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Foreign Direct Investment, Aid, and Terrorism: An Analysis of Developing Countries

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ABSTRACT

Using a dynamic panel data framework, we investigate the relationship between the two major forms of terrorism and foreign direct investment (FDI). We then analyze how these relationships are affected by foreign aid flows. The analysis focuses on 78 developing countries for 1984-2008. Our findings suggest that all types of terrorism depress FDI. In addition, aid mitigates the negative effects of total and domestic terrorism on FDI; however, this is not the case for transnational terrorism. This finding highlights that different forms of terrorism call for tailoring mitigating strategies. Foreign aid apparently cannot address the causes and supply lines of transnational terrorism. Aid's ability to curb the risk to FDI for total and domestic terrorism is extremely important because (i) domestic terrorism is an overwhelming fraction of the total terrorism for many developing nations, and (ii) FDI is an important engine of development for these nations.

Keywords: Foreign direct investment; Domestic and transnational terrorism; Foreign aid; Dynamic panel model

JEL classification: D74; F21; F35

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1. Introduction

Ever since the four hijackings on 11 September 2001 (henceforth, 9/11), the world has been acutely aware of the dangers of terrorism. Terrorism is the premeditated use or threat to use violence by individuals or subnational groups against noncombatants in order to obtain a political or social objective through the intimidation of a large audience beyond that of the immediate victims. There is both a political and economic dimension to terrorism. The political dimension involves circumventing normal democratic or autocratic political processes by making demands directly to the government through the use or threat of violence. If the government views the consequences of future acts as greater than the cost of conceding to the terrorist demands, then the government will grant the sought-after concessions. Such concessions set a terrible precedent and may encourage other groups to engage in terrorist acts (Enders and Sandler, 2006). The economic dimension of terrorism concerns losses in foreign direct investment (FDI), damaged infrastructure, output losses, security costs, reduced economic growth, reduced tourism, trade losses, higher insurance premiums, and longer waits in airports (Keefer and Loayza, 2008). Terrorists are well aware of the potential economic harms that their attacks can cause and view these consequences as pressuring besieged governments to concede to their demands. Enders and Sandler (2008) identify some guiding principles in regards to the economic impact of terrorism. For the current study, the most important of these principles is that developing countries are particularly prone to the economic ramifications of terrorism. A second guiding principle is that countries plagued with an intense long-term terrorist campaign can suffer significant losses in GDP, FDI, and GDP growth (Abadie and Gardeazabal, 2003).

The purpose of the current study is to present the first dynamic panel investigation of the

effect of terrorism on FDI for developing countries. In a recent study, Abadie and Gardeazabal (2008) quantify the impact of terrorism risk on FDI in a cross-sectional study involving up to 186 countries. In particular, they find that a significant increase in this risk can reduce the net FDI position by approximately 5% of GDP. The earliest study of terrorism and FDI uses time-series (vector-autoregressive) methods to investigate two terrorism-ridden countries – i.e., Spain and Greece in the 1970s and 1980s (Enders and Sandler, 1996). Our current study distinguishes the FDI consequences of three forms of terrorism: domestic, transnational, and total terrorism. This study of FDI is particularly important for our sample of developing countries, because FDI is a major source of savings for such countries to support economic growth.

We find that terrorism has a sizable negative impact on FDI; each additional incident per 100000 persons reduces FDI by 34.83 million US dollars for an average country. Notably, aid has a mitigating influence on this reduction; on average, aid reduces this loss from 34.83 to 6.28 million US dollars. A host of models are presented with a varied set of controls for democracy, globalization, openness, literacy, exchange rates, and other considerations. Nevertheless, the findings remain qualitatively and quantitatively quite similar.

Next, the paper investigates the differential impact of transnational and domestic terrorism on FDI. We find that transnational terrorist incidents have 2.5 to 3 times the harmful impact on FDI than domestic terrorist incidents. Although aid has a large mitigating impact on the adverse influence of domestic terrorism on FDI, aid does not have this same mitigating impact on transnational terrorism. This is probably due to aid-recipient countries not being able to address a transnational terrorist threat that is often based abroad. Most developing countries have little ability to project power beyond their borders.

