Does terror increase aid?

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Abstract This article investigates empirically whether, and in what ways, donors in the Development Assistance Committee respond to transnational terrorist incidents and the onset of the War on Terror by changing aid effort and aid allocation. First, an analysis of 22 donor countries shows that aid effort increased during the War on Terror period, but did not respond to the actual number of terror events. Second, using aid allocation equations, we find that countries where terror originates are not more likely to receive aid as a consequence, but if they are selected, they receive larger amounts of aid. Our results imply that politicians may still have to learn from economic research. To the extent that development aid can effectively combat terror across the world, as recent research suggests it does, politicians would be well-advised to target aid to those countries where terrorist groups exist in abundance.

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1 Introduction

In their fight against international terrorism, governments and international organizations rely on strategies that are intended to alter the motivations of terrorists and their supporters. Among these carrots and sticks, it has been claimed that development aid has become an increasingly popular weapon in the fight against terrorism, especially in the aftermath of the September 11, 2001 (hereafter, 9/11) attacks. Former president George W. Bush explained that the United States would “fight against poverty because hope is an answer to terror” (cited in Krueger and Maleckova 2003: 119). According to the OECD DAC (2003: 11), donor countries “can reduce support for terrorism by working towards preventing the conditions that give rise to violent conflict in general and that convince disaffected groups to embrace terrorism in particular.” The European Union and the United States announced that they “will target [their] external relations actions towards priority Third Countries where counter-terrorist capacity or commitment to combating terrorism needs to be enhanced” and “will mainstream counter-terrorist objectives into the work of external assistance programmes” (Council of the European Union 2004: 7). According to Woods (2005), the shift in resources towards fighting poverty is also noticeable in the United Kingdom. As Woods points out, “[t]he strain on the DFID’s [Department for International Development] resources and mandate to reduce poverty posed by the War on Terror and the war in Iraq is already noticeable” (p. 404).

There is some evidence that aid is effective in fighting terrorism. While Campos and Gassebner (2009) do not find a robust effect of aid on terror, Azam and Delacroix (2006), and Azam and Thelen (2008, 2010, 2011) find that foreign aid does indeed reduce terror once the militancy of recipient countries is adequately controlled for. Bapat (2011) shows that military aid might not be effective in crushing terrorist organizations in the host country, but can prevent host governments from entering into negotiations with them.¹

Overall, it seems that aid—if properly designed—might be a useful carrot in the fight against terror. This puts a new emphasis on the aid effectiveness debate. Aid has been shown to be quite ineffective in raising living standards in the recipient country (e.g., Doucouliagos and Paldam 2008). It is often argued that the motivation of the donor country for giving aid has an impact on its effectiveness (Kilby and Dreher 2010). Some donors might be more effective in promoting growth than others because, for example, their aid is not given for strategic or commercial reasons.

With the end of the Cold War, many observers expected that the effectiveness of aid would increase. However, it seems that the period when developmental considerations could have dominated the allocation of aid was short. To the extent that aid is now given to fight terror, the effectiveness of aid would have to be judged with respect to whether this goal is achieved, rather than asking whether or not aid increases economic growth. However, no systematic evidence exists as to whether, and to what extent, donor countries have actually

¹ Preliminary empirical evidence in Sharma et al. (2009) however shows that terrorists increase the prevalence of their attacks as a consequence of aid flows.

shifted the focus of their aid to fight terror rather than poverty.² The exception is Fleck and Kilby (2010). However, Fleck and Kilby focus on the United States exclusively and capture the War on Terror by using a dummy only, rather than measuring the degree of terror.

We extend Fleck and Kilby's analysis in several ways. Most importantly, we cover all donor countries belonging to the Development Assistance Committee (DAC) rather than limiting the analysis to the United States. A second important difference with respect to Fleck and Kilby is that we take into account the degree of terrorism to which a particular donor is exposed in a specific year. Rather than investigating general trends in aid over time, we can thus analyze whether donors hit harder by terror at a particular point in time react to this by increasing (or decreasing) their aid.

We start with an investigation of 22 DAC donors' aggregate aid effort, i.e., the aid budget as a share of gross national income (GNI). As a next step, using a three-dimensional panel of our 22 donors and 140 recipient countries, we estimate bilateral aid flows to test whether donors adjust their aid to countries from which terror originates. On the one hand, donors might increase their aid flows to the country of the perpetrators if they see development aid as a useful tool for terror prevention. On the other hand, aid flows might be cut as a form of punishment if donors want to signal their dissatisfaction with the domestic anti-terror policies of the recipient country. Which of these two effects prevails might depend on the political regime of the recipient country, as well as on whether the recipient is perceived to be an ally or an enemy, or a state sponsor of terror. Finally, we investigate different donors and types of aid separately.

To foreshadow our results, we find that aid effort increased in the War on Terror period controlling for other determinants, on average. However, aid budgets as a share of GNI do not respond to the number of terrorist incidents. While countries from which terror against a particular donor originates are not more likely to receive aid as a consequence, if they are selected, they receive larger amounts of aid. Terror against DAC countries as a group, however, reduces the probability of receiving aid, on average. Introducing models where we interact the number of terrorist incidents against DAC countries with other explanatory variables of interest, we find that this holds in particular for autocratic countries, for countries voting against the donor in the United Nations General Assembly and for state sponsors of terrorism, but not for the War on Terror period. Analyzing donors individually, we find that France and the United States increased their aid effort after 9/11. However, neither donor's aid effort was a function of the frequency of attack. In the allocation equation, we find that the United States increased aid to source countries of terror as a consequence of terrorist attacks, while France, Italy and Sweden reduce their aid to these countries. Disaggregating aid, we do not find that the share of aid tied to education or governance increases in reaction to terror.

We proceed as follows. In Section 2, we briefly summarize the previous literature on aid and terror. Section 3 investigates the impact of terror on aid effort, while Section 4 provides a disaggregated analysis of the effect of terror on aid allocation. We present extensions of the basic analyses in Section 5. The final section concludes the paper.

2 Aid and terror

The literature on aid and terror is growing. However, with the exception of two papers (Moss et al. 2005; Fleck and Kilby 2010), the previous literature investigates the effect of aid on

²The two might go together. However, Abadie (2006), among others, finds that there is no causality from poverty to terror, when controlling for other country characteristics.

terror rather than that of terror on aid. According to the theory of Azam and Delacroix (2006), terrorist groups determine their activities in a country based on militancy and the recipient governments' effort against terror. Their model predicts a co-movement of terrorist attacks and aid, which is confirmed through a simple regression analysis. However, this positive correlation between terror and aid might mean only that more aid is being allocated to countries where more violent terror originates, rather than implying that more aid leads to more terrorist activity. Indeed, once Azam and Delacroix introduce dummies for certain groups of countries where militancy is arguably more prevalent than in others, the effect of aid on terror becomes negative. While thus supplying indirect evidence that aid might react to terror, a direct test is lacking.

In exchange for aid, recipient governments are sometimes asked to implement counter-terrorism measures against domestic terrorist groups. In this context, Azam and Thelen (2008, 2010, 2011) stress the importance of aid for education as opposed to general budget support. Subsidizing education improves the recipient's human capital, which can either increase or reduce the degree of terrorism. While the theory is thus ambiguous, the empirical results in Azam and Thelen show that education reduces terror. Any type of aid can reduce terror because the recipient has to pursue counter-terrorism measures in exchange, yet aid for education has additional positive side effects and is therefore said to be particularly effective.³ The importance of aid for education is confirmed in Young and Findley (this issue). According to their results, aid given to improve health, strengthen civil society and fight terror is also effective in reducing the number of terrorist attacks.

Bandyopadhyay et al.'s (2011) model stresses the salience of distinguishing aid tied to fight terror from general assistance. In their model, aid can be tied to counter-terrorism measures of the recipient country. While such tied aid increases the recipient government's efforts in fighting resident terrorist groups, it also increases instability. This is because aid tied to fighting terrorism will meet resistance from some groups in the recipient country—e.g., Pakistan, Yemen, and Iraq. On the contrary, untied general aid is perceived as less intrusive because it does not directly involve the recipient government in the fight against terror, thus not posing a threat to the government's stability. To the extent that it helps in keeping US-friendly governments in power, it can be an effective (indirect) means of counter-terrorism. Donors face a trade-off between counter-terrorism aid and general budget support.

