

# **Foreign Aid as a Counterterrorism Tool: State Capacity, NGOs, and Aid Delivery Channels\***

**Burcu Savun**

Assistant Professor

Department of Political Science

University of Pittsburgh

burcu@pitt.edu

**Jude C. Hays**

Associate Professor

Department of Political Science

University of Pittsburgh

jch61@pitt.edu

## **ABSTRACT**

Aid is theorized to reduce the supply of transnational terrorist attacks by promoting the economic development and defraying the cost of counterterrorism efforts of the recipient governments. We argue that the effectiveness of foreign aid in reducing terrorism depends on the capacity of governments and the NGO sector in recipient countries. Aid given directly to corrupt governments is unlikely to reduce terrorism, as aid capture and distortion are more likely in such environments. Similarly, aid is counterproductive if the recipient government uses repressive counterterrorism measures. On the other hand, aid delivered through NGOs should reduce the supply of transnational terrorism if the size and capacity of the NGO sector is sufficiently large. As the size of the NGO sector increases, organizational and transactional cost-sharing among NGOs becomes possible and their capacity to provide public goods and services improves. We estimate negative binomial regressions in two stages using control function methods on a sample of Official Development Assistance (ODA) countries between 2006 and 2009. The evidence is in line with our argument.

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## **I. INTRODUCTION:**

Preventing transnational terrorist attacks is one of the most significant challenges that nation-states face today. The urgency and importance of this problem creates strong incentives for policymakers to design efficient counterterrorism policies. Recent scholarship suggests that foreign aid can be an effective tool of counterterrorism, particularly against transnational terrorist groups, such as Al-Qaida, that use foreign (host) countries as a base to train recruits and operate. However, the factors that determine the efficacy of aid for counterterrorism purposes have yet to be identified. In this paper, we focus on two critical conditions: the capacity of governments to use aid effectively and the availability of robust channels of non-governmental aid delivery in recipient countries.

The literature has proposed two mechanisms that link foreign aid to a reduction in the supply of terrorism. Foreign aid can promote economic growth and development which reduces the level of grievances, mobilization and willingness of individuals to join terrorist organizations in recipient countries (e.g., Bueno de Mesquita 2005). Additionally, donors can use aid to finance repressive counterterrorism measures of the recipient countries hosting transnational terrorist organizations (e.g., Azam and Delacroix 2006; Azam and Thelan 2008, 2010; Bandyopadhyay, Sandler and Younas 2010).

We examine the conditions under which the two mechanisms — development and repression — are effective in reducing the supply of terrorism and provide an empirical evaluation of these conditioning factors. Not all recipient (host) countries have the capacity to use foreign aid to eliminate terrorist organizations on their soil. State capacity is multi-faceted, and the relevant dimension for using aid effectively to reduce terrorism depends on whether the

“development” or “repression” mechanism is employed. For a host state to target terrorism through economic growth and poverty reduction, it must have the ability to undertake the necessary development reforms. On the other hand, if a host state uses aid for crackdowns on mobilization, it needs to have the capacity to repress.

A growing body of empirical research suggests that donors choose not only the recipients and amount of aid to allocate but also how aid should be delivered (e.g., Radelet 2004; Dietrich 2010; Winters 2010). Aid can be channeled through both governments and non-state actors, such as NGOs and civil society organizations. Non-state actors can substitute for the central government in providing public goods and services, particularly when the central government is unable to supply them (e.g., Howard and Lind 2009; Fafchamps and Owens 2005; Koch 2009; Dietrich 2010). We argue that aid delivered through NGOs can be effective in reducing terrorism only when the capacity of the NGO sector in a recipient country is sufficiently large.

Our empirical analysis shows that aid given to finance repression is unlikely to reduce terrorism. Both the ability and inclination of governments to repress their citizens seems to make aid counterproductive, supporting the argument repressive regimes fuel societal backlash (e.g., Khawaja 1993; Araj 2008). On the other hand, aid extended to governments with good governance seems to reduce the supply of terrorism, but aid to corrupt ones is again counterproductive. With respect to delivery channels, we find that NGO aid is effective at reducing terrorism when the size and strength of the NGO sector in recipient countries are large.

Our article makes several contributions to the foreign aid effectiveness and counterterrorism literatures. It identifies the conditions under which aid reduces the supply of transnational terrorist attacks. It shows that foreign aid can be both an effective and counter-

productive counterterrorism tool for donor countries depending on the capacity of the governments and NGOs in the recipient countries. Aid given to governments that repress their citizens increases the supply of terrorist attacks. Similarly, if the recipient country has a high level of corruption, government-to-government aid transfers are terrorism-generating. Our paper also provides the first systematic analysis of the effectiveness of NGO aid as a counterterrorism tool. We show evidence that as the total number and expenditure of NGOs in a recipient country increase, aid delivered through NGOs become more effective in reducing the supply of terrorism. This effect holds both in well and poorly-governed countries.

The article proceeds as follows. In the next section, we review the recent literature on foreign aid and terrorism and discuss the mechanisms through which aid can curb the supply of terrorism. In the third section, we argue that the capacity of recipient states and the size of the NGO sector located in recipient countries are central to aid efficacy in counterterrorism. The fourth section outlines our research design and discusses endogeneity issues in aid allocation. Donors who give aid to reduce the supply of terrorism tend to target those countries whose citizens are most likely to supply it. To isolate exogenous aid allocations, we use instrumental variables that determine the relative capacity of governments and the NGO community in recipient countries. Next, we test our argument using a sample of Official Development Assistance (ODA) eligible countries, as defined by the OECD, and terrorist incidents originating from these countries between 2006 and 2009 using the International Terrorism: Attributes of Terrorist Events (ITERATE) dataset (Mickolus et al. 2006). We conclude with a brief review of our argument and discuss the potential policy implications of our findings and avenues for future research.

## II. AID, DEVELOPMENT, REPRESSION AND TRANSNATIONAL TERRORISM

The September 11, 2001 attacks sparked a critical policy debate on the use of foreign aid as a counterterrorism tool. President George W. Bush, in his oft-quoted 2002 speech, posited a positive association between poverty and terrorism, implying that fighting poverty in countries hosting terrorist organizations would reduce the number of transnational terrorist attacks.<sup>1</sup> If poverty breeds terrorism and aid promotes economic development, countries targeted by terrorism can extend aid to host countries to reduce the supply of terrorism. The significant increase in US aid given to Afghanistan and Pakistan after 2001 is a prime example of a targeted country using aid as a tool of counterterrorism.

The response from the scholarly community to this poverty-terrorism linkage was mixed. The first wave of empirical studies focused on the effect of macroeconomic conditions on the level of terrorist attacks (e.g., Abadie 2006; Blomberg, Hess and Weerapana 2004; Drakos and Gofas 2006, Li and Schaub 2004). However, this wave of research produced no consensus. The most skeptical response to the poverty-terrorism link came from Krueger and Maleckova (2002, 2003). These authors, using micro-level data, showed that terrorists are more likely to come from the upper-income and highly educated strata of society. In his recent book, Krueger (2007) concluded that poverty has little to do with terrorism.

