p < .001, one-tailed tests.

**Table 4.** The Substantive Effect of Refugees.

Variable: Refugee <sub>t-1</sub>	Terrorism	Domestic Terrorism	International Terrorism
	Model 1 in Table 1	Model 1 in Table 2	Model 4 in Table 2
Increased by one standard deviation	18%	14%	15%
Increased by two standard deviations	40%	30%	31%

We employ three dichotomous measures of a terrorism hot spot based on geographic proximity: (1) direct land contiguity, (2) contiguity defined by shared land boundaries or those separated by not more than 150 km of sea, and (3) a minimum distance between countries of not more than 950 km. Model 3 uses the first measure of a terrorism hot spot; Model 4 relies on the second measure; and Model 4 adopts the third measure. All of these three models, in which spatial factors are accounted for, show the positive effect of refugees in a consistent manner. Our main results do not change with the inclusion of these variables.

The two recent studies by Krieger and Meierrieks (2011) and Gassebner and Luechinger (2011) analyze which variables are robust correlates of terrorism. We have controlled for the “primary suspects” in our models reported above. However, it may be the case that the existence of a high-level armed conflict or an international war increases the level of violent attacks captured in our terrorism measures. Therefore, we include interstate dispute and civil conflict in our model specification.<sup>14</sup> Models 6 to 8 replicate Models 3 to 5 after including these two additional control variables. The results across models remain virtually the same.

To further test the robustness of the findings, Models 9 to 11 employ Carter and Signorino’s (2010) cubic polynomial of time. Model 9 replicates Model 1 after adding three time variables; Model 10 reruns Model 3 after accounting for the temporal dependence; and Model 11 replicates Model 6 after including the time factors. Regardless of the model specification, the three negative binomial regressions with the cubic polynomial of time confirm the previous findings: the inflow of refugees is a contributing factor in explaining acts of international terrorists.

It is important to estimate the substantive effects of variables in addition to their statistical significance. If the substantive effects are consistent with the statistical significance, the estimated results reported so far can be said to be meaningful. In Table 4, we look at the substantive effects of the refugee variables that appeared in Model 1 of Table 1, and Models 1 and 4 of Table 2. We find that the influx of refugees has a quite important impact on the number of experienced violent events. For all events combined, when a country experiences an increase of one and two standard deviations of refugees above their mean value, the frequency of terrorism incidents increases by 18% and 40%, respectively. The size of the effect is somewhat diminished when disaggregating among terrorism types. Nonetheless, the increase in predicted counts is a meaningful increase, which can have dramatic impacts on the countries in question.

Finally, one may suspect that our results may not be constant across all sample countries. In particular, strong states may be better able to integrate refugees and provide security to both the migrants and humanitarian workers. Weak states, on the other hand, are less able to provide security and ensure that conflicts do not spill over across national boundaries. Because of stronger bureaucratic capacity, improved ability to screen refugees, and enhanced security measures, the relationship between refugees and violence may be weaker in more developed countries. To account for this concern, we split our sample between OECD and non-OECD countries in Table 5. Although its significance levels weaken in the OECD countries, as compared to the non-OECD countries, the refugee variable turns out to be statistically significant across models except Model 6, which uses