The body of the paper begins in Section 2 with a two-stage game representation in which

the aid-recipient country chooses its counterterrorism in stage 1, while the foreign firm decides its FDI in stage 2. This model's comparative statics indicate the influence of terrorism and foreign aid on FDI – our key concerns. Section 3 provides a description of the variables and data, while Section 4 indicates the dynamic panel model and estimation results. Section 5 concludes the analysis.

2. Theoretical model

Along the lines of Asiedu et al. (2009), we consider a foreign firm operating in a developing host nation and producing output $f(k)$ from capital k, which it rents at a given rate r. This firm suffers from damages or lost output caused by terrorism, which reduces its revenue. With the good produced through FDI as the numeraire, the profit of the foreign firm is

$$\pi = (1-\tau) f(k) - rk,\ 0 < \tau < 1,\ f' > 0,\ f'' < 0, \tag{1}$$

where τ represents the fraction of output lost by the firm due to terrorism-related damages.

Terrorism may be reduced by the host government's counterterrorism effort (E) along the following lines:

$$\tau(\alpha, E) \equiv \alpha + t(E), \text{ where } \alpha > 0,\ \tau_E = t'(E) < 0, \text{ and } \tau_{EE} = t''(E) > 0. \tag{2}$$

Eq. (2) suggests that terrorism declines with counterterrorism effort, but at a declining rate. A rise in α serves to augment the level of terrorism for any given amount of E. The separability of α and E implies that a rise in α does not affect the marginal effectiveness of counterterrorism effort (i.e., α is an intercept in the relationship between terrorism and E).

The host government puts a weight θ on the revenues of the foreign firm. This weight may derive from a tax-revenue collection motive (Asiedu et al., 2009), or from other equally relevant motives associated with FDI (e.g., positive technological spillovers to domestic firms

from more sophisticated foreign firms or local employment generation). For simplicity, we assume that this weight, which captures these various potential benefits, is exogenously given.[1] We also assume that the host government receives aid A (measured in units of the numeraire good) from the foreign nation. With constant marginal cost of counterterrorism effort set at unity, the host government's payoff is

$$V = \theta(1-\tau) f(k) + A - E. \tag{3}$$

A substantial focus of recent aid flows is related to counterterrorism efforts (see, e.g., Fleck and Kilby, 2010). To capture this fact, we assume that the host nation receives aid in two forms: general aid and counterterrorism-tied aid. This is represented as:

$$A = \beta + \gamma E,\ \beta > 0,\ 0 < \gamma < 1, \tag{4}$$

where β is general aid, and γE counterterrorism-tied aid. Using (1), (2), and (4) in (3), we get

$$V = \theta\left[1-\tau(\alpha, E)\right] f(k) + \beta + (\gamma - 1) E. \tag{5}$$

We consider a two-stage game where the host government chooses E in stage 1 and the foreign firm chooses k in stage 2. We solve the model by backward induction. Accordingly, we describe stage 2 first.

Based on (1), the first-order condition for the firm's profit maximization in stage 2 is[2]

$$(1-\tau) f'(k) - r = 0. \tag{6}$$

Suppressing r from the functional form, (6) defines:

[1] Asiedu at al. (2009) endogenizes this weight, which reflects the host government's optimal tax rate in their paper. In contrast, we focus on an optimal choice of the counterterrorism effort for a given weight applied to FDI. There are two reasons for this. First, this simplifies the analysis and allows the comparative-static effects related to terrorism to be much more informative. Second, as we discuss in the text, there are a lot of reasons in addition to the tax-revenue motive for a host government to care about FDI. Since explaining the desirability of FDI is not our focus, it is reasonable to treat this effect through a parameter exogenous to the model.

[2] Strict concavity of $f(k)$ ensures that the second-order condition is satisfied.

$$k = k(\tau),\ \frac{dk}{d\tau} = k_\tau = \frac{f'}{(1-\tau)f''} < 0. \tag{7}$$

Thus, terrorism reduces the volume of FDI, k.