On the other hand, Bueno de Mesquita (2005) showed that it is possible to observe both the micro-level finding that terrorists tend to have above average education and wealth and the macro-level outcome that improvement in economic conditions of a state reduce the supply of

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<sup>1</sup> The White House. 2002. *The National Security Strategy of the United States*. Washington, DC.

terrorist attacks.<sup>2</sup> Bueno de Mesquita's theoretical model is based on the observation that terrorist organizations are selective in their recruitment process, i.e., they screen volunteers to pick the most competent ones as operatives. Since the selection of terrorists is not random, it is not possible to reach a valid generalization about the composition of the pool of terrorist sympathizers by examining the characteristics of those who actually become terrorists (515). According to Bueno de Mesquita's model, when the economic conditions are bad in a country, unemployment is steep, and hence there is a higher supply of volunteers willing to engage in terrorism, including those with high levels of education and wealth. Bad economic conditions enable terrorist organizations to recruit more able individuals at a lower cost. Better economic conditions, on the other hand, reduce the pool of terrorist sympathizers by increasing the economic opportunities in the market. Therefore, by spurring economic growth, the international community can reduce the size of the pool of potential sympathizers and terrorists in countries that are home to terrorists organizations.

The original debate on the relationship between foreign aid and terrorism assumes that the effect of foreign aid on transnational terrorism is conditional on economic development. Aid can be effective in fighting terrorism to the extent that it can stimulate economic growth and reduce poverty in countries hosting terrorist organizations. However, the relationship between aid and development can be tenuous. There is no scholarly consensus on the extent to which

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<sup>2</sup> In a similar vein, Benmelech, Berrebi, and Klor (2010) find that bad economic conditions improve the quality of terror, i.e., high unemployment levels enable terrorist organizations to use more qualified individuals for complex and higher-impact terror attacks.

foreign aid spurs growth and leads to poverty reduction in aid recipient countries.<sup>3</sup> Clearly, aid is unlikely to have any discernible effect on terrorism if it does not generate economic development in the first place.

Most scholars attribute aid ineffectiveness in promoting growth to the presence of weak institutions and high corruption in recipient countries (e.g., Burnside and Dollar 2000; Dalgaard, Hansen and Tarp 2004; Svensson 1999). However, donors can choose alternative channels for aid delivery in poorly governed countries. The recent empirical research on aid effectiveness shows that by giving aid to NGOs and other non-state actors in weak states, donors can still achieve their developmental objectives (Radelet 2004; Dietrich 2010). As we will discuss in the next section, this finding has important implications for the effectiveness of aid as a counterterrorism tool.

Even if aid fails to promote economic development in recipient countries, it may still reduce the supply of transnational terrorism. Recent papers by Azam and Thelan (2008, 2010) propose an alternative mechanism that links aid directly to the supply of terrorism in host countries.<sup>4</sup> The authors argue that aid enables host governments to invest in repressive

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<sup>3</sup> See Boone 1996; Easterly 2003; Hansen and Tarp 2000; Hudson and Mosley 2001; Burnside and Dollar 2000; Kosack and Tobin 2006.

<sup>4</sup> Azam and Thelan (2008, 2010) argue that supporting education through foreign aid can also reduce the supply of terrorist attacks. However, in their theoretical model, it is not education *per se* that reduces terrorism. Instead, the government's objective function determines an optimal level of human capital that can be achieved with fewer domestic resources. Foreign aid

counterterrorism measures and thereby dampen terrorism. Aid can augment general budget of host countries and free up resources that domestic leaders can use towards repressive measures against terrorists. Counterterrorism decreases terrorist attacks by reducing the likelihood that terrorist organizations carry out successful attacks, making mobilization efforts more difficult. Therefore, host countries do not necessarily need to engage in social spending, i.e., poverty reduction, to be able to reduce the supply of terrorist attacks. Government crackdowns can achieve a similar dampening effect on mobilization.

However, governments face a trade-off when they use repression to deter terrorism. As much as government crackdowns may decrease the ability of terrorists to carry out attacks, they can also facilitate the mobilization of potential terrorists by increasing grievances against the government (e.g., Francisco 1995; Bueno de Mesquita 2005; Rosendorff and Sandler 2004, Dragu 2011). If the net effect of repression is to increase mobilization, aid used for repressive measures becomes counterproductive. Therefore, the dangers of a mobilization backlash may make repression mechanism an optimal choice of counterterrorism for host governments only under certain circumstances (e.g., Bueno de Mesquita 2005; Bueno de Mesquita and Dickson 2007; Sandler and Siquiera 2006).

In sum, the literature has proposed two mechanisms through which foreign aid reduces the supply of terrorist attacks from aid-recipient countries. The first mechanism is economic development, spurred by aid channeled through both governments and NGOs. The second mechanism suggests a direct link between aid and terrorism. Aid frees up resources for

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earmarked for education frees up resources that can be used for repression, which, in turn, reduces the supply of terrorism.



repressive counterterrorism measures in host countries. What are the conditions under which each mechanism is effective in reducing the supply of terrorism? We tackle this question next.

### **III. STATE CAPACITY, NGOs, and TRANSNATIONAL TERRORISM**

With either mechanism - economic development or repression - the host state's capacity is central. For aid to promote development, the recipient country needs to have the capacity and inclination to effectively formulate and implement sound economic policies. The effective use of aid funds, therefore, depends on the quality of governance in recipient countries (e.g., Collier and Dollar 2002; Dietrich 2010).<sup>5</sup> Recipients with good governance are more likely to use aid effectively. Corrupt governments, on the other hand, are likely to divert aid for personal and non-developmental purposes and fail to deliver the policies, programs and reforms necessary to promote economic development.<sup>6</sup> In some countries, leaders use aid for consumption rather than investment and in other cases aid may not even make to the budget from the treasury (Boone 1996; Wright and Winters 2010). Therefore, if the recipient government is corrupt, foreign aid is unlikely to be an effective counterterrorism tool.

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<sup>5</sup> This does not necessarily imply that donors always prefer to extend aid to countries with good governance. Alesina and Weder (2002) find that Scandinavian countries give more aid to less corrupt countries, while corruption is positively correlated with aid received from the United States. Others find no evidence that aid goes disproportionately to less corrupt governments (e.g. Alesina and Dollar 2000; Azam and Thelen 2010; Svensson 2000, Neumayer 2003a, 2003b).

<sup>6</sup> Some contend that foreign aid increases the level of corruption in recipient countries. However, the empirical evidence on the effect of foreign aid on corruption is mixed (Svensson 2000; Tavares 2003).