**Table 5.** The Effect of Refugees on Terrorism, 1970–2007: Developing versus Developed Countries.

Variable	Negative Binomial Regression					
	Developing Countries			Developed Countries		
	Terrorism Model 1	Domestic Model 2	International Model 3	Terrorism Model 4	Domestic Model 5	International Model 6
Refugee <sub>t-1</sub>	0.087*** (0.022)	0.082** (0.031)	0.074*** (0.023)	0.068* (0.035)	0.101* (0.044)	0.041 (0.038)
Democracy <sub>t-1</sub>	0.049*** (0.008)	0.047*** (0.010)	0.055*** (0.009)	0.032 (0.031)	0.027 (0.029)	0.055 (0.055)
State Failure <sub>t-1</sub>	0.169*** (0.018)	0.191*** (0.023)	0.173*** (0.018)	0.037 (0.157)	-0.087 (0.171)	0.145 (0.168)
Econ Development <sub>t-1</sub>	0.274*** (0.049)	0.331*** (0.055)	0.241*** (0.057)	-0.131 (0.315)	-0.240 (0.336)	-0.246 (0.375)
Population <sub>t-1</sub>	0.241*** (0.037)	0.261*** (0.043)	0.260*** (0.037)	0.382*** (0.076)	0.283*** (0.092)	0.481*** (0.082)
Post-Cold War <sub>t-1</sub>	-0.364*** (0.104)	-0.560*** (0.123)	-0.208* (0.112)	-0.482** (0.181)	-0.960*** (0.193)	-0.219 (0.208)
Terrorism <sub>t-1</sub>	0.007*** (0.000)	0.032*** (0.005)	0.008*** (0.000)	0.013*** (0.001)	0.028*** (0.005)	0.017*** (0.002)
Constant	-2.819*** (0.538)	-5.071*** (0.596)	-2.981*** (0.588)	-0.859 (2.926)	0.287 (3.186)	-1.341 (3.509)
Wald Chi <sup>2</sup>	1032.63	374.34	961.13	591.59	218.19	345.91
Prob > Chi <sup>2</sup>	0.001	0.001	0.001	0.001	0.001	0.001
Log Likelihood	-8442.90	-5062.69	-7160.70	-2151.20	-1497.41	-1746.71
Dispersion = 1	44.88	7.53	51.50	19.56	6.97	21.52
Observations	4,424	4,424	4,424	835	835	835

Robust standard errors are in parentheses. \*p < .05, \*\*p < .01, \*\*\*p < .001, one-tailed tests.

international terrorism as the dependent variable. The effects are weaker for strong states, but not nil. It appears that “strong” states suffer from “imported” violence as well (e.g. the PKK hit Turkish targets across Europe), or from right-wing/nationalist terrorism that develops in response to a “refugee problem” (e.g. there were attacks by far-right groups against migrants and refugees in Germany during the 1990s).<sup>15</sup> Attacks on aid supplies are likely to be of less concern in developed countries, however, as most refugees in these states do not reside in camps but are distributed across the country. Therefore, in terms of the causal mechanisms we discussed above, we believe that attacks on aid workers by organizations seeking foreign targets is less applicable to the OECD cases.

## Illustrative Examples of Humanitarian Relief and Terrorism

We have argued above that humanitarian assistance, in the form of resources and aid workers, is a prime target for terrorist attacks. This is in addition to other causal mechanisms related to violent attacks, including anti-foreigner violence and refugee recruitment into militant activities. Because of data constraints, it is difficult to obtain reliable numbers on funding for refugee camps or the number of aid workers present. However, we can assess the GTD narratives to gauge the



**Table 6.** Examples of Violence against Refugee Aid Resources.

Date	Country	City	Description
08/12/2008	Kenya	Dadaab	Armed assailants fired upon an ambulance carrying members of a German organization, Gesellschaft fur Technische Zusammenarbeit, at a refugee camp near Dadaab, Kenya.
27/11/2008	Sri Lanka	Batticaloa	A Norwegian Refugee Council employee was shot dead by unidentified assailants in Batticaloa, Eastern Province, Sri Lanka.
09/11/2008	Sudan	Zalinjay	In Zalingei, Gharb Darfur, Sudan, armed assailants dressed in civilian clothing fired upon a United Nations High Commission for Refugees (UNHCR) vehicle, wounding a peacekeeper. The assailants then stole the vehicle.
24/08/2008	Somalia	Mogadishu	Two journalists and their interpreter were abducted at gunpoint. The Somali journalists' union said the journalists were being held in northeast Mogadishu by a militia group, although it was not clear if they were being held for political reasons or for ransom.
11/12/2007	Algeria	Algiers	A bomb went off outside the UN High Commission for Refugees (UNHCR) and neighboring UN Development Program (UNDP) in Algiers, Algeria. Ten people belonging to the UN staff were killed. Al Qaeda is suspected of having carried out the attack.
19/03/2007	Sudan	Torit County	Suspected Lord's Resistance Army rebels raided a refugee camp in Sudan, killing 1 and displacing over 1,500 in eastern Equatoria (Sharq al Istiwa'iyah) Province.
28/02/2007	Chad	Goz Amer	In Goz Amer, Chad, assailants armed with unspecified firearms attacked a refugee camp. Seventeen refugees were killed and the camp was damaged. The assailants also stole all of the camp's livestock.
10/04/2006	Chad	Goz Beida	Chadian rebels entered a refugee camp in Goz Amer, Chad during a food distribution exercise. The rebels stole equipment from aid workers and forced 118 of them to spend the night at the camp before allowing them to leave the next morning.
18/01/2006	Ivory Coast	Guiglo	An angry crowd in Guiglo, Cote d'Ivoire, attacked and looted the office of the United Nations Refugee Agency. Many of the attackers claimed to be members of the Young Patriots movement.
17/09/2000	Guinea	Conakry	A Togolese employee of the UN Refugee Agency was killed and a citizen of Ivory Coast was kidnapped in an attack by unknown perpetrators.
12/10/1999	Burundi	Unknown	Two senior United Nations officials and seven others were shot execution-style by rebels at the Mazye refugee camp. Rebels burnt three UN vehicles and stole some of the UN's supplies.