The two papers most similar to ours are Moss et al. (2005) and Fleck and Kilby (2010). Fleck and Kilby investigate whether US aid became less focused on poverty as a consequence of the United States' fight against terror. Rather than looking at the degree of terror directed at the United States, they investigate the poverty orientation of US aid in three periods, those being the Cold War, the War on Terror, and the period in between. During the War on Terror period, while the United States placed less emphasis on poverty when selecting countries for aid, once accounting for selection, per-capita GDP became more important for the allocation of aid. Overall, poor and less poor countries alike receive more aid in the War on Terror period in comparison to the interwar period. However, when analyzing year-to-year changes for core-recipients of aid, it became evident that the United States' responsiveness to poverty exhibits a downward trend since the onset of the War on Terror.

³This assumes that aid for education can improve educational outcomes, implying that aid is not fully fungible. As Azam and Thelen (2008) explain, this might be due to differentiated inputs like highly qualified teachers. Dreher et al. (2008) provide empirical support for the effectiveness of aid for education. The positive effect of education on reducing terror stands in contrast to microeconomic evidence, for example reported in Krueger and Maleckova (2003), and summarized in Shugart (2011). Azam and Thelen (2008) summarize the literature reconciling the macroeconomic with the microeconomic evidence.

Moss et al. (2005) also focus on the effect of the War on Terror on the allocation of United States Agency for International Development (USAID) funds, comparing the allocation of US aid across recipient countries over the 1998–2001 versus 2002–2005 periods. Relying on the presence of foreign terrorist groups in a country, sharing a border with a state sponsor of terrorism, troop contribution in Iraq, and the relative population shares of Muslims, Moss et al. find no systematic shift in US aid policies. However, their cross-section exclusively focuses on the United States. They do not look at the overall aid budget or its composition; neither do they control for the effect of terrorist attacks.

Overall, while the previous literature has not quite reached consensus as to whether or not aid reduces terror, it predicts that aid increases as a consequence of terror. With respect to the United States, this prediction has been tested. Using different empirical strategies, Moss et al. (2005) find virtually no evidence of US aid increases in response to the onset of the War on Terror, while Fleck and Kilby (2010) do find the expected change in allocation behavior when analyzing year-to-year changes.⁴ Arguably, the reorientation of development policies after 9/11 is not restricted to the United States, but also affects most (if not all) donors in the DAC. For example, shortly after 9/11, the fight against terrorism became one of Germany's official objectives for development assistance. In October 2001, Federal Chancellor Gerhard Schröder declared that the “fight against hunger tops our list of the fight against terror” (own translation, taz 2001: 12). At the same time, Liz O'Donnell, Ireland's Minister of State at the Department of Foreign Affairs, attributed a “vital role” to “[d]evelopment coordination and the building of strong democracies [...] in the longer term in the fight against conflict and terrorism” (DFA 2001). In 2003, Australia's aid agency also incorporated the fight against terror into its objectives (AusAID 2003).

While these policy statements thus suggest that countries hosting terrorist groups should receive larger aid flows to assist them in the fight against terror, not all countries that host terrorism can expect to benefit equally from policy change. Consider the terrorist attacks on Pan Am flight 103 and UTA flight 772 in 1988/89, which were attributed to state-sponsored terrorists from Libya. Rather than granting development aid to al-Gaddafi's regime, the United States imposed sanctions against the country. We think that this example can be generalized. If terrorist groups are supported by the government of their host country, or the attacks even originate within the government itself, we would expect aid to decrease, while aid will arguably increase to those governments that are considered to be allies in the fight against terror. In the empirical analysis below, we will test for these differences.

Finally, we do not expect all types of aid to react to terror in the same way. As outlined above, Azam and Thelen (2008, 2010, 2011) and Young and Findley (this issue) stress the importance of aid for education as opposed to general budget support. Bandyopadhyay et al. (2011) highlight the relevance of aid tied to the fight against terror. If donors anticipate the effectiveness of aid for education, we would expect this type of aid to react to terror in particular. If aid can be tied effectively to counterterrorism efforts, we expect particularly visible effects with respect to this category of aid. We test these predictions below.

3 Aid effort and terror over time

3.1 Descriptive evidence

Our analysis covers the 22 DAC members in the 1971–2008 period. We use data on Official Development Assistance (ODA) as provided by the OECD. All values are transformed into

⁴This is when some outlying countries are taken into account.

Fig. 1 Aid effort over time

constant 2,000 US dollars. In order to control for the size of the economy, we follow the previous literature and express aid budgets as a percentage of GNI (“aid effort”). Since aid disbursements also reflect ongoing aid projects partly determined over long periods of time, we make use of aid commitments instead.

Figure 1 shows the decrease in DAC aid committed during the interwar period and the surge in aid since 9/11. The picture is in line with what we would expect. During the time of the Cold War, plenty of evidence shows that aid was used for strategic reasons. With the fall of the Iron Curtain, the need for such strategic aid became less pressing. However, rather than sticking with the same level of aid and directing part of the money to where it could have been more effective in terms of other objectives, aid levels declined. Directly after 9/11, the trend reversed and aid levels rose markedly. Note that this is not driven by the United States alone, as is evident in the lower panel of the figure.

Turning to our measure of terrorist activity, we rely on “International Terrorism: Attributes of Terrorist Events” (ITERATE), collected by Mickolus et al. (2009). ITERATE provides data on global terrorist acts, including information on the type of attack, casualties and fatalities, and information about perpetrators and victims. The data are available over the 1968–2008 period. The definition of transnational terrorism applied in ITERATE follows Mickolus (1980: xiii), who defines transnational terrorism as:

... the use or threat of use, of anxiety, inducing extranormal violence for political purposes by any individual or group, whether acting for or in opposition to established government authority, when such action is intended to influence the attitudes and behavior of a target group wider than the immediate victims and when, through the nationality or foreign ties of its perpetrators, its location, the nature of its institutional or human victims, or the mechanics of its resolution, its ramifications transcend national boundaries.

The variable we extract from this database measures the number of transnational terror incidents originating from nationals of a particular recipient country, which are carried out on nationals of the donor country.⁵ We do not include domestic terrorism as we assume donors to be particularly interested in attacks potentially directed at them. While even al-Qaida engages in domestic attacks (Blomberg et al. [this issue](#)), much of domestic terrorism is of little interest to the international community.⁶ In our sample, 86 of 140 recipient countries were origins of terrorist attacks and, with the exception of Luxembourg, all DAC donors were hit by transnational terror. Interestingly, terrorist incidents are falling over time, rather than rising. In particular, the War on Terror period witnessed a relatively small number of terrorist attacks. Therefore, it seems to be the perceived threat from terrorist attacks that characterizes the War on Terror period, rather than the sheer number of terrorist incidents.

3.2 Method of estimation and main results

We start by pooling all donors. Our regressions are time-series cross-section analyses (panel data) covering the 1971–2008 period. We use robust standard errors clustered at the country level. Since some of the data are not available for all countries or years, the panel data are unbalanced and the number of observations depends on the choice of explanatory variables. Following the previous literature, we include the lag of the dependent variable (e.g., Bertoli et al. 2008).⁷ Focusing on aggregate aid budgets as a share of GNI, the basic equation takes the following form:

$$y_{i,t} = \alpha + \beta_1 y_{i,t-1} + \beta_2 \text{Cold War}_t + \beta_3 \text{War on Terror}_t + \beta_4 X_{i,t-1} + \eta_i + \varepsilon_{i,t}, \quad (1)$$

where $y_{i,t}$ represents aid effort, i.e., total aid commitments as a share of GNI of donor country i in year t , and Cold War_t and War on Terror_t are dummies for the periods 1971–1990 and 2002–2008, respectively. $X_{i,t-1}$ is the vector of (lagged) control variables, η_i represents country fixed effects, while $\varepsilon_{i,t}$ represents the error term. We include additional variables related to the degree of terror in further regressions.