Foreign aid may even increase the number of terrorist incidents by provoking a societal backlash against the recipient government. If the recipient government is widely perceived to be corrupt and unjust by its citizens, aid may generate popular support for terrorist organizations fighting against the government and its foreign benefactors (Azam and Thelan 2010). This leads to two hypotheses about the conditioning effect of good governance on the relationship between aid and the supply of terrorism originating from recipient countries.<sup>7</sup>

**H1a:** Giving aid to governments with the capacity to manage aid effectively to promote economic development decreases the number of transnational terrorist incidents.

**H1b:** Giving aid to governments perceived by domestic audiences to be corrupt increases the number of transnational terrorist incidents.

When faced with corrupt governments, donors may seek alternative channels to funnel aid, such as NGOs, civil society organizations, multilateral organizations, and public-private partnerships in recipient countries (Koch 2009; Radelet 2004; Dietrich 2010). By the end of 1990s, NGOs had become important players in development policy and proven to be effective in service delivery, social welfare provision, and the technical implementation of reforms in recipient countries with low levels of governance (Howard and Lind 2009; Fafchamps and Owens 2005; Koch 2009). In addition, NGOs have the advantage of reaching the poor more directly than governments due to their smaller scale of operation (Koch 2009; Meyer 1995). Furthermore, NGOs can be effective in winning minds and hearts of the public by building alliances with moderate groups and preventing the breeding of terrorism through anti-radicalization programs (Howard and Lind 2009, 52).

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<sup>7</sup> These hypotheses are not mutually exclusive, of course.

However, the existence of NGOs does not guarantee the effective use of aid for development purposes. The capacity of NGOs, which is determined, *inter alia*, by the size of the NGO sector in a country, is critical. In theory, size can have both positive and negative effects on capacity. On the positive side, the concentration of NGOs in a recipient country may signal the ability of the non-state actors to help deliver public goods and services. Koch (2008) defines agglomeration as the “spatial concentration of a large number of comparable NGOs within a certain geographic area” (3). NGO agglomeration can lead to organizational and transactional cost-sharing and other complementarities—such as learning spillovers—that improve the capacity of NGOs to provide services (Fafchamps and Owens 2005; Barr and Fafchamps 2006). Therefore, recipient countries with high concentration levels of NGOs may be more effective in promoting economic development and thereby reducing the grievances and size of the pool of terrorist sympathizers, leading to a reduction in the supply of terrorist attacks.<sup>8</sup>

**H2a:** Giving aid to NGOs with high levels of agglomeration reduces the supply of transnational terrorism.

However, the cooperation literature has suggested that high number of actors reduces the incentives for cooperation. Collective action problems can lead to an undersupply of public goods (Olson 1965). The clustering of NGOs may thus prevent their efficient use of aid. Moreover, fierce competition for limited resources arises as the size of the NGO sector increases,

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<sup>8</sup> The determinants of the geographical choices of NGOs are still debated in the literature, although the poverty and governance levels of recipient countries and donor preferences are considered to be among the key factors that influence NGO location decisions (e.g., Koch 2009; Nancy and Yontcheva 2006).

making net agglomeration effects negative (Cooley and Ron 2002; Koch 2009). Therefore, diseconomies of agglomeration caused by the high density of NGOs in a country can make aid to NGOs an ineffective counterterrorism tool. This leads to a competing hypothesis:

**H2b:** Giving aid to NGOs with high levels of agglomeration is ineffective at reducing transnational terrorism.

Economic development is not the only theoretical mechanism through which aid reduces the supply of terrorist attacks originating from the recipient country. Recent formal work shows that donors can subsidize host government's proactive counterterrorism efforts to eliminate indigenous transnational terrorist groups (Azam and Delacroix 2006; Azam and Thelan 2008, 2010; Bandyopadhyay, Sandler and Younas 2010). By augmenting host government's general budget, aid frees up resources that recipient leaders can use to bolster their repressive capacity. Harsh state repression increases the cost of mobilization and makes it difficult for terrorist organizations to carry out attacks.

**H3a:** Giving aid to states with the capacity and willingness to repress their publics leads to fewer transnational terrorist incidents.

However, repression can be counterproductive. High levels of repression can reinforce popular resistance and radicalize the moderates and provide legitimacy to the terrorist groups (Araj 2008; Bueno de Mesquita and Dickson 2007; Khawaja 1993; Lake 2002). If recipient governments repress their societies on behalf of foreign donors, it could further increase public support for terrorist organizations and cause backlash attacks (e.g., Arce and Sandler 2010; Bueno de Mesquita 2005). Backlash is particularly likely if the recipient country is an unstable regime with weak institutions (Bandyopadhyay, Sandler and Younas 2010).

**H3b:** Giving aid to states with the capacity and willingness to repress their publics increases the number of transnational terrorist incidents.

#### **IV. RESEARCH DESIGN AND FINDINGS**

We test our hypotheses on a sample of Official Development Assistance (ODA) eligible countries for the years 2006 through 2009.<sup>9</sup> The dataset is cross-sectional, and the data are recorded either as predetermined 2005 values or averages over the period 2006-2009.<sup>10</sup> The unit of analysis is an aid-eligible country.

Our dependent variable is the number of terrorist attacks originating from each aid-eligible country. The data come from the International Terrorism: Attributes of Terrorist Events (ITERATE) dataset (Mickolus et al. 2006), which define transnational terrorist attacks as “the use, or threat of force, of anxiety-inducing, extra-normal violence for political purposes by any

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<sup>9</sup> Two factors limit the temporal domain of our study: the OECD began collecting information on aid delivery channels only in 2004 onwards and the data on NGO capacity, one of the important predetermined variables in our analyses, is available only for 2005.

<sup>10</sup> Our cross-sectional analyses in this paper are only a starting point. We intend to estimate panel (TSCS) models in future research, but the strategies for incorporating and estimating temporal and spatial interdependence in count models are still being developed (e.g., Brandt et al. 2000, Lambert et al. 2010, Hays and Franzese 2009), and our primary methodological concern at this point is the endogeneity of aid. Getting the spatial and temporal dynamics right is an important, but secondary concern to our current focus on sound causal inference. That said, we do include, in a preliminary way, spatial and temporal interdependence in our empirical models using lagged variables.

individual or group, whether acting for or in opposition to established governmental authority, when such action is intended to influence the attitudes and behavior of a target group wider than the immediate victims” (Mickolus et al. 2006, 2). We calculated the number of terrorist attacks for each recipient country by the perpetrator’s nationality and aggregated the attacks over the period between 2006 and 2009 to produce the total number of attacks originating from each aid-eligible country.<sup>11</sup> In our sample, there are a total of 347 terrorist incidents originating from 60 different countries.<sup>12</sup> The highest numbers of incidents are from Nigeria (48), Afghanistan (31), Pakistan (30), Iraq (22), and Somalia (19).