plausibility of this causal mechanism. To do so, we search for terrorism events that specifically mention "refugee" in the text through the GTD's open search function, although narratives are only available for the post-1998 period. There are 258 events that specifically mention refugees and of these, a large share of the narratives point to attacks on aid workers and relief supplies. In Table 6,

we present a number of narratives, validating our claim that a large number of attacks are against aid workers and humanitarian supplies.

Our main purpose here is illustrative. We note that the purpose of this exercise is not to rule out alternative causal mechanisms, or gauge the frequency of these types of attacks, which would be nearly impossible given that the GTD only offers narratives for recent years. We make no claim that attacks on aid workers are more or less important than other causal links between refugees and violence, including recruitment into militant groups or xenophobic attacks. In addition, there may be many more events in the GTD that involve refugee communities, but in which the term “refugee” is not used in the text (e.g. the words “migrant”, “foreigner”, or the specific nationality is used). Rather, our intention is to highlight—through a few illustrative events—the importance of this particular mechanism. Since there is relatively little attention to how aid workers and humanitarian supplies may provide incentives for terrorist attacks, we point to these cases as illustrative examples, thereby underscoring the plausibility of our claims. Future research into how humanitarian relief supplies and attacks on aid workers shape the security environment is encouraged.

## **Conclusion**

In this study, we extend the literature on refugee flows and the spread of violence. We are not the first to identify the potential security consequences of refugee flows, although we do present new findings regarding the impact of refugees on domestic and international terrorism. Although much of the literature focuses on attacks by migrants and rebel recruitment, we highlight an additional causal mechanism: the inflow of humanitarian resources. Aid supplies have often been subject to looting by militant actors. Moreover, foreign aid workers provide easy targets for terrorists who adopt anti-Western ideologies.

In future research, scholars should pay closer attention to interactions between refugees, humanitarian resources, and conflict. Improved data on the location of refugee camps, the nationality and source of aid supplies, and the location of attacks can test further hypotheses about which militant organizations are most likely to attack particular targets. A more fine-grained, disaggregated approach can also help improve policies and procedures for protecting refugees and aid workers.

From a policy perspective, our research underscores the importance of providing a safe, secure environment for refugees. While some may be tempted to block access to such migrants, we believe that this can be counter-productive in the long run. Aside from the ethical issues which arise from denying asylum to legitimate refugees, preventing entry may further exacerbate conflict in origin countries. Instead, we stress that improving conditions for refugees is a better alternative. International actors have often focused on material needs like food and shelter, but should first take care to ensure that refugee communities and aid workers are protected. Chaotic conditions surrounding war zones are clearly difficult areas to operate in. However, it is imperative to ensure that relief supplies do not fall into the wrong hands, that humanitarian workers operate in a safe environment, and that the refugees themselves get the care that they deserve.

## **Acknowledgements**

We would like to thank the editorial team at CMPS and the three anonymous reviewers for comments on earlier drafts.