In choosing our control variables, we follow the literature on aid effort. The vector X includes the donor's general government debt (as a percentage of GDP), assuming countries with heavier debt burdens to be less generous. We expect countries to be more generous when they are richer, measured by (log) per-capita GDP. Adding (log) population as a further control variable, we expect aid efforts to decrease with population size since small countries might be more generous than larger countries as they need to surmount a minimum threshold from which giving aid is meaningful (Round and Odedokun 2004). Finally, we account for a donor country's government size. Since broad categorizations of welfare state attributes are generally stable over time, measures of government size may better reflect donor countries'

⁵We include attacks against a particular donor in its own country, against its people or facilities in the country of origin of the terrorist, or against its people or facilities in any third country. A potential shortcoming of our terror measure is that it does not capture the intensity of the terrorist incident. While not a priori superior to the number of fatalities for instance, terrorist incidents are commonly accepted as measure of terror in the literature (e.g., Gassebner et al. 2008, 2012, [forthcoming](#)). We thus assume that an attack can have important consequences even if no one is hurt or killed and leave a differential analysis of alternative measures of terrorism for future research.

⁶Examples are the Irish Republican Army (IRA), the Basque Euskadi Ta Askatasuna (ETA) and the German Rote Armee Fraktion (RAF). In aid-receiving countries, Shining Path (Peru), the National Democratic Front for the Liberation of Bodoland and the National Liberation Front of Tripura (India) come to mind.

⁷Aid budgets evolve slowly over time because of the path dependence of decisions in the budgetary process.

stance towards redistribution.⁸ The [Appendix](#) provides the precise definitions of all variables with their sources, while Appendix A2 of the working paper version of this article reports descriptive statistics (Dreher and Fuchs 2011a).

Columns 1–4 of Table 1 report our results with the fixed effects model of (1). We find that a country's aid effort increases with per-capita GDP, at least at the 10% level. The lagged dependent variable is highly significant. The coefficients on debt, population, and government size all exhibit the expected signs but they are not significant at conventional levels.⁹ Turning to our variables of interest, in column 1, both period dummies are significant. With respect to the interwar period, and ignoring the longer-term effects estimated by the lagged dependent variable, aid effort has been 0.065 percentage points higher during the Cold War period, at the 1% level of significance. At the 10% level, the results also show that aid effort significantly increased in the War on Terror period, on average. Compared to the Cold War, the increase is smaller; at 0.023 percentage points in the short-run (i.e., again ignoring the lagged dependent variable), it is not negligible but far from dramatic. In fact, the difference in the coefficients for the Cold War and War on Terror periods is not statistically significant at conventional levels.

In column 2, we control for the number of terror events which occurred over the last four years worldwide. While the dummy for the War on Terror remains significant, the number of terror incidents has no significant effect on aid effort at conventional levels. Taking the result at face value, while there has been a general increase in aid budgets as a share of GNI since 2001, aid effort did not rise in the aftermath of a marked spike of terrorism. It thus seems that the aid regime shifted due to the greater risk of terror perceived after 9/11, while aid has not been systematically used to fight terror over the whole sample period.

Donor countries might be particularly concerned about terrorist attacks against allied nations or against the 'Western world' in general. Therefore, column 3 replaces the number of worldwide incidents with the number of incidents against citizens of DAC countries. Yet again, the coefficient is not significant at conventional levels. The same result holds when we include terrorist attacks on the individual donor countries rather than total attacks against the country group (column 4).¹⁰

Arguably, terror might be endogenous to aid. If aid does actually reduce terror, as shown by Azam and Thelen (2008, 2010, 2011), our empirical findings are likely to set a lower bound on estimates of the marginal effect of aid on terror. As an attempt to address this issue, we proceed with the System GMM estimator, developed in Arellano and Bover (1995) and Blundell and Bond (1998). As we admittedly lack good external instruments for terror, we rely on internal instrumental variables. The results are based on the two-step estimator implemented by Roodman (2009) in Stata, including Windmeijer's (2005) finite sample

⁸For example, Bertoli et al. (2008) find a positive effect of government revenue (as a share of GDP) on aid effort as a larger government size gives "more room for aid granting" and mirrors the donor country's propensity to redistribute.

⁹This is with the exception of column 4, where the effect of population is significant at the 10% level. Note that when we omit the lagged dependent variable, the coefficients of all control variables gain statistical significance, with their expected signs. The coefficients on the War on Terror dummy increase slightly, while their significance decreases somewhat.

¹⁰Although we do not find that aid effort responds to the number of terrorist incidents, it may be the case that governments started responding to the intensity of terror during the War on Terror period. However, when adding interaction terms between the period dummies and the number of terrorist attacks on a particular donor country, the interaction effects are not significant at conventional levels. This implies that the average donor did not adjust its aid effort during the War on Terror period in response to attacks on its citizens.

Table 1 Aid effort, 1971–2008

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) GMM	(6) GMM	(7) GMM	(8) GMM
Aid effort ($t-1$)	0.4745*** (0.00)	0.4535*** (0.00)	0.4534*** (0.00)	0.4532*** (0.00)	-0.2509 (0.41)	0.3805* (0.06)	0.5705*** (0.00)	0.2424 (0.32)
Debt ($t-1$)	-0.0008 (0.12)	-0.0008 (0.13)	-0.0008 (0.14)	-0.0008 (0.13)	0.0007 (0.74)	-0.0008 (0.15)	-0.0009* (0.07)	-0.0006 (0.52)
(log) GDP per capita ($t-1$)	0.1417* (0.06)	0.1427** (0.04)	0.1363** (0.05)	0.1463* (0.05)	0.6121*** (0.01)	0.1800** (0.03)	0.0782 (0.25)	0.2617* (0.08)
(log) Population ($t-1$)	-0.2378 (0.12)	-0.2672 (0.11)	-0.2653 (0.12)	-0.2800* (0.10)	-0.0777*** (0.01)	-0.0352** (0.04)	-0.0208* (0.06)	-0.0580* (0.07)
Government size ($t-1$)	0.0021 (0.19)	0.0020 (0.33)	0.0017 (0.32)	0.0020 (0.22)	0.0191*** (0.00)	0.0083* (0.07)	0.0043 (0.17)	0.0109** (0.02)
Cold War	0.0653*** (0.01)	0.0661** (0.01)	0.0627** (0.01)	0.0664** (0.01)	0.8721** (0.01)	0.2184** (0.01)	0.0821* (0.10)	0.3339* (0.08)
War on Terror	0.0227* (0.07)	0.0231* (0.08)	0.0266** (0.01)	0.0232* (0.07)	0.3499** (0.05)	0.1892* (0.05)	0.2172** (0.04)	0.2043** (0.04)
Terror worldwide ($t-1$)		-0.00002 (0.94)				0.0006 (0.32)		
Terror DAC ($t-1$)			0.0001 (0.81)				0.0019 (0.13)	
Terror donor ($t-1$)								0.0046 (0.17)
Number of observations	614	603	603	603	614	603	603	603
Number of countries	22	22	22	22	22	22	22	22
Adjusted R -squared	0.34	0.32	0.32	0.32				
Number of instruments					9	13	13	13
Arellano-Bond test ($Pr > z$)					0.11	0.67	0.40	0.99
Hansen test ($Prob > \chi^2$)					0.72	0.43	0.44	0.41

Robust p -values in parentheses (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

correction. We treat the lagged dependent variable and terror incidents (as well as the interactions with attacks on a particular donor) as endogenous, and debt, GDP per capita, population and government size as exogenous instruments. In a comparably long panel like ours, the number of instruments is excessive if all possible lags are employed. In order to minimize the number of instruments in the regressions, we restrict the matrix of instruments by using lags $t - 2$ to $t - 4$ only to collapse. Given that terrorist incidents are averaged over four years, we use lags $t - 5$ to $t - 7$ here. The Hansen test on the validity of the instruments used (amounting to a test for the exogeneity of the covariates), and the Arellano–Bond test of second-order autocorrelation (which must be absent from the data in order for the estimator to be consistent), do not reject the specifications at conventional levels and thus support our choice of the variables to be modeled as exogenous.