Our primary independent variable is the total amount of foreign aid delivered to governments and NGOs in recipient countries. We distinguish between government-to-government aid and aid channeled through NGOs. We measure *Public Aid* in constant 2008 US million dollars as the total amount of Official Development Aid channeled to governments. *NGO Aid* is the total of amount of Official Development Aid given to NGOs in constant 2008 US million dollars. Both aid variables are annual averages for the period 2006-2009.

We argue that the effect of aid on the supply of transnational terrorist attacks depends on the capacity of the agents through which the resources are channeled. To measure the quality of

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<sup>11</sup> If more than one nationality is perpetrator in a terrorist event, we code one event for each nationality involved.

<sup>12</sup> Technically, there are 221 geographical units in the ITERATE dataset. Most, but not all, of these units are states. For example, the Isle of Man, which is a British crown dependency, is included in ITERATE. In the end, none of these non-state geographical units contributes to our statistical analyses because of missing data. Our largest sample includes 131 aid-eligible states.

state institutions and governance capacity in recipient countries, we use the corruption indicator from the International Country Risk Guide (propriety of the Political Risk Services [PRS] Group). *Corruption* measures the extent of patronage, nepotism, and ties between the government and business in a country and ranges from 0 to 6, high numbers indicating low levels of corruption.<sup>13</sup> The average level of corruption in our sample of aid-eligible countries is about 2. As proxies for the capacity of the NGO sector, we use both the number of international NGOs operating in recipient countries in 2005 and their expenditures. The data for both variables come from the Non-Government Development Organization Database on Country Expenditures (Koch 2007). Koch (2007) derives his data using annual reports and surveys from a sample of international NGOs. He uses two criteria for the NGO sample selection: An NGO has to spend more than €10 million in 2005 but less than 50 % of its expenditure should be on humanitarian aid. Sixty-one international NGOs meet these criteria. The median number of NGOs in our sample of recipient countries is 15, and the mean level of NGO expenditures is about €30 million.

In our theory, if governments use ODA to free up resources for repressive activities (Azam and Thelen 2010), the effect of this behavior on the supply of terrorism will depend on the repressive capacity of the state. We measure a recipient government's capacity and inclination to repress its citizens by two variables. The first one is military capacity. The national military of a state is considered to be the centerpiece of the state's repressive capabilities (Hendrix 2010, 274). We operationalize military capacity with logged *military spending* per

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<sup>13</sup> For robustness check, we run additional models with *Control of Corruption* and *Effective Governance* measures from the Worldwide Governance Indicators (Kaufmann et al. 2009). The results qualitatively are similar.

capita and *military personnel* per capita. The data for both variables come from the Correlates of War Material Capabilities dataset (Wayman, Singer and Goertz, 1983). Our second measure of repression focuses on a state's human rights practices. We use the Political Terror Scale (PTS) dataset to measure the scope, intensity, and range of a state's violations of its citizens' physical integrity rights (Gibney, Cornett, and Wood 2009).<sup>14</sup> *Political Terror* ranges from 1 to 5, where 1 represents countries with secure rule of law and 5 refers countries with widespread civil rights violations.

We also control for the economic development and population of the recipient countries. *GDP* is the natural log of real GDP in constant 2000 international dollars. *Population* is the natural log of population in thousands of individuals. Data for both variables come from World Bank's World Development Indicators.

The primary challenge for our empirical analysis is the endogeneity of aid flows. Donors hoping to reduce the supply of terrorism will target countries whose nationals perpetrate large numbers of terrorist incidents. If this is the case, and the econometrics fails to address the problem, we are likely to conclude that aid causes an increase in the supply of terrorism when in fact it does not. In our analysis, we address the endogeneity problem using instrumental variables. Our strategy hinges on the assumption that rational donors will give more aid when they expect these resources to achieve their objectives. This explains why donors give more aid to countries that produce many terrorists, but it also implies that donors will channel aid through

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<sup>14</sup> Scope refers to the type of violence being carried out by the state (imprisonment, torture, killing, etc.). Intensity refers to the frequency with which the state employs a given type of violence and range is the portion of the population targeted for abuse (Wood and Gibney 2010, 373).



high-capacity agents. Thus, instruments that exogenously alter the capacity of governments and NGOs will exogenously influence the level of aid that flows to these actors as well.

We estimate negative binomial regressions in two stages using control function methods. Our models incorporate spatio-temporal dependence in the supply of terrorism with spatial and temporal lags of the dependent variable. We calculate the spatial lag using a row-standardized binary contiguity weights matrix and predetermined (2005) counts of terrorist incidents. Thus, the spatial lag is the average number of terrorist incidents in each country's "neighbors" as defined by shared borders. The temporal lag for each country is its 2005 count of terrorist incidents. In other words, to capture temporal dependence in the supply of terrorism, we make the total count of terrorist incidents perpetrated by a country's nationals from 2006 to 2009 a function of the 2005 count.

We instrument for the amount of aid in the first stage with three instruments: *the total number of natural disasters* and their *estimated total damage during the 1990s* and *settler mortality* in recipient countries. For government-to-government aid, we use the total number of natural disasters in 1990s and settler mortality. For aid channeled through NGOs, we use the total number of natural disasters and their estimated total damage during the 1990s.<sup>15</sup>

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<sup>15</sup> Interestingly, settler mortality is not a strong predictor of aid to NGOs and the estimated total damage of natural disasters is not a strong predictor of aid to governments. This suggests that NGO capacity affects aid to governments, but state capacity does not determine aid to NGOs. Therefore, we use a different set of instruments for aid to governments and aid to NGOs rather than using the same three instruments for both delivery channels.

We argue that the size and strength of the NGO sector, through agglomeration effects, determines capacity of NGOs to promote economic development with aid money. We use natural disasters in the 1990s as our instrument for aid channeled through NGOs. Our logic is that the severity of a country's experience with natural disasters in the 1990s randomly and exogenously determines the number of foreign NGOs operating within its borders, even a decade or more later. Due to fixed costs, agglomeration and other sources of path dependence, once established in a country, some of these organizations stay for the long term. In our case, countries that experienced unusually large numbers of natural disaster in the 1990s will have larger NGO sectors in 2006-2009 than they would have had counterfactually under a less severe experience. If donors give aid instrumentally, this implies there is an exogenous component of aid given to NGOs in the latter part of the 2000s that is determined by a country's historical experience with natural disasters in the 1990s and not in response to or in anticipation of the number of terrorist incidents recorded in our sample.

We use two measures of natural disasters, *Total Disasters* and *Estimated Damage Total*. *Total Disasters* provides a count of the total number of geological disasters in a country during the 1990s. Geological disasters include such phenomena as droughts, earthquakes, extreme temperatures, floods, mass movements (dry), mass movements (wet), storms, volcanic eruptions, and wildfires. *Estimated Damage Total* is the total estimated monetary damages incurred by all geological disasters in a given country during the 1990s, recorded in millions of US dollars. These data are obtained from the Centre for Research on the Epidemiology of Disasters' (CRED) International Disaster Database.<sup>16</sup>

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<sup>16</sup> <http://www.emdat.be/>. Accessed January 23, 2011.