## Notes

1. One of the advantages of the GTD over other terrorism datasets such as the International Terrorism: Attributes of Terrorist Events (ITERATE) is that the former includes information about domestic terrorism, which accounts for the bulk of terrorist activity.
2. United Nations, Article 1 of the 1951 Convention Relating to the Status of Refugees.
3. The issue of states reinterpreting exclusionary clauses in the Refugee Convention led the United Nations High Commissioner for Refugees (UNHCR) to warn states against the practice of “employing exclusion as a test of admissibility” for asylum claims that are rejected on the basis of terrorism (quoted in Zard, 2002: 34).
4. For more detailed information on GTD, see <http://www.start.umd.edu/gtd/>. There are some problems with GTD; for example, the data for 1993 are missing due to an office move (LaFree and Dugan, 2007). Our empirical analysis follows the imputation technique proposed by Enders et al. (2011). With respect to the significance of the refugee variable, all estimation methods produce no substantially different results with or without the missing 1993 data on terrorism.
5. It should be noted that Enders et al. (2011) assert that the GTD data collection is inconsistent for some time periods. By using the ITERATE dataset as a benchmark, they show that the GTD seems to under-report transnational terrorism for the 1970–77 period. Because Enders et al. provide adjustment factors to “fix” this data issue, our empirical analysis employs their approach.
6. It should be noted that the *World Refugee Survey* is unable to report data for the years 1973, 1975, and 1979. For our data analysis to be completed, the missing data are interpolated based on the average between the previous and following years. With respect to the significance of the refugee variable, all estimation methods produce similar results with or without the missing data.
7. The discussion on the six control variables is presented in the context that they are likely to affect international as well as domestic terrorism for similar reasons. For example, Savun and Phillips (2009: 879) make a similar note that “if democracies are prone to transnational terrorism by design, as most existing theoretical arguments suggest, then democracies should be vulnerable to *domestic terrorism* as well”. Young and Findley (2011: 421) also point out that “Li’s arguments [on the relationship between democracy and transnational terrorism] may be accurate when we apply his reasoning to domestic terrorism as opposed to the transnational form”.
8. The statistics literature also recommends that zero-inflated negative binomial regression be used for “cross-sectional” data with excessive zeros. This is because a standard negative binomial regression model loses some of its effectiveness since the prevalence of zero counts in the data can pose a statistical challenge if not estimated appropriately (see Greene, 2003; Long and Freese, 2006; Hilbe, 2007). However, it is important to note that since zero-inflated negative binomial regression is designed for cross-sectional data only, it is not suitable for cross-sectional, time-series data in which the presence of excessive zeros is often related to individual observations with zero counts rather than to individual countries with no count events. In fact, the cross-sectional, time-series terrorism data collected for this study include only four countries that belong to the “Always-0” group: Mongolia, Oman, Turkmenistan, and North Vietnam. This implies that the excessive zeros have little relation with a country-specific characteristic and thus zero-inflated negative binomial regression is not the appropriate estimator for the cross-sectional, time-series data. Further, because determining which predictors should be included in the inflation equation is a daunting task and because estimated results greatly vary dependent on the choice of predictors, zero-inflated negative binomial regression is hard to implement.
9. In Appendix 2, we run diagnostic tests for multicollinearity. We demonstrate that this is not a significant concern for our models.
10. It is interesting to know whether the exclusion of a lagged dependent variable influences the results. When the lagged dependent variable is excluded in Model 1, the significance level of the refugee variable is dropped to 0.01, as the coefficient size becomes smaller and the standard error becomes bigger. Though negligible, this change is not consistent with Achen’s (2000) claim that the inclusion of a lagged dependent variable may “soak up” the explanatory power of theoretically interesting independent variables.

11. As demonstrated in a study by Sandler and Enders (2004), terrorist activity often evolves in cycles, which requires researchers to account for a full set of year fixed-effects. The year fixed-effect model, however, failed to converge when it excluded the Cold War variable.
12. It is worth noting that there are some shortcomings with GTD and ITERATE because their data sources come from newspaper accounts. This may introduce underreporting bias because autocratic regimes tend to suppress freedom of the press (Drakos and Gofas, 2006).
13. The  $G_i^*$  statistic is calculated by Braithwaite and Li (2007) who identify precisely which countries are located in terrorism hot-spots in given years by computing the statistic on the basis of three-year aggregates (as sliding windows) of the numbers of terrorist incidents in each country, producing  $G_i^*$  values for 143 countries for each year of the 23-year period from 1975 to 1997. Those states that return statistically significant  $G_i^*$  scores ( $p$ -value < 0.05) in each year are considered to be located in international terrorism hot-spots during that year.
14. 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. Civil conflict is also a dummy that is coded 1 when a country is engaged in an intrastate conflict and 0 otherwise. Data for both these variables come from Gleditsch et al. (2002).
15. In an additional set of models, not shown, we found that humanitarian aid to a country significantly increases the number of terrorist incidents. This conforms to our expectation that some share of attacks is attributable to violence against aid workers and relief supplies. However, the data used for these models do distinguish between refugee aid and other aid. Because we are not confident in these data, we do not report these results.

## Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

## References

- Achen C (2000) Why lagged dependent variables can suppress the explanatory power of other independent variables. Working paper, Society for Political Methodology, St Louis, WA.
- Adelman H (2002) Refugees and border security post-September 11. *Refugee* 20(4): 6–14.
- Andreas P and Biersteker TJ (eds) (2003) *The Rebordering of North America: Integration and Exclusion in a New Security Context*. New York: Routledge.
- Bapat NA (2007) The internationalization of terrorist campaigns. *Conflict Management and Peace Science* 24(4): 265–280.
- Braithwaite A (2010) Resisting infection: How state capacity conditions conflict contagion. *Journal of Peace Research* 47(3): 311–319.
- Braithwaite A and Li Q (2007) Transnational terrorism hot spots: Identification and impact evaluation. *Conflict Management and Peace Science* 24(4): 281–296.
- Brouwer E (2002) Immigration, asylum, and terrorism: A changing dynamic. Legal and practical developments in the EU in response to the terrorist attacks of 11.09. *European Journal of Migration and Law* 4(4): 399–424.
- Buhaug H and Gleditsch KS (2008) Contagion or confusion? Why conflicts cluster in space. *International Studies Quarterly* 52(2): 215–233.
- Carter DB and Signorino CS (2010) Back to the future: Modeling time dependence in binary data. *Political Analysis* 18(3): 271–292.
- Choi S-W (2010) Fighting terrorism through the rule of law? *Journal of Conflict Resolution* 54(6): 940–966.
- Choi S-W (2011) military intervention reduce or increase terrorism? ([http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1900375](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1900375)).
- Collier P and Hoeffler A (2004) Greed and grievance in civil war. *Oxford Economic Papers* 56(4): 563–595.
- Collyer M (2005) Secret agents: Anarchists, Islamists and responses to politically active refugees in London. *Ethnic and Racial Studies* 28(2): 278–303.