The results are shown in columns 5–8 of Table 1. Qualitatively, they are similar to those reported above. Aid effort is higher in the War on Terror period than in the interwar period. The number of terrorist incidents is again not significant at conventional levels.

4 Panel data analysis of aid allocation

Using bilateral ODA flows instead of aggregate aid amounts, we test for the impact of the War on Terror and transnational terrorist incidents on the allocation of aid. The basic equation changes to:

$$y_{i,j,t} = \alpha + \beta_1 \text{Cold War}_t + \beta_2 \text{War on Terror}_t + \beta_3 \text{Budget}_{i,t} + \beta_4 X_{i,j,t-1} + \eta_{i,j} + \varepsilon_{i,j,t}, \quad (2)$$

where $y_{i,j,t}$ represents (log) aid commitments in constant 2000 US dollars of donor i to recipient j in year t , and Cold War_t and War on Terror_t are dummies for the periods 1971–1990 and 2002–2008 respectively, as was the case before.¹¹ $X_{i,j,t-1}$ is the vector of (lagged) control variables. Rather than controlling for individual donor characteristics, we include the donors' (log) overall aid commitments $\text{Budget}_{i,t}$. As before, $\varepsilon_{i,j,t}$ represents the error term, while $\eta_{i,j}$ now represents donor-recipient-pair fixed effects. We again add additional variables related to the degree of terror in further regressions.

As Neumayer (2002) points out, there are essentially two options for dealing with the bounded nature of the dependent variable. The first option is based on the assumption that donors decide—in the first step—whether to allocate aid to a country at all, while—in the second step—they decide on the amount of aid to be given once recipients are selected. For the first step of this model, Probit (or Logit) is the adequate technique of estimation. Ideally, the second step should take account of information derived from the first step. This can be achieved if the inverse Mills ratio derived from the first step is included in an ordinary least squares estimation (OLS) of the sample of selected countries.

¹¹ Note that here and in the following we added 1 to the underlying variables before taking the log to avoid losing zero observations where appropriate (see also Appendix). Note that we do not include the lagged dependent variable here, in line with the literature on aid allocation (e.g., Kilby 2011). Focusing on individual recipient countries, it is not obvious whether the likelihood of receiving aid commitments in t increases or decreases with the amount of aid received in $t - 1$. On the one hand, a country that has received an aid package in $t - 1$ might receive even more in t because of strong aid ties, but on the other hand, a country might be excluded from new aid funds in t because of large commitments in $t - 1$.

The second option is based on the assumption that the variables determine both whether a country is selected as an aid recipient, and how much aid is being allocated to that country in the same way. Tobit would then be the preferred method. Arguably, the underlying assumption is a strict one. Neumayer (2002) thus suggests OLS as an alternative method of estimation, ignoring the selection bias that tends to result from not considering the inverse Mills ratio. The bias associated with OLS might be moderate when the sample contains a limited number of zero observations.

With this in mind, we estimated a Heckman selection model and compared the selection to the allocation equation. This was done in order to see whether restricting their coefficients to be equal would be an option here, so that we could estimate Tobit regressions instead. We also tested whether the selection and allocation equations are independent of one another, so that separate selection and allocation equations could be estimated. The results show that neither independent equations, nor Tobit models are adequate. The results reported below therefore rely on the Heckman approach (with standard errors clustered by donor-recipient pairs). Note that the donor-recipient-pair fixed effects included in (2) can only be included in the (linear) allocation equation but not in the (non-linear) selection equation, due to the incidental parameter problem. We therefore replaced them by country and recipient fixed effects in the selection equation.

In line with the previous literature on aid allocation, X contains a set of possible determinants as explanatory variables (e.g., Dreher and Fuchs 2011b). We control for (logged) population of recipient countries so as to hold constant country size. Larger countries need more resources to develop. The recipient's (logged) per-capita GDP and the (logged) total number of people affected by a natural disaster in the recipient country are used as indicators of recipient need. Our measure for merit is a dummy for democracy, following the definition of Cheibub et al. (2009).

To proxy donors' political self-interests, the literature suggests entering a recipient country's voting behavior in the United Nations General Assembly (UNGA) as an independent variable. Various empirical studies show that developing countries receive more aid and better conditions from donors when they have closer political ties with the donor, as measured by pairwise UNGA voting consistency (e.g., Kilby 2009, 2011). Relying on data from Voeten and Merdzanovic (2009), we calculate the number of times a country votes in line with the respective donor (either both voting yes, both voting no, both voting abstentions, or both being absent). We then divide it by the total number of votes in a particular year to derive a measure of voting coincidence between zero and one.

To account for commercial interests, we include the respective donor's (log) total exports to a particular recipient country in constant US dollars, as well as a recipient country's (log) oil production in barrels per day. Again, all variables with their definitions and sources are provided in the Appendix of this paper, while Appendix A2 in the working paper version of this article reports descriptive statistics (Dreher and Fuchs 2011a).

Table 2 shows the results. While column 1 reports the selection equation of a Heckman model, column 2 displays the results of estimating the corresponding allocation equation.¹² Given the inclusion of fixed effects, note that the results for the selection equation have to be interpreted in terms of deviations from the donor and recipient means, and in terms of deviations from the average values of the donor-recipient pair in case of the allocation

¹²We do not impose an exclusion restriction on the allocation equation but identify the model based on the non-linearity inherent in the selection equation. Note that the Wald test for independent equations is highly significant, indicating the presence of selection bias when estimating Probit and OLS separately. When estimating them for comparison, the results are however very similar.

Table 2 Aid allocation, 1971–2008

	Heckman		GMM		Heckman		GMM	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ODA > 0	(log) ODA	ODA > 0	(log) ODA	(log) ODA	ODA > 0	(log) ODA	(log) ODA
(log) GDP per capita ($t - 1$)	-0.1747*** (0.00)	-0.4324*** (0.00)	-0.2014*** (0.00)	-0.4522*** (0.00)	-0.3441*** (0.00)	-0.1783*** (0.00)	-0.4313*** (0.00)	-0.3379*** (0.00)
(log) Population ($t - 1$)	0.9989*** (0.00)	0.3119*** (0.00)	1.0116*** (0.00)	0.3010*** (0.01)	0.4249*** (0.00)	1.0095*** (0.00)	0.3097*** (0.00)	0.4345*** (0.00)
(log) Disaster ($t - 1$)	0.0093* (0.00)	0.0060*** (0.00)	0.0089*** (0.00)	0.0049*** (0.00)	-0.0073 (0.31)	0.0093*** (0.00)	0.0060*** (0.00)	-0.0008 (0.89)
Democracy ($t - 1$)	0.2745*** (0.00)	0.1967*** (0.00)	0.2481*** (0.00)	0.1757*** (0.00)	-0.3639** (0.04)	0.2723*** (0.00)	0.1966*** (0.00)	-0.2122 (0.12)
UNGA voting ($t - 1$)	0.2691* (0.02)	0.0558 (0.68)	0.0239 (0.86)	-0.2188 (0.13)	-0.6087 (0.22)	0.2645** (0.02)	0.0575 (0.67)	-0.2257 (0.39)
(log) Bilateral exports ($t - 1$)	0.0633*** (0.00)	0.0212*** (0.00)	0.0627*** (0.00)	0.0167*** (0.01)	0.1259*** (0.00)	0.0634*** (0.00)	0.0211*** (0.00)	0.1152*** (0.00)
(log) Oil production ($t - 1$)	-0.0052 (0.31)	0.0053 (0.35)	-0.0000 (1.00)	0.0085 (0.13)	-0.0443*** (0.00)	-0.0047 (0.36)	0.0052 (0.36)	-0.0456*** (0.00)
(log) Donor total commitments ($t - 1$)	0.3494*** (0.00)	0.9624*** (0.00)	0.3317*** (0.00)	0.9446*** (0.00)	0.8402*** (0.00)	0.3494*** (0.00)	0.9622*** (0.00)	0.8555*** (0.00)