The data on settler mortality are taken from Acemoglu et al (2001: 1382-83), who base their estimates on the work of Philip Curtin (1989, 1998). *Settler mortality* is a logged representation the “standard annualized deaths per thousand men” based on military records from the European colonizers for the period from 1817-1848 (Acemoglu et al 2001:1382). Acemoglu et al.(2001) argue that the colonial European powers established “better” (i.e., less extractive) institutions in countries where their settlers faced low mortality rates, and that these institutions persist to the present. Thus, some state capacity, and, as a result, some developmental assistance given to governments is determined by the 19<sup>th</sup> century experiences of colonized countries, specifically the rates at which their European settlers died.

Diagnostics suggest that our instruments are both strong and excludable. Table 1 presents the first stage results for our development models. Both aid to governments and aid to NGOs can affect the supply of terrorism through economic development. We use the total number of natural disasters in the 1990s and logged European settler mortality to instrument for aid channeled through governments from 2006 to 2009. For each aid variable, we present two specifications, one for a parsimonious second stage regression with spatial and temporal lags, and one for a model with additional control variables. In general, the F-statistics indicate that our excluded instruments are strong predictors of the endogenous aid variables.<sup>17</sup> We easily reject the null

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<sup>17</sup> In the simple linear outcome model with one endogenous regressor, the inverse of the F-statistic for the excluded instruments provides an estimate of the relative finite-sample bias of two-stage least squares relative to ordinary least squares (Buse 1992, Bound et al. 1995). Although these values are only suggestive in our context—given the count nature of our dependent variable, we do not estimate using two-stage least squares—the inverse F-statistics for our first-stage regressions never exceed 0.13.

hypothesis in all four models. We also provide the uncentered  $R^2$  statistics from an auxiliary regression of the residuals from a linear outcome model (i.e., a linear version of our second-stage regression) on the exogenous regressors and excluded instruments. These residuals are the unexplained part of our dependent variable, the terrorist incident count. If, controlling for the exogenous regressors, our instruments explain a substantial portion of the unexplained variance in our terrorism incident count variable, they are not excludable from the second-stage regression. Fortunately, they do not. Again, these results are only suggestive, but the  $R^2$  statistics are vanishingly small.<sup>18</sup> To repeat in a slightly different way, our excluded instruments—natural disasters in the 1990s and settler mortality—do not account for much of the unexplained variance in terrorist incident counts during 2006-2009, which suggests that they only affect the supply of terrorism indirectly through our endogenous variables, development aid channeled through governments and NGOs during 2006-2009.

We estimate the effect of foreign aid on the number of transnational terrorist attacks using the Control Function Approach (Wooldridge 1997, 2010).<sup>19</sup> Control functions provide a relatively simple way to get consistent coefficient estimates for nonlinear functions of endogenous right-hand-side variables, such as when endogenous variables are interacted with other endogenous or exogenous variables. Another advantage of the control function approach is that it is likely to be more efficient than two-stage instrumental variable estimation (e.g., pseudo-

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<sup>18</sup> With simple linear outcome model,  $nR^2$  is the familiar Sargan-Hansen statistic. When we compute these statistics for our models, the largest value is 1.84, which falls considerably short of the conventional critical value. The results are suggestive only because our outcome model is a negative binomial regression.

<sup>19</sup> Azam and Thelan (2008, 2010) also use a control function.

maximum likelihood estimators). The control function is implemented by including the first stage residuals in the second stage regression.<sup>20</sup> We present the second stage results for our development models in Table 2.

We evaluate **H1** in Models 5 and 6. A finding that development aid channeled through clean governments, governments that score high on this corruption index, reduces the supply of terrorism would support **H1a**. If we find that development aid channeled through corrupt governments, ones low on the ICRG corruption index, increases the supply of terrorism, it would provide empirical support for **H1b**.

Model 5 in Table 2 provides the results for our parsimonious ODA-to-government model specification. We find evidence of temporal dependence in the supply of terrorism, but not spatial interdependence. It could be that spatial clustering in corruption accounts for the spatial patterns in terrorism that others have identified (e.g., Hays and Franzese 2009). Nor do we find evidence of endogeneity in aid to governments. The individual coefficient estimates on the ODA stand-alone and ODA-Corruption interaction variables are statistically insignificant, but together they are jointly significant, and the marginal effects, presented in Figure 1, are statistically significant for corrupt governments. In other words, the estimates support **H1b**: when aid is channeled through corrupt governments, we observe an increase the expected number of terrorist incidents. However, we fail to find support for **H1a**.

For the marginal effect estimates in Figure 1 all variables are at their sample means. The bands represent the 90% confidence interval for these effect estimates. At a corruption score of

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<sup>20</sup> This differs from two-stage instrumental variable methods that include predicted values of the endogenous variables in the second-stage regression.

1, the level of corruption for Haiti in 2009, a \$1 million increase in official development assistance increases the expected number of terrorist incidents by .003. This may seem small, but this estimate does not incorporate any spatial or temporal dynamics. In terms of elasticity, the effect is .672: a one-percent increase in ODA to corrupt governments results in an approximately .672% increase in the expected count of transnational terrorist incidents originating from that country. These results are not robust to the inclusion of controls, but given the extremely small sample size, this is not particularly surprising.

To evaluate **H2**, we use the number of NGOs and total NGO expenditures as proxies for the overall capacity of the NGO sector in recipient countries. Model 7 provides the results for our parsimonious NGO model specification. We find evidence of both spatial and temporal dependence in the number of terrorist incidents. The coefficients on both the temporal and spatial lag variables are positive and statistically significant. The coefficient estimate for the first-stage residual is also positive and statistically significant suggesting that aid to NGOs is endogenous. Donors channel more development aid through NGOs in countries whose nationals perpetrate greater numbers of transnational terrorist attacks. Controlling for this endogeneity, we find that providing development aid to NGOs reduces the supply of terrorism and that its effectiveness in cutting the number of terrorist incidents increases with the capacity of the NGO sector. We measure NGO sector capacity using total NGO expenditures, but the results are the same if we use the NGO count instead. The coefficient on our NGO expenditures and development aid to NGOs interaction term is negative and statistically significant. In Model 8, we add logged population, logged GDP and the ICRG corruption scores as control variables. The coefficient estimate for logged population is positive and statistically significant. Importantly, the Model 8 results demonstrate that channeling aid through NGOs is effective in both well and poorly

governed countries. When we add these controls, the individual coefficients on the spatial and temporal lags lose their statistical significance, although they remain jointly significant ( $p < .01$ ). The rest of the estimates are similar to those from the parsimonious model.