- Crain NV and Crain WM (2006) Terrorized economies. *Public Choice* 128(1/2): 317–349.
- Crisp J (2000) A state of insecurity: The political economy of violence in Kenya's refugee camps. *African Affairs* 99(397): 601–632.
- Dowty A and Loescher G (1996) Refugee flows as grounds for international action. *International Security* 21(1): 43–71.
- Drakos K and Gofas A (2006) The devil you know but are afraid to face. *Journal of Conflict Resolution* 50(5): 714–735.
- Dugan L (2010) The making of the Global Terrorism Database and what we have learned about the life cycles of terrorist organizations. Unpublished paper.
- Enders W and Sandler T (2006) *The Political Economy of Terrorism*. New York: Cambridge University Press.
- Enders W, Sandler T and Gaibulloev K (2011) Domestic versus transnational terrorism: Data, decomposition, and dynamics. *Journal of Peace Research* 48(3): 319–337.
- Eubank W and Weinberg L (1994) Does democracy encourage terrorism? *Terrorism and Political Violence* 6(4): 417–443.
- Eubank W and Weinberg L (2001) Terrorism and democracy: Perpetrators and victims. *Terrorism and Political Violence* 13(1): 155–164.
- Eyerman J (1998) Terrorism and democratic states: Soft targets or accessible systems. *International Interactions* 24(2): 151–170.
- Fast L (2010) Mind the gap: Documenting and explaining violence against aid workers. *European Journal of International Relations* 16(3): 365–389.
- Fearon JD and Laitin DD (2003) Ethnicity, insurgency, and civil war. *American Political Science Review* 97(1): 75–90.
- Fekete L (2001) The Terrorism Act 2000: An interview with Gareth Pierce. *Race and Class* 43: 95–103.
- Franzese RJ Jr and Hays JC (2007) Spatial econometric models of cross-sectional interdependence in political science panel and time-series–cross-section data. *Political Analysis* 15(2): 140–164.
- Freilich JD, Opesso MR and Newman GR (2006) Immigration, security, and civil liberties post 9/11: A comparison of American, Australian and Canadian legislative and policy changes. In *Migration, Culture Conflict, Crime, and Terrorism*, eds JD Freilich and RT Guerette, pp. 49–70. Aldershot: Ashgate.
- Frey BS and Luechinger S (2005) Measuring terrorism. In *Law and the State: A Political Economy Approach*, eds Alain Marciano and Jean-Michel Josselin, pp. 142–181. Northampton, MA and Cheltenham: Edward Elgar.
- Frey BS, Luechinger S and Stutzer A (2007) Calculating tragedy: Assessing the costs of terrorism. *Journal of Economic Surveys* 21(1): 1–24.
- Gassebner M and Luechinger S (2011) Lock, stock, and barrel: A comprehensive assessment of the determinants of terror. *Public Choice* 149(3–4): 235–261.
- Givens T, Freeman GP and Leal DL (eds) (2008) *Immigration Policy and Security: U.S., European, and Commonwealth Perspectives*. New York: Routledge.
- Gleditsch K (2002) Expanded trade and GDP data. *Journal of Conflict Resolution* 46(5): 712–724 (<http://privatewww.essex.ac.uk/~ksg/exptradegdp.html>).
- Gleditsch NP, Wallensteen P, Eriksson M, Sollenberg M and Strand H (2002) Armed Conflict 1946–2001: A new dataset. *Journal of Peace Research* 39(5): 615–637.
- Green DP, Kim SY and Yoon DH (2001) Dirty pool. *International Organization* 55(2): 441–468.
- Greene WH (2003) *Econometric Analysis*, 5th edn. Upper Saddle River, NJ: Prentice Hall.
- Greenhill K (2010) *Weapons of Mass Migration: Forced Displacement, Coercion and Foreign Policy*. Ithaca, NY: Cornell University Press.
- Guild E (2003) International terrorism and EU immigration, asylum and borders policy: The unexpected victims of 11 September 2001. *European Foreign Affairs Review* 8(3): 331–417.
- Heston A, Summers R and Aten B (2009) Penn World Table version 6.3. Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania ([http://pwt.econ.upenn.edu/php\\_site/pwt\\_index.php](http://pwt.econ.upenn.edu/php_site/pwt_index.php)).
- Hilbe J (2007) *Negative Binomial Regression*. Cambridge: Cambridge University Press.