(continued on the next page)

Table 2 (Continued)

	Heckman				GMM	Heckman		GMM	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
	ODA > 0	(log) ODA	ODA > 0	(log) ODA	(log) ODA	ODA > 0	(log) ODA	(log) ODA	
Cold War	0.1354*** (0.00)	0.3249*** (0.00)	0.1353*** (0.00)	0.3136*** (0.00)	-2.0125 (0.14)	0.1375*** (0.00)	0.3247*** (0.00)	-0.7643 (0.36)	
War on Terror	0.0945*** (0.00)	-0.1172*** (0.00)	0.0747*** (0.01)	-0.1349*** (0.00)	-0.9438 (0.31)	0.0909*** (0.00)	-0.1163*** (0.00)	-0.4284* (0.07)	
Bilateral terror donor ($t - 1$)			-0.0428 (0.26)	0.0725*** (0.00)	0.3418* (0.09)				
Bilateral terror DAC ($t - 1$)						-0.0148** (0.03)	0.0033 (0.61)	0.0335 (0.33)	
Donor dummies	Yes	No	Yes	No	No	Yes	No	No	
Recipient dummies	Yes	No	Yes	No	No	Yes	No	No	
Pair effects	No	Yes	No	Yes	No	No	Yes	No	
Number of observations	71279		68082		45694		71279	47132	
Number of country-pairs	2856		2794		2633		2856	2699	
Number of instruments					21			21	
Arellano-Bond test ($Pr > z$)					0.39			0.37	
Hansen test ($Prob > \chi^2$)					0.80			0.12	

Robust p -values in parentheses (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)

equation. The results for the control variables are largely in line with the previous literature. Both the estimated probability of receiving aid and the estimated amount of aid are below the recipient country's norm when its per-capita GDP is above its norm, at the 1% level of significance. Also at the 1% level, countries receive larger amounts of aid as their population grows (and more frequently). In both equations, disasters increase aid. Countries are more likely to receive aid when they transition to democracy, and receive more aid with democracy once selected (at the 1% level).

While the results indicate that need is important for the allocation of aid, the same holds for political and commercial motives. Countries voting in line with a particular donor in the UNGA are more likely to receive aid, at the 5% level of significance (but the positive coefficient in the allocation equation is not statistically significant). Bilateral exports are significant in both equations (at the 1% level), with the expected positive coefficient. The coefficient on oil production is not statistically significant at conventional levels, while larger donor budgets increase aid and the probability of being selected as an aid recipient at the 1% level.

We now turn to our variables of main interest. Compared to the interwar period, countries are more likely to be selected as recipients of aid in the Cold War period and receive more aid once selected. The picture is different for the period after 9/11. At the 1% level, countries are more likely to be selected, but—once selected—the amount of aid they receive is less in comparison to the interwar period. In other words, the increased aid effort in the War on Terror period leads to more recipients with smaller individual aid portions (i.e., $11.1\% [= \exp(-0.1172) - 1]$ smaller than in the interwar period).

Columns 3 and 4 of Table 2 extend the model by including the number of terrorist incidents on the individual donor countries. As can be seen, this has no substantial effect on the War on Terror dummy and the control variables. The number of incidents involving a particular donor country has no significant effect on the probability of giving aid to the country from which terror attacks originate. However, once a country is part of the victim's aid program, the donor country increases its aid flows to the country from which the terror attack originates by 7.3% per incident, on average. This provides initial evidence that countries who are already in good standing with donors through established aid relationships receive more aid in the fight against terror, while countries with weaker ties do not.¹³

Next, we replicate the allocation equation with System GMM to control for endogeneity as discussed above. We treat the number of terrorist incidents as endogenous and all other control variables as exogenous. Again we use lags greater than $t - 4$ given that terrorist incidents are averaged over four years.¹⁴ We find that neither the period after 9/11, nor the number of terrorist incidents have a significant effect on the allocation of aid, but the Arellano–Bond test rejects the specification (results available on request). When we expand the matrix of instruments to include $t - 15$, the Arellano–Bond test does accept the specification and terrorist events increase aid commitments at the 10% level (column 5).¹⁵

¹³As an additional explanation, the public good character of aid might dominate here, so that on average countries rely on other donors to increase the resources they devote to the fight against terror. We thank Todd Sandler for pointing this out.

¹⁴Given the larger number of observations relative to the analysis of aid budgets in Section 3, we do not need to restrict the number of lags to three in order to limit our instruments to an acceptable number.

¹⁵This result does not depend on the specific cut-off chosen. When using $t - 20$ for example, the coefficient is significant at the 5% level.

Columns 6–8 focus on bilateral terror against DAC countries rather than against a particular donor exclusively.¹⁶ The probability of receiving aid decreases at the 5% level when more terror originates from a particular country (column 6). The amount of aid is not affected however (columns 7 and 8). In other words, once a donor country provides aid to a particular recipient, a terror attack originating from citizens of the recipient country does not lead to a reduction in the amount of aid committed, but will make it less likely that a country is selected as an aid recipient in the first place. This is again in line with the idea that countries not in good standing with donors, as measured by established aid relationships, get punished for terror arising from their citizens. Comparing the results to those of columns 3 and 4, the difference in the effect of terror on the donor compared to the DAC as a whole might be explained by compositional effects. With an aid relationship already in place, it seems less likely that terror against the donor is, on average, state-sponsored. Such state-sponsored terror is more likely to arise from countries with which no friendly (aid-)relationships exist. Aid thus increases to countries with already established relationships, but does not go to additional countries. However, recipients of aid from a specific donor might well sponsor terrorist attacks on other DAC donors. As a consequence, other DAC donors interrupt their aid relationships with the state sponsor of terror.

In Tables 3a and 3b, we introduce several interactions to test for differential treatment of recipient countries. First, we investigate whether the impact of terror incidents on aid has changed in the War on Terror period. Second, as we argued above, it is more likely that some types of countries will receive more aid than others as a result of terror originating from their soil. We use three variables to test this proposition. Arguably, democracies are less likely to be perceived as threats to the average DAC donor country as their values are more closely aligned with the donor. On average, it seems reasonable to assume that government support for terrorism declines with democracy. We thus assume that aid as a reaction to terror surges in democracies in particular. For similar reasons, we also interact the number of terrorist incidents with a country's voting behavior in the United Nations General Assembly and a dummy for state sponsors of terror.¹⁷ We expect countries with similar political views to receive more aid in reaction to terror originating from their soil, and state sponsors of terror to receive less.

Table 3a shows the results for the selection equation of the Heckman model, while Table 3b reports the corresponding results for the allocation of aid. However, estimating an interaction term in a non-linear model—such as the selection model used here—is not straightforward (Ai and Norton 2003). While Table 3a shows coefficients rather than marginal effects, we also calculated the significance of the interaction terms in a linear probability model and rely on the resulting *t*-statistics. The marginal effects of the linear allocation model shown in Table 3b can be interpreted directly.

As can be seen from the Heckman selection model reported in Table 3a, the coefficients of the interaction terms exhibit the expected signs. However, they are not significant at conventional levels when focusing on terror directed at a particular donor country

¹⁶Note that the number of observations is larger when we employ the DAC terror measure rather than the donor terror measure, since missing observations on terror incidents involving individual donor-recipient pairs are disregarded in the calculation of the DAC total numbers. If we restrict the regressions of columns 6–8 to the sample of columns 3–5 the results are unchanged.

¹⁷The dummy is coded one if a recipient country in a particular year is classified by the US Secretary of State as a state sponsor of terror, i.e., “to have repeatedly provided support for acts of international terrorism” (see website of the US Department of State available at <http://www.state.gov/s/ct/c14151.htm>; see also a report on the list of state sponsors provided by the Korea Economic Institute at www.keia.org/SPOTGuide.pdf).