Given the nonlinear nature of the negative binomial model, it is difficult to interpret the size of effects from the estimated coefficients alone. We present the effect calculations for the parsimonious model in Figure 2. The marginal effects of an increase in development aid are largest when both pre-determined NGO expenditures and ODA to NGOs are large. Figure 3 presents marginal effects when ODA to NGOs is at the 90<sup>th</sup> percentile in our sample (\$140 million in constant 2008 dollars). When 2005 NGO expenditures are €60 million and all other variables are at their sample means, the estimated effect of increasing ODA channeled through NGOs from \$140 to \$141 million is to reduce the expected count of terrorist incidents by .017. The marginal elasticity at this point is -2.15: a one-percent increase in aid results in 2.15% decrease in the expected count of terrorist incidents. Importantly, these effect estimates are pre-dynamic in that they do not include either spatial feedback or temporal cumulation.

We test **H3** in Tables 3 and 4. Table 3 presents the first stage results for our repression models. Again, the F-statistics indicate that our excluded instruments—total number of natural disasters and logged European settler mortality—are strong predictors of the endogenous aid variables, and the uncentered  $R^2$  statistics, which are very small, suggests that they only affect the supply of terrorism indirectly through our endogenous aid variables.<sup>21</sup>

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<sup>21</sup> See fn. 17 and 18 for a discussion of these suggestive diagnostics. The largest value for the Sargan-Hansen statistics in Table 3 is 2.4, which is not statistically significant at conventional levels.

Table 4 provides the second-stage estimates for our repression models. We use logged military expenditures as our proxy for the capacity of governments to repress their populations. The estimates for the parsimonious model specification are presented in Model 13. We find evidence of temporal dependence in the supply of terrorism, but no evidence of either spatial interdependence in terrorism or endogeneity in ODA flows. The individual coefficient estimates on the ODA standalone and ODA-expenditures interaction variables are both statistically significant. These results support **H3b**: ODA to governments with high military capacity increases the number of terrorist incidents while ODA to governments with low military capacity decreases the number of terrorist incidents. One plausible explanation for this is that governments with large militaries use development aid to free up resources to bolster their militaries and repress, and this provokes a backlash, while governments that spend little on their militaries use aid to promote economic development. These results are robust to the inclusion of our controls.

In Figure 3, we graph the marginal effect estimates for ODA at different levels of military spending with all other variables held at their sample means. A \$1 million increase in ODA to a government that has logged per capita military expenditures of 14, the level of Angola in our sample, increases the number of terrorist incidents by .003 while the same increase in ODA to a government that has logged expenditures of 9, Mauritius in our sample, decreases the number of terrorist incidents by .0003. The elasticity estimates for these effects are 1.05 and -0.90 respectively.

Models 15 and 16 in Table 4 present the results for our political terror variable, which measures both the capacity and willingness of governments to repress their citizens. In this case, the interaction term (i.e., the product of ODA to governments and political terror) adds very little



explanatory power to the model. The coefficient is statistically insignificant and even has the wrong sign. Given the nonlinear nature of the negative binomial model, this does not mean that the effect of ODA on terrorism is constant across levels of political terror. What it does mean is that the interactive relationship, if it exists, is fully captured by the functional form of the model. Therefore, we present estimates for both the parsimonious and full model specifications without interaction terms. For the parsimonious specification, we find evidence of both temporal dependence and negative spatial interdependence. The coefficients on both the ODA and political terror variables are statistically significant.

To see how ODA and political terror interact to affect the supply of terrorism, we graph the conditional marginal effects of ODA in Figure 4. All covariates are set to their sample means. At the lowest level of political terror in our sample (e.g., Costa Rica), there is no evidence of a backlash—that is, no evidence that aid to governments is counterproductive. However, at Uganda’s level of political terror in our sample (4.5), the effect of a \$1 million increase in ODA is to increase the expected count of terrorist incidents by .003. The elasticity estimate is .455: a one-percent increase in ODA increases the expected count of terrorist incidents by approximately half a percent. These results are robust to the inclusion of our controls, logged GDP and logged population (Model 16, Table 4).

## **V. CONCLUSION:**

Countries use various combinations of defensive and proactive measures to protect themselves from terrorism abroad. If a terrorist organization uses a foreign (host) country as a base for its operations and training, targeted countries’ security partly relies on the host country’s counterterrorism measures. One way a targeted country can protect itself from transnational

terrorism is through extending aid to host countries with the aim of bolstering its capacity to fight against terror. In this article, we investigated the efficacy of foreign aid as a counterterrorism tool.

We argued that terrorism-suppressing effect of foreign aid is conditional on two critical factors: capacity and inclination of the recipient governments to use aid to reduce the ability of terrorist organizations operate on their soil and the availability of robust non-governmental aid delivery channels in the recipient countries. We showed that the delegated fight against terrorism works if the recipient (host) country has good governance and/or the size and capacity of NGO sector in the recipient country is sufficiently high. On the other hand, foreign aid is a counterproductive counterterrorism tool if the recipient country is repressive and/or corrupt.

Our findings, although tentative, have important policy implications. The evidence suggests that repressive counterterrorism measures may not be the optimal way to fight terrorism. Government crackdowns and harsh repressive measures funded by foreign aid can create a societal backlash and lead to more support for terrorist groups and thereby increase the supply of terrorist attacks. Therefore, donors should be wary of the potential adverse effects of counterterrorism-conditional aid. In a recent paper, Bandyopadhyay, Sandler and Younas (2010) present a formal model to show the potential destabilizing effects of counterterrorism aid. We did not examine the effectiveness of counterterrorism aid in this paper, partly because of data limitations, but we hope to explore this topic in future research.

However, giving general development aid to countries that host transnational terrorist groups is not always a panacea, either. We find that if a recipient country is marred with corruption, development aid increases the supply of transnational terrorism. For aid to reduce

terrorism through economic development, the recipient country needs to have the capacity and inclination to effectively formulate and implement sound economic policies. Donor countries should, therefore, pay attention to the quality of institutions in recipient countries if they want to see positive returns from aid.

Perhaps the most exciting finding of our study is the efficacy of aid channeled through NGOs. Most studies of foreign aid treat aid delivery channels in recipient countries as homogenous. However, a new of line research in foreign aid literature shows that donors can choose among various types of delivery channels and the choice of aid delivery channels is consequential on the likelihood of achieving the desired outcome (e.g., Radelet 2004; Dietrich 2010). Using this insight, we disaggregate aid to governments and aid to NGOs and find that aid channeled through NGOs is particularly effective in reducing the supply of transnational terrorism when the size and strength of NGO sector in recipient countries are sufficiently high. This finding is in line with our other results showing the adverse effects of repression. Aid delivered through NGOs is less likely to be used for proactive repressive measures and hence unlikely to create resentment by the public, reducing the mobilization and support for terrorism. This suggests that donor countries should take the role of NGOs in development process seriously and channel more resources to NGOs as the goods and services provided by NGOs can have important positive externalities in the security realm.