- Howard TO (2010) *The Tragedy of Failure: Evaluating State Failure and Its Impact on the Spread of Refugees, Terrorism, and War*. Santa Barbara, CA: Praeger.
- Humphreys M and Weinstein J (2008) Who fights? The determinants of participation in civil war. *American Journal of Political Science* 52(2): 436–455.
- Jessen-Petersen S (1994) International migration and security: A pragmatic response. In *Migration and the New Europe*, ed. Kimberly A. Hamilton, pp. 1–11. Washington, DC: Centre for Strategic and International Studies.
- King G and Zeng L (2001) Explaining rare events in international relations. *International Organization* 55(3): 693–715.
- Krieger T and Meierrieks D (2011) What causes terrorism? *Public Choice* 147(1–2): 3–27.
- Krueger AB (2007) *What Makes a Terrorist: Economics and the Roots of Terrorism*. New York: Cambridge University Press.
- LaFree G and Ackerman G (2009) The empirical study of terrorism: Social and legal research. *Annual Review of Law and Social Science* 5: 347–374.
- LaFree G and Dugan L (2007) Introducing the Global Terrorism Database. *Terrorism and Political Violence* 19(2): 181–204.
- LaFree G, Dugan L and Fahey S (2007) Global terrorism and failed states. In *Peace and Conflict*, eds J. Joseph Hewitt, Jonathan Wilkenfeld and Ted Robert Gurr, pp. 39–54. Boulder, CO: Paradigm.
- Li Q (2005) Does democracy promote or reduce transnational terrorist incidents? *Journal of Conflict Resolution* 49(2): 278–297.
- Lischer S (2005) *Dangerous Sanctuaries: Refugee Camps, Civil War, and the Dilemmas of Humanitarian Aid*. Ithaca, NY: Cornell University Press.
- Long JS and Freese J (2006) *Regression Models for Categorical Dependent Variables Using Stata*, 2nd edn. College Station, TX: Stata.
- Lujala P, Gleditsch NP and Gilmore E (2005) A diamond curse? Civil war and a lootable resource. *Journal of Conflict Resolution* 49(4): 538–562.
- Marshall MG (2008) Forcibly displaced populations, 1964–2008. United States Committee for Refugees and Immigrants (USCRI), *World Refugee Survey (Annual Series)* (<http://www.systemicpeace.org/inscr/inscr.htm>).
- Marshall M and Jaggers K (2007) POLITY IV Project: Political regime characteristics and transitions, 1800–2006, dataset users' manual (<http://www.systemicpeace.org/inscr/p4manualv2006.pdf>).
- McLaughlin K and Kilner J (2006) Danish aid workers stay away from Muslim ceremony. *Reuters*. February 9.
- Mickolus E, Sandler T, Murdock J and Flemming P (2008) *International Terrorism: Attributes of Terrorist Events, 1968–2008*. Dunn Loring, VA: Vinyard Software.
- Nezer M (2006) The material support problem: Where U.S. anti-terrorism laws, refugee protection, and foreign policy collide. *Brown Journal of World Affairs* 13(1): 177–190.
- Piazza JA (2008) Incubators of terror: Do failed states and failing states promote transnational terrorism? *International Studies Quarterly* 52(3): 469–488.
- Piazza JA (2011) Poverty, minority economic discrimination and domestic terrorism. *Journal of Peace Research* 48(3): 339–353.
- Plümper T and Neumayer E (2010) Model specification in the analysis of spatial dependence. *European Journal of Political Research* 49(3): 418–442.
- Political Instability Task Force (2007) Internal wars and failures of governance, 1955–2006 (<http://globalpolicy.gmu.edu/pitf/pitfpset.htm>).
- Prunier G (2008) *Africa's World War: Congo, the Rwandan Genocide, and the Making of a Continental Catastrophe*. Oxford: Oxford University Press.
- Roberts DL (2006) *Staying Alive: Safety and Security Guidelines for Volunteers in Conflict Areas*. Geneva: International Committee of the Red Cross.
- Rosenblum M and Salehyan I (2004) Norms and interests in US asylum enforcement. *Journal of Peace Research* 41(6): 677–697.
- Rotberg RI (2002) Failed states in a world of terror. *Foreign Affairs* 81(4): 127–140.



- Salehyan I (2008) The externalities of civil strife: Refugees as a source of international conflict. *American Journal of Political Science* 52(4): 787–801.
- Salehyan I (2009) *Rebels Without Borders: Transnational Insurgencies in World Politics*. Ithaca, NY: Cornell University Press.
- Salehyan I and Gleditsch KS (2006) Refugees and the spread of civil war. *International Organization* 60(2): 335–366.
- Sandler T and Enders W (2004) An economic perspective on transnational terrorism. *European Journal of Political Economy* 20(2): 301–316.
- Savun B and Phillips BJ (2009) Democracy, foreign policy, and terrorism. *Journal of Conflict Resolution* 53(6): 878–904.
- Schmid AP (1992) Terrorism and democracy. *Terrorism and Political Violence* 4(4): 14–25.
- Sidebotham TL (2004) Immigration policies and the war on terrorism. *Denver Journal of International Law and Policy* 32(3): 539–581.
- Tomz M, King G and Zeng L (1999) RELOGIT: Rare Events Logistic Regression, version 1.1. Cambridge, MA: Harvard University (<http://gking.harvard.edu/>).
- US Census Bureau, Population Division (2008) International database (IDB) (<http://www.census.gov/ipc/www/idb/summaries.html>).
- Weiner M (1992) Security, stability, and international migration. *International Security* 17(3): 91–126.
- Welch M and Schuster L (2005) Detention of asylum seekers in the UK and USA: Deciphering noisy and quiet constructions. *Punishment and Society* 7(4): 397–417.
- Whitaker R (1998) Refugees: The security dimension. *Citizenship Studies* 2(3): 413–434.
- Young JK and Findley MG (2011) Promises and pitfalls of terrorism research. *International Studies Review* 13(3): 411–431.
- Zard M (2002) Exclusion, terrorism, and the refugee convention. *Forced Migration Review* 13: 32–34.