Table 3a Aid allocation and interactions, Heckman selection model, 1971–2008

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ODA > 0	ODA > 0	ODA > 0	ODA > 0	ODA > 0	ODA > 0	ODA > 0	ODA > 0
(log) GDP per capita ($t - 1$)	-0.2012*** (0.00)	-0.2024*** (0.00)	-0.2007*** (0.00)	-0.2256*** (0.00)	-0.1794*** (0.00)	-0.1834*** (0.00)	-0.1782*** (0.00)	-0.1920*** (0.00)
(log) Population ($t - 1$)	1.0116*** (0.00)	1.0140*** (0.00)	1.0113*** (0.00)	0.7862*** (0.00)	1.0239*** (0.00)	1.0214*** (0.00)	1.0111*** (0.00)	0.6628*** (0.00)
(log) Disaster ($t - 1$)	0.0089*** (0.00)	0.0089*** (0.00)	0.0089*** (0.00)	0.0068*** (0.00)	0.0091*** (0.00)	0.0092*** (0.00)	0.0093*** (0.00)	0.0069*** (0.00)
Democracy ($t - 1$)	0.2480*** (0.00)	0.2448*** (0.00)	0.2488*** (0.00)	0.1529*** (0.00)	0.2749*** (0.00)	0.2504*** (0.00)	0.2727*** (0.00)	0.1920*** (0.00)
UNGA voting ($t - 1$)	0.0353 (0.80)	0.0254 (0.85)	0.0140 (0.92)	-0.1061 (0.47)	0.2568** (0.03)	0.2658** (0.02)	0.2192* (0.06)	0.1447 (0.24)
(log) Bilateral exports ($t - 1$)	0.0627*** (0.00)	0.0627*** (0.00)	0.0627*** (0.00)	0.0667*** (0.00)	0.0636*** (0.00)	0.0634*** (0.00)	0.0633*** (0.00)	0.0682*** (0.00)
(log) Oil production ($t - 1$)	0.0000 (1.00)	-0.0001 (0.99)	-0.0001 (0.99)	-0.0087 (0.12)	-0.0040 (0.44)	-0.0053 (0.30)	-0.0049 (0.34)	-0.0167*** (0.00)
(log) Donor total commitments ($t - 1$)	0.3339*** (0.00)	0.3322*** (0.00)	0.3312*** (0.00)	0.4503*** (0.00)	0.3493*** (0.00)	0.3494*** (0.00)	0.3495*** (0.00)	0.4626*** (0.00)
Cold War	0.1404*** (0.00)	0.1357*** (0.00)	0.1350*** (0.00)	0.1358*** (0.00)	0.1612*** (0.00)	0.1386*** (0.00)	0.1386*** (0.00)	0.1226*** (0.00)
War on Terror	0.0735*** (0.01)	0.0743*** (0.01)	0.0748*** (0.01)	0.0733** (0.01)	0.0800*** (0.00)	0.0894*** (0.00)	0.0906*** (0.00)	0.1039*** (0.00)

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Table 3a (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ODA > 0	ODA > 0	ODA > 0	ODA > 0	ODA > 0	ODA > 0	ODA > 0	ODA > 0
Bilateral terror donor ($t - 1$)	0.1140 (0.41)	-0.1087 (0.11)	-0.1186 (0.25)	0.1008 (0.23)				
Bilateral terror DAC ($t - 1$)					-0.0059 (0.40)	-0.0316*** (0.00)	-0.0767** (0.04)	-0.0067 (0.30)
State sponsor of terror ($t - 1$)				0.2574 (0.21)				0.3854* (0.07)
Interaction of terror with	War on Terror	Democracy	UNGA voting	State Terror	War on Terror	Democracy	UNGA voting	State Terror
	0.3319 (0.28)	0.1048 (0.13)	0.1997 (0.46)	-0.4733*** (0.01)	0.0376*** (0.00)	0.0285*** (0.01)	0.0901* (0.08)	-0.0423* (0.06)
	Cold War				Cold War			
	-0.2226* (0.06)				-0.0312*** (0.00)			
Donor dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recipient dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	68082	68082	68082	58730	71279	71279	71279	60439
Number of country-pairs	2794	2794	2794	2794	2856	2856	2856	2856

Robust p -values in parentheses (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)

Table 3b Aid allocation and interactions, Heckman allocation model, 1971–2008

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(log) ODA	(log) ODA	(log) ODA	(log) ODA	(log) ODA	(log) ODA	(log) ODA	(log) ODA
(log) GDP per capita ($t-1$)	-0.4537*** (0.00)	-0.4526*** (0.00)	-0.4541*** (0.00)	-0.3532*** (0.00)	-0.4334*** (0.00)	-0.4380*** (0.00)	-0.4314*** (0.00)	-0.3059*** (0.00)
(log) Population ($t-1$)	0.3031*** (0.00)	0.3018*** (0.01)	0.3017*** (0.01)	0.1510 (0.25)	0.3378*** (0.00)	0.3255*** (0.00)	0.3097*** (0.00)	0.0353 (0.79)
(log) Disaster ($t-1$)	0.0048*** (0.00)	0.0049*** (0.00)	0.0049*** (0.00)	0.0048*** (0.00)	0.0058*** (0.00)	0.0059*** (0.00)	0.0059*** (0.00)	0.0063*** (0.00)
Democracy ($t-1$)	0.1762*** (0.00)	0.1747*** (0.00)	0.1746*** (0.00)	0.0999** (0.02)	0.2017*** (0.00)	0.1684*** (0.00)	0.1955*** (0.00)	0.1233*** (0.00)
UNGA voting ($t-1$)	-0.2066 (0.15)	-0.2178 (0.13)	-0.2021 (0.16)	-0.2093 (0.18)	0.0507 (0.71)	0.0583 (0.67)	0.1042 (0.46)	0.1229 (0.41)
(log) Bilateral exports ($t-1$)	0.0166** (0.01)	0.0167** (0.01)	0.0167** (0.01)	0.0110 (0.11)	0.0211*** (0.00)	0.0212*** (0.00)	0.0211*** (0.00)	0.0135** (0.04)
(log) Oil production ($t-1$)	0.0088 (0.12)	0.0085 (0.13)	0.0086 (0.12)	0.0057 (0.35)	0.0060 (0.29)	0.0041 (0.46)	0.0053 (0.34)	0.0006 (0.92)
(log) Donor total commitments ($t-1$)	0.9460*** (0.00)	0.9449*** (0.00)	0.9453*** (0.00)	0.8803*** (0.00)	0.9615*** (0.00)	0.9631*** (0.00)	0.9620*** (0.00)	0.8849*** (0.00)
Cold War	0.3177*** (0.00)	0.3137*** (0.00)	0.3140*** (0.00)	0.2797*** (0.00)	0.3616*** (0.00)	0.3260*** (0.00)	0.3241*** (0.00)	0.2737*** (0.00)
War on Terror	-0.1378*** (0.00)	-0.1350*** (0.00)	-0.1356*** (0.00)	-0.1182*** (0.00)	-0.1227*** (0.00)	-0.1185*** (0.00)	-0.1159*** (0.00)	-0.0857** (0.01)

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Table 3b (Continued)

	(1) (log) ODA	(2) (log) ODA	(3) (log) ODA	(4) (log) ODA	(5) (log) ODA	(6) (log) ODA	(7) (log) ODA	(8) (log) ODA
Bilateral terror donor ($t-1$)	0.0611* (0.05)	0.0593 (0.26)	0.1485** (0.02)	0.0807*** (0.00)				
Bilateral terror DAC ($t-1$)					0.0141* (0.05)	-0.0203** (0.04)	0.0578* (0.06)	0.0083 (0.21)
State sponsor of terror ($t-1$)				-0.0210 (0.93)				0.0745 (0.75)
Interaction of terror with	War on Terror	Democracy	UNGA voting	State Terror	War on Terror	Democracy	UNGA voting	State Terror
	0.0993** (0.05)	0.0180 (0.77)	-0.2141 (0.17)	-0.0573 (0.64)	0.0124 (0.11)	0.0356*** (0.00)	-0.0814* (0.06)	-0.0347* (0.09)
	Cold War				Cold War			
	-0.0585 (0.45)				-0.0410*** (0.00)			
Pair effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	68082	68082	68082	58730	71279	71279	71279	60439
Number of country-pairs	2794	2794	2794	2794	2856	2856	2856	2856