Next, we turn to the aid-recipient government's choice of counterterrorism in stage 1. Using (2) and (7) in (5), we get

$$V(E;\theta,\alpha,\beta,\gamma) \equiv \theta\left[1-\tau(\alpha,E)\right] f\left\{k\left[\tau(\alpha,E)\right]\right\} + \beta + (\gamma-1)E. \tag{8}$$

Suppressing θ in the functional form, we find the optimal choice of counterterrorism effort:[3]

$$\frac{\partial V}{\partial E} = V_E(E;\alpha,\gamma) = \theta t'\left[(1-\tau) f' k_\tau - f\right] + \gamma - 1 = 0. \tag{9}$$

Eq. (9) implicitly defines

$$E = E(\alpha,\gamma). \tag{10}$$

By substituting (2) and (10) into (7), we have:

$$k = k\left\{\tau\left[\alpha, E(\alpha,\gamma)\right]\right\} = k(\alpha,\gamma). \tag{11}$$

Given Eq. (11), we can explore how an exogenous rise in terrorism (i.e., a parametric shift of α), or an exogenous rise in counterterrorism aid (i.e., a rise in γ) affects FDI. We can also analyze how the marginal effect of the terrorism parameter α on FDI (i.e., $k_\alpha = \frac{\partial k}{\partial \alpha}$) is affected by a rise in the foreign aid parameter γ. The latter throws light on the possibility that foreign aid may be useful in alleviating the damaging effect of terrorism on FDI.

The comparative-static analysis (available from the authors on request) provides us with the following results:

$$k_\alpha = \frac{dk}{d\alpha} = k_\tau\left[1 + t'\left(\frac{\partial E}{\partial \alpha}\right)\right] < 0; \tag{12}$$

[3] It is easily verified that the second-order condition is satisfied.

$$k_\gamma = \frac{dk}{d\gamma} = k_\tau t' \left(\frac{\partial E}{\partial \gamma} \right) > 0 \text{ ; and,} \tag{13}$$

$$\frac{d|k_\alpha|}{d\gamma} < 0 \text{ , if and only if } (t')^2 f' k_\tau - 2t''(rk_\tau - f) > 0, \tag{14}$$

where $|k_\alpha|$ is the absolute value of k_α, and hence it captures the magnitude of the damaging effect that terrorism has on FDI. Eq. (12) indicates that increased terrorism reduces FDI, while Eq. (13) shows that increased counterterrorism aid raises FDI. Notice that the left-hand side of the inequality in Eq. (14) cannot be unambiguously signed (because $k_\tau < 0$, $t'' > 0$). Under certain conditions the inequality will be satisfied, suggesting that a greater emphasis on tied aid will alleviate, at the margin, the damaging effect of terrorism on FDI. This term corresponds to the interactive term in our later empirical representation.

3. Description of variables and data

Our dataset comprises 78 developing countries over the period 1984-2008.[4,5] . The dependent variable is the percentage of net FDI flows to GDP and the required data are taken from World Development Indicators (WDI-2010).

3.1. Variables of interest

Through disruptions, damage, and enhanced security, higher terrorism is anticipated to reduce FDI (Enders et al., 2006), consistent with our theoretical treatment where terrorism limits the

[4] Appendix A lists countries in our study. Our sample size is limited due to the availability of institutional data from International Country Risk Guide (ICRG) database published by The Political Risk Services. These data start from 1984 onwards.

[5] We did not include in our sample four outliers in terms of the number of terrorism incidents and ongoing war conditions there. Theses outliers are Afghanistan, Iraq, Palestine, and Western Gaza. Lack of data availability on other variables is another reason for their exclusion.

effective output of foreign firms. For example, using a terrorism risk index for 2003-2004 in a cross-country analysis, Abadie and Gardeazabal (2008) conclude that a higher risk of terrorism depresses net FDI to a country.

A crucial distinction for this paper is between domestic and transnational terrorism. Domestic terrorism is homegrown, where the perpetrators, victims, supporters, and targets are all from the home country. Moreover, domestic terrorist incidents occur on home soil. The kidnapping of a citizen for political purposes or to fund operations by a domestic group is a domestic terrorist incident. If a domestic group hijacks a domestic flight with only nationals aboard to another city in that country for political purposes, then the hijacking is a domestic terrorist incident. Domestic terrorist incidents may also dissuade FDI through enhanced risks associated with political instability. Moreover, such incidents can disrupt or destroy infrastructure, thereby limiting output from a given set of inputs. Through its victims, targets, supporters, or perpetrators, transnational terrorist incidents concern at least two countries. A terrorist bombing that destroys the offices of a foreign company is a transnational terrorist incident. Additionally