Seung-Whan Choi is Associate Professor of Political Science at the University of Illinois at Chicago. His research interests include democracy, terrorism, globalization, and methodology. His work has appeared in the *American Journal of Political Science*, *British Journal of Political Science*, *International Studies Quarterly*, *Journal of Conflict Resolution*, *Journal of Peace Research* and elsewhere. His book with Patrick James is *Civil-Military Dynamics, Democracy, and International Conflict: A New Quest for International Peace* (Palgrave, 2005).

Idean Salehyan is an Associate Professor of Political Science at the University of North Texas. He is the author of *Rebels Without Borders: Transnational Insurgencies in World Politics* (Cornell University Press, 2009).

**Appendix I.** List of 154 Sample Countries.

---

Afghanistan	Costa Rica	Hungary	Mexico	Somalia
Albania	Croatia	India	Moldova*	South Africa
Algeria	Cuba	Indonesia	Mongolia*	Spain
Angola	Cyprus	Iran	Morocco	Sri Lanka*
Argentina	Czech Rep	Iraq	Mozambique	Sudan
Armenia	Dem. Rep. Congo	Ireland	Nepal	Swaziland
Australia	Denmark	Israel	Netherlands	Sweden
Austria	Djibouti	Italy	New Zealand	Switzerland
Azerbaijan	Dominican Rep.	Ivory Coast	Nicaragua	Syria
Bahrain*	Ecuador	Jamaica*	Niger	Taiwan*
Bangladesh	Egypt	Japan	Nigeria	Tajikistan
Belarus	El Salvador	Jordan	Norway	Tanzania
Belgium	Equatorial Guinea*	Kazakhstan	Oman	Thailand
Benin	Eritrea	Kenya	Pakistan	Togo
Bhutan	Estonia*	Korea, South	Panama	Trinidad and Tobago*
Bolivia	Ethiopia	Kuwait	Papua New Guinea	Tunisia
Bosnia	Fiji*	Kyrgyzstan	Paraguay	Turkey
Botswana	Finland	Laos	Peru	Turkmenistan
Brazil	France	Latvia*	Philippines	United Arab Emirates
Burkina Faso	Gabon	Lebanon	Poland	Uganda
Burundi	Gambia	Lesotho	Portugal	UK
Cambodia	Georgia	Liberia	Qatar*	Ukraine
Cameroon	Germany	Libya	Romania	Uruguay
Canada	Ghana	Lithuania*	Russia	USA
Central African Rep.	Greece	Macedonia	Rwanda	Uzbekistan
Chad	Guatemala	Madagascar*	Saudi Arabia	Venezuela
Chile	Guinea	Malawi	Senegal	Vietnam
China	Guinea Bissau	Malaysia	Sierra Leone	Yemen
Colombia	Guyana*	Mali	Singapore	Zambia
Comoros*	Haiti*	Mauritania	Slovakia	Zimbabwe
Congo	Honduras	Mauritius*	Slovenia	

---

\*Countries that did not host any refugees.

**Appendix 2.** Multicollinearity Diagnostics<sup>1</sup>.

	R <sup>2</sup>	Variance Inflation Factors	Square Root of VIFs
Refugee <sub>t-1</sub>	0.19	1.23	1.11
Democracy <sub>t-1</sub>	0.26	1.36	1.17
State Failure <sub>t-1</sub>	0.15	1.18	1.09
Econ Development <sub>t-1</sub>	0.21	1.26	1.12
Population <sub>t-1</sub>	0.21	1.26	1.12
Post-Cold War <sub>t-1</sub>	0.12	1.13	1.06
Terrorism <sub>t-1</sub>	0.11	1.13	1.06
Mean variance inflation factors		1.22	
	<i>Eigenvalues</i>	<i>Condition Index</i>	
1	4.33	1.00	
2	1.13	1.96	
3	1.05	2.03	
4	0.63	2.62	
5	0.46	3.05	
6	0.37	3.40	
7	0.02	14.80	
8	0.01	27.29	
Condition number		27.29	
Eigenvalues & Condition Index computed from the scaled raw sscp with an intercept			
Det(correlation matrix)		0.49	

<sup>1</sup>A general rule of thumb: a serious multicollinearity problem is suspected if R<sup>2</sup> is greater than 0.80, if the mean of all the variance inflation factors is considerably larger than 10, or if condition number exceeds 1000.