Robust p -values in parentheses (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)

(columns 1–4).¹⁸ When analyzing aid addressed to all DAC donors (columns 5–8), the coefficients turn significant at the 10% level at least. Specifically, the probability of receiving aid as a consequence of terror increases during the War on Terror period, with democracy and with tighter voting alignment, but decreases when countries become state sponsors of terror.¹⁹

Next, we turn to the corresponding results of the Heckman allocation model shown in Table 3b. The increase in aid in reaction to terror attacks against the donor is significantly larger in the War on Terror period (16% overall per attack, according to column 1) compared to the interwar period (6.1%) and the Cold War period (0.3%). The other interaction effects again do not turn out to be significant when focusing on terror directed at the individual donor country (columns 2–4). Analyzing the impact of terror directed at the DAC community (columns 5–8), our results show that aid decreases with terror from autocratic countries by 2% per attack, while it increases by 1.5% for democracies. Countries becoming state sponsors of terrorism receive 3.5% less aid per attack. Surprisingly, when countries vote in line with the donor more frequently, they receive less aid in reaction to terror. While this is puzzling, it is in line with the observation by Moss et al. (2005: 5) of “a possible trend of increases [in aid] in GWOT [Global War on Terror]-relevant countries [...], and decreases to more traditional US allies in the Middle East, Europe, and Latin America that had received substantial aid in the 1990s.”

Overall, the evidence is in line with our expectations: While countries that are on friendly terms with the donor receive more aid as a consequence of terror arising from their soil, other countries do not (or receive less).

5 Extensions

5.1 Disaggregating the DAC

Arguably, the average results for all donors pooled together might hide important differences between donors. Focusing on the G7 donors and the so-called ‘good donors’ (Denmark, Netherlands, Norway and Sweden) to reduce clutter, we estimate regressions for individual donors rather than aggregating all of them. We run nested regressions for these donors instead of estimating regressions for each of them separately. Pooling the donors enables us to statistically test for differences between and similarities among them. We introduce dummies for each individual donor and interact these dummies with our explanatory variables, mirroring individual regressions for the individual donors.

In order to save space, the detailed results are not reported here but are made available in Table A4 of the working paper version of this article (Dreher and Fuchs 2011a). We find that, controlling for all other factors, the United States increased its annual aid budget as a share of GNI by 0.087 percentage points in the period after 9/11, at the 5% level of significance. In

¹⁸Column 4 seems to imply that state sponsors of terror are significantly less likely to be selected as recipients of aid as a consequence of terror. However, the interaction term is not significant at conventional levels in the linear probability model. The same applies to the Cold War coefficient in column 1. See Table A3 in Dreher and Fuchs (2011a).

¹⁹Note that the number of observations is smaller when the state sponsor of terror dummy is introduced, as this classification of countries was introduced in 1979 only. The negative coefficient of the state sponsor variable in column 8 is also noteworthy. However, when we calculate the marginal effect of state sponsorship for varying numbers of terror attacks, the dummy is not significant at conventional levels for any value (based on the linear probability model).

comparison to the UN target of 0.7 percent of GNI to be devoted to development assistance, and the average value for the United States of 0.16 percent over the 1991–2001 period, this effect is sizable. Among the other DAC donors, only France shows a significant increase in its budget after 9/11, also at the 5% level (and by more than one percentage point). When we control for terrorist attacks on the individual donor countries, the positive coefficient on the War on Terror dummy for Canada turns significant at the 10% level. While the United States did increase its aid budget as a share of GNI following the perceived rise in the threat of terror after 9/11, the country did not adjust its aid effort in response to shorter periods of more numerous attacks. The United Kingdom is the only country to react to attacks against its citizens with significant decreases in its aid effort.

We also looked at differences between donors in their allocation of aid. Similar to the budget regressions, we run nested regressions for all donors. Controlling for donor-recipient fixed effects and in contrast to our findings for all DAC donors, we find that US aid amounts are significantly larger in the War on Terror period than in the interwar period. The same results holds for Norway and Sweden, while smaller aid portions come from Germany, Japan and the Netherlands. Among the countries we separated from the aggregate analysis, we find that only the United States increases its foreign aid to countries where terror against its citizens originates, while France, Italy and Sweden actually reduce their aid to these countries. To the extent that these donors are hit by terror from the same countries of origin, this could imply that the United States provides a public good, with European countries benefiting from that enhanced homeland security even though they cut their own aid to countries where terror originates.

5.2 Disaggregating aid

As outlined above, donors effectively fighting against the terrorist threat should especially rely on aid for education, or aid tied explicitly to the fight against terrorism. In this section, we test whether the mechanisms underlying the models by Azam and Thelen (2008, 2010, 2011) and Bandyopadhyay et al. (2011) are understood by the donor community. If aid for education, aid tied to the fight against terrorism, and general aid have differential effects as counterterrorist policies, we would expect donor governments to change the composition of aid as a consequence of terror. Consequently, we first investigate the extent to which terrorism affects the share of aid that a donor devotes to education. As a second step, we also employ the donors' share of aid for government and civil society (DAC purpose code 150), as most projects linked explicitly to (the prevention of) terrorist activities are included in this category.²⁰ The detailed results are reported in Tables A5–A7 in Dreher and Fuchs (2011a).

When we enter the share of a donor's aid to education as the dependent variable, all coefficients on the War on Terror, as well as those on the number of terrorist incidents, are not significant at conventional levels.²¹ In other words, we find no evidence that donors shifted their focus to the sector where aid is expected to be particularly effective in preventing terror.

²⁰ Seventy-seven percent of all projects reported by AidData that have 'terror', 'terrorism' or 'terrorist' in their title or description are classified as aid for government and civil society. Note that we do not use these terror-related projects from AidData in our regressions, because the available information covers only a limited number of countries and years (see <http://www.aiddata.org/>).

²¹ We control for (logged) per-capita GDP and the (logged) number of NGOs per 100,000 inhabitants present in a donor country as proxy for the strength of civil society; tertiary school enrollment rates serve as indicators of the importance that a donor country attaches to education.

When we use the share of aid granted to improve governance and strengthen civil society, the picture looks different. Rather than increasing the share of aid for governance, we find that a smaller share of total aid is committed to this sector when more incidents occur worldwide and in DAC countries, while the dummy for the War on Terror is insignificant.²² Focusing on shares in bilateral aid flows rather than in a donor's aggregate aid budget, the share of aid for education is not significantly affected by the terror variables either. The share of aid to strengthen governance and the civil sector is reduced rather than increased in reaction to bilateral attacks.²³ Overall, there is no evidence that the shares of these aid types increased as a reaction to terrorist attacks and the onset of the War on Terror.²⁴

6 Conclusions

Previous research has concluded that foreign aid is surprisingly ineffective in reducing poverty in the recipient country. At the same time, a number of authors have argued that aid has not been given to fight poverty in the first place. The importance of political considerations for the allocation of aid during the Cold War is well known. With the fall of the Iron Curtain, many hoped that humanitarian motives would guide donors when choosing whom to give aid (and how much aid to allocate). However, rather than directing foreign aid to where it could be most useful in terms of poverty reduction or the promotion of high-quality institutions, the amount of aid declined considerably with the end of the Cold War, despite some rhetoric suggesting the opposite. With the terrorist attacks of September 11, 2001, political motives for granting aid became fashionable again. Leaders in the United States, the European Union, and other DAC countries announced publically to increase aid substantially as a collective strategy for fighting terrorism's evident threat.