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**Table 1. First Stage Estimation of Aid Allocation—Development Models**

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
<b>Total Disasters_90s (Instrument)</b>	3.246 (6.66)***	1.696 (2.70)***	-0.558 (4.87)***	-0.592 (4.20)***
<b>Estimated Cost of Disasters_90s (Instrument)</b>			0.002 (3.85)***	0.002 (3.42)***
<b>NGO count</b>			1.266 (3.10)***	0.968 (1.82)*
<b>NGO expenditure</b>			1.316 (8.52)***	1.142 (6.41)***
<b>Settler Mortality (Instrument)</b>	112.789 (3.71)***	99.307 (2.87)***		
<b>Corruption (ICRG)</b>	72.360 (1.47)	68.705 (1.49)		-7.081 (1.18)
<b>Spatial lag</b>	239.533 (0.88)	89.513 (0.34)	4.769 (0.33)	5.361 (0.30)
<b>Temporal lag _2005</b>	35.336 (1.37)	18.817 (0.78)	12.234 (10.73)***	10.554 (8.81)***
<b>Real Gdp per capita (logged)</b>		-20.471 (0.60)		-7.437 (1.83)*
<b>Population (logged)</b>		125.830 (3.07)***		16.395 (2.87)***
Constant	-576.017 (2.86)***	-1,146.247 (1.57)	-2.669 (0.46)	50.559 (0.69)
F-Test	26.49***	7.89***	11.84***	8.93***
R <sup>2</sup> (Auxiliary Regression)	.001	.002	.001	.021
N	62	61	131	87
R-squared	0.56	0.65	0.80	0.83
Absolute value of t statistics in parentheses				
* significant at 10%; ** significant at 5%; *** significant at 1%				

**Table 2. Second State Estimation of Transnational Terrorist Incident Count Model, 2006-2009 – Development Models**

	<b>Model 5</b>	<b>Model 6</b>	<b>Model 7</b>	<b>Model 8</b>
<b>ODA_Public</b>	0.003 (1.43)	0.002 (0.61)		
<b>Corruption</b>	-0.457 (0.95)	-0.619 (1.22)		-0.459 (1.49)
<b>ODA_Public * Corruption</b>	-0.001 (0.59)	-0.001 (0.64)		
<b>Endogeneity bias (Residuals)</b>	0.001 (1.27)	0.003 (1.56)	0.037 (2.12)**	0.021 (1.73)*
<b>ODA_NGO</b>			-0.005 (0.28)	0.007 (0.53)
<b>NGO_ Expenditure</b>			0.061 (2.49)**	0.035 (2.53)**
<b>ODA_NGO* NGO_ Expenditure</b>			-0.000 (2.91)***	-0.000 (2.36)**
<b>NGO_Count</b>			-0.037 (1.12)	-0.076 (2.49)**
<b>Real GDP per capita (logged)</b>		0.219 (1.09)		-0.067 (0.25)
<b>Population (logged)</b>		0.318 (1.02)		0.425 (2.46)**
<b>Spatial lag</b>	-0.973 (0.52)	-1.185 (0.59)	2.087 (2.24)**	1.574 (1.61)
<b>Temporal lag</b>	0.508 (4.22)***	0.483 (4.21)***	0.383 (2.25)**	0.157 (0.98)
Constant	0.086 (0.08)	-4.085 (1.37)	-1.155 (3.06)***	-2.535 (1.15)
Joint Wald Test	7.59**	.44	13.55***	8.55**
N	62	61	131	87
Robust z statistics in parentheses				
* significant at 10%; ** significant at 5%; *** significant at 1%				

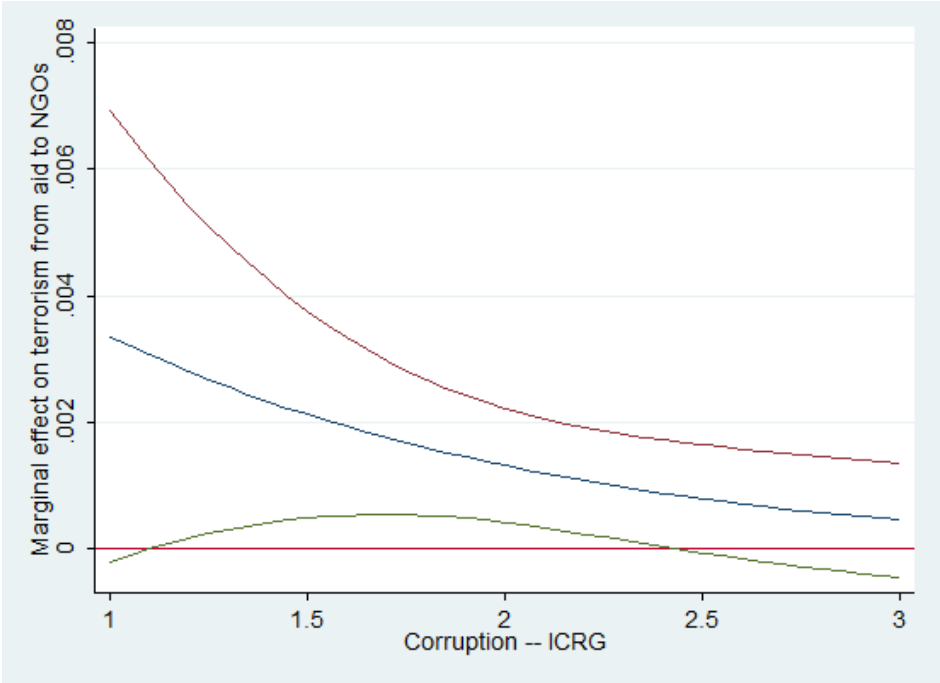
**Table 3. First Stage Estimation of Aid Allocation – Regression Models**

	<b>Model 9</b>	<b>Model10</b>	<b>Model 11</b>	<b>Model 12</b>
<b>Settler Mortality</b>	113.288 (3.97)***	57.541 (1.78)*	87.138 (3.36)***	64.175 (2.09)**
<b>Total Disasters_90s (Instrument)</b>	3.550 (3.71)***	1.411 (1.26)	3.211 (7.17)***	2.323 (3.88)***
<b>Spatial lag</b>	36.021 (0.16)	-77.305 (0.36)	-93.624 (0.43)	-166.668 (0.76)
<b>Temporal lag_2005</b>	34.254 (1.40)	19.253 (0.83)	63.632 (2.94)***	57.456 (2.70)***
<b>Military Personnel</b>	-0.133 (0.67)	0.123 (0.60)		
<b>Military Expenditure</b>	27.876 (1.62)	-56.578 (1.62)		
<b>Political Terror Scale</b>			56.429* (1.83)	23.879 (0.71)
<b>Real GDP per capita (logged)</b>		32.257 (0.76)		-22.089 (0.70)
<b>Population (logged)</b>		146.138 (3.07)***		59.413 (2.33)**
Constant	-756.207 (2.65)**	-1,039.308 (2.34)**	-462.324 (3.08)***	-594.531 (1.36)
N	70	69	73	72
R-squared	0.57	0.64	0.59	0.62
F-Test	14.93***	1.96	28.26***	9.13***
R <sup>2</sup> (Auxiliary Regression)	.015	.024	.023	.028
Absolute value of t statistics in parentheses				
* significant at 10%; ** significant at 5%; *** significant at 1%				

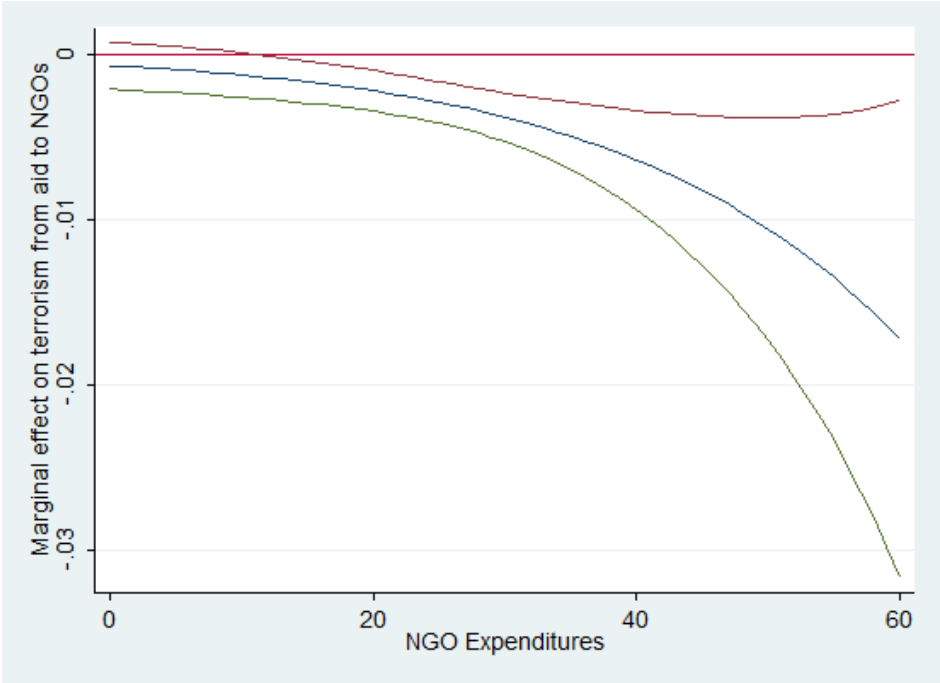
**Table 4. Second State Estimation of Transnational Terrorist Incident Count Model, 2006-2009 – Repression Models**

	<b>Model 13</b>	<b>Model14</b>	<b>Model 15</b>	<b>Model 16</b>
<b>ODA_Public</b>	-0.016 (2.49)**	-0.018 (2.09)**	0.002 (2.51)***	0.002 (1.32)
<b>Military Personnel</b>	-0.005 (3.52)***	-0.005 (3.16)***		
<b>Military Expenditure</b>	0.016 (0.12)	-0.095 (0.22)		
<b>ODA_Public *Military Expenditure</b>	0.001 (2.98)***	0.001 (2.98)***		
<b>Political Terror Scale</b>			0.733 (3.28)***	0.866 (3.24)***
<b>Endogeneity bias (Residuals)</b>	0.000 (0.16)	0.001 (0.30)	0.001 (0.65)	0.001 (0.39)
<b>Temporal lag _2005</b>	0.744 (4.49)***	0.749 (4.66)***	0.443 (4.51)***	0.438 (3.86)***
<b>Spatial Lag</b>	-3.185 (1.54)	-3.803 (1.75)*	-2.301 (2.21)**	-2.115 (1.86)*
<b>Real GDP per capita (logged)</b>		-0.038 (0.11)		0.274 (1.32)
<b>Population (logged)</b>		0.278 (0.33)		-0.086 (0.30)
<b>Constant</b>	-0.737 (0.47)	-1.398 (0.32)	-3.199 (4.19)***	-4.994 (1.62)
<b>Joint Wald Test</b>	15.70***	11.73***	–	–
<b>N</b>	70	69	73	72
<b>Robust z statistics in parentheses</b>				
* significant at 10%; ** significant at 5%; *** significant at 1%				

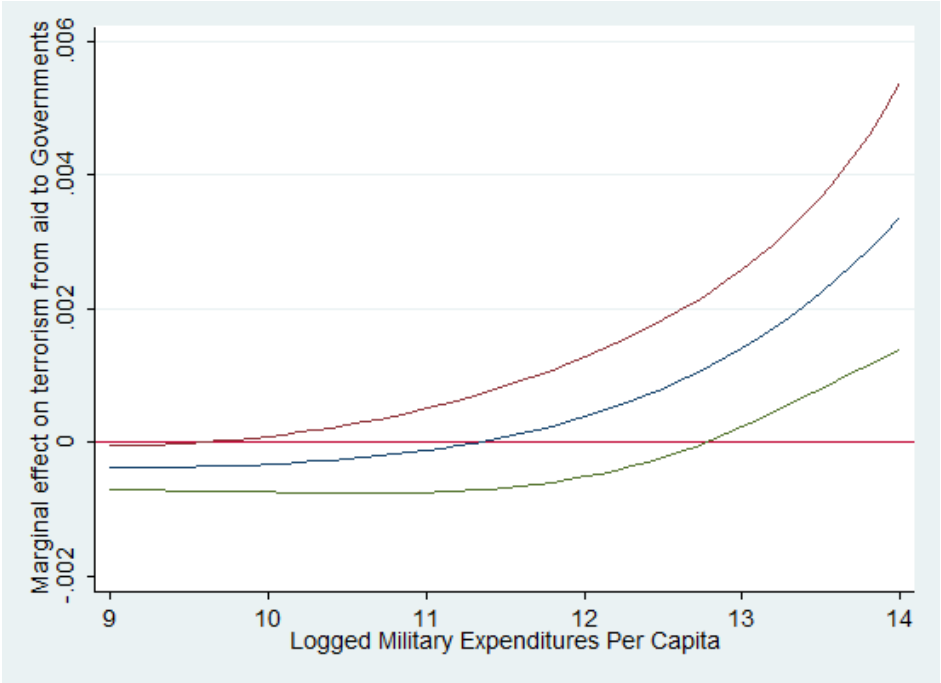
**Figure 1. Marginal Effect of Aid to Governments on the Supply of Terrorism Conditional on Corruption**



**Figure 2. Marginal Effect of Aid to NGOs on Terrorism Conditional on NGO Expenditures**



**Figure 3. Marginal Effect of Aid to Governments on Terrorism Conditional on Military Expenditures**



**Figure 4. Marginal Effect of Aid to Governments on Terrorism Conditional on the Level of Political Repression**