A number of previous papers have investigated whether aid is indeed effective in fighting terror. The results are ambiguous, theoretically and empirically. However, this is the first study to test whether, and to what extent, a large group of donors increased their aid effort during the War on Terror period, controlling for other determinants of aid. Although we find this to be the case on average, there is no evidence that donors augmented their foreign aid budgets in years with particularly large numbers of attacks or cut aid when terror incidents have begun ebbing.

As a next step, we investigated whether countries where terror originates received increasing aid inflows, using a Heckman selection model. According to the results, while countries where terror originates are not more likely to receive aid as a consequence, if they are selected, they receive larger aid amounts from the donor hit by the attack. Terror against the Western world, proxied by the number of terrorist incidents against citizens of a DAC country, even reduces the probability to receive aid, on average. This holds in particular for

²²Note that the set of control variables includes (logged) per-capita GDP, the (logged) number of NGOs and civil liberties (taken from Freedom House 2009) as an indicator of the importance that a donor country attaches to related issues.

²³We control for (logged) per-capita GDP and democracy in the recipient country, the share of aid devoted to the particular sector in the donor's total budget as well as for sector-specific need indicators (logged school enrollment rates in the education model and logged number of international NGOs operating in the recipient country in the governance equation).

²⁴As shown in Young and Findley ([this issue](#)), targeting aid towards health might be equally crucial in reducing terrorism. Bandyopadhyay et al. (2011) also point to a trade-off between regime stability and aid tied to counterterrorism. We leave these issues for future investigations.

autocratic countries, for countries voting against the donor in the United Nations General Assembly and for state sponsors of terrorism, but not for the War on Terror period.

We disaggregated the analysis across two dimensions to provide deeper insights than can be provided at the aggregate level. First, we investigated whether there are differences in how donor countries react to terror, finding that indeed there are. Specifically, we find that France and the United States increased their aid effort after 9/11, however, without responding to the actual number of terror events. Concerning the allocation of funds, we find that the United States increased aid to source countries of terror as a consequence of terrorist attacks, while France, Italy and Sweden reduced their aid to these countries. Our second disaggregation by type of aid shows no evidence that donors shifted their focus to education or government and civil society as a reaction to terrorism, which recent models suggest they should.

In summary, we find that politicians may still have to learn from economic research. To the extent that development aid can effectively combat terror across the world, as recent research suggests it does, politicians would be well-advised to target aid to those countries where terrorist groups exist in abundance, as well as promoting education and the fight against terror in particular. Our research also contributes to the aid effectiveness debate. When aid is given to fight terror rather than economic growth, its effectiveness would have to be judged by whether or not it is effective in fighting terror rather than promoting growth.

The analysis in this paper provides a starting point for more detailed investigations in to how donors react to the terrorist threat. It could be complemented by a study focusing on domestic terrorist events in addition to transnational ones. Investigating whether different types of terrorist events, particularly severe events or only those involving fatalities for example, have different effects on aid would also be useful. A more detailed disaggregation of aid according to donors, types of aid, and the specific conditions under which aid is used to fight terror might provide deeper insights than this study could provide. Finally, we suggest not only investigating how aid impacts countries where terror originates, but also looking at their neighbors, major trading partners, or their enemies. A spatial model employing a range of weighting matrices could prove to be fruitful in this context. We leave these questions for future research.

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Appendix

Table 4 Variables and sources

Variable	Description	Source
<i>Aid effort regressions</i>		
Aid effort	Total Official Development Assistance as a share of GNI (commitments, in %)	OECD DAC (http://stats.oecd.org)
Debt	General government gross financial liabilities of donor country as a percentage of GDP (in %)	OECD Economic Outlook (http://stats.oecd.org)

(continued on the next page)

Table 4 (Continued)

Variable	Description	Source
(log) GDP per capita	(log) GDP of donor country divided by population (constant 2000 US\$)	WDI (http://databank.worldbank.org)
(log) Population	(log) Total population size of donor country	WDI (http://databank.worldbank.org)
Government size	Total disbursements of the general government as a share of GDP (in %)	OECD Economic Outlook (http://stats.oecd.org)
Cold War	1 if Cold War period (1971–1990)	–
War on Terror	1 if War on Terror period (2002–2008)	–
Terror worldwide	Number of terror incidents worldwide (4-year average)	ITERATE (Mickolus et al. 2009)
Terror DAC	Number of terror incidents with victims from DAC countries (4-year average)	ITERATE (Mickolus et al. 2009)
Terror donor	Number of terror incidents with victims from donor country (4-year average)	ITERATE (Mickolus et al. 2009)
Aid for education	Aid to education sector (CRS Purpose Code 110, % of total aid commitments)	OECD DAC (http://stats.oecd.org)
Aid for GCS	Aid to government and civil society sector (CRS Purpose Code 150, % of total aid commitments)	OECD DAC (http://stats.oecd.org)
(log) NGOs	(log) Number of international NGOs operating in donor country (per 100,000 inhabitants)	Union of International Associations (1984–2007)
(log) Tertiary school enrollment	(log) Gross enrollment ratio to tertiary education in donor country	WDI (http://databank.worldbank.org)
Civil liberties	Civil liberties rated on a seven-point scale, with 1 representing the most free and 7 the least free	Freedom House (2009)
<i>Aid allocation regressions</i>		
ODA > 0	1 if aid is committed to recipient country by donor country	OECD DAC (http://stats.oecd.org)
(log) ODA	(log) Total aid commitments to recipient country (constant 2000 US\$)	OECD DAC (http://stats.oecd.org)
(log) GDP per capita	(log) GDP of recipient country divided by population (constant 2000 US\$)	WDI (http://databank.worldbank.org)
(log) Population	(log) Total population of recipient country	WDI (http://databank.worldbank.org)
(log) Disaster	(log) Number of people affected by disasters in recipient country	EM-DAT (2010)
Democracy	1 if the recipient regime qualifies as democratic	Cheibub et al. (2009)
UNGA voting	UNGA voting alignment between donor and recipient	Voeten and Merdzanovic (2009)
(log) Bilateral exports	(log) Donor exports to recipient country (constant 2000 US\$)	COW (Barbieri et al. 2008)
(log) Oil production	(log) Oil production in recipient country in millions of barrels per day	Humphreys (2005), BP (2010)
(log) Donor total commitments	(log) Total aid commitments of donor country (constant 2000 US\$)	OECD DAC (http://stats.oecd.org)

(continued on the next page)

Table 4 (Continued)

Variable	Description	Source
Bilateral terror donor	Number of terror incidents with victims from donor country conducted by recipient citizens (4-year average)	ITERATE (Mickolus et al. 2009)
Bilateral terror DAC	Number of terror incidents with victims from DAC countries conducted by recipient citizens (4-year average)	ITERATE (Mickolus et al. 2009)
State sponsor of terror	1 if a recipient country is classified by the US Secretary of State as a state sponsor of terror	U.S. Department of State
Aid for education	Aid to education sector (CRS Purpose Code 110, % of total aid allocated to recipient)	OECD DAC (http://stats.oecd.org)
Aid for GCS	Aid to government and civil society sector (CRS Purpose Code 150, % of total aid allocated to recipient)	OECD DAC (http://stats.oecd.org)
(log) Primary school enrollment	(log) Gross enrollment ratio to primary education in recipient country	WDI (http://databank.worldbank.org)
(log) Tertiary school enrollment	(log) Gross enrollment ratio to tertiary education in recipient country	WDI (http://databank.worldbank.org)
(log) NGOs	(log) Number of international NGOs operating in recipient country (per 100,000 inhabitants)	Union of International Associations (1984–2007)
Donor aid for education	Total aid to education sector (CRS Purpose Code 110, % of donor's total aid commitments)	OECD DAC (http://stats.oecd.org)
Donor aid for GCS	Total aid to government and civil society sector (CRS Purpose Code 150, % of donor's total aid commitments)	OECD DAC (http://stats.oecd.org)

Notes:

- Values that were only available in current US dollars have been transformed to constant 2000 US dollars using US Consumer Price Indices obtained from the World Development Indicators
- The value of 1 has been added to Bilateral exports, Oil production and Disaster before taking logarithms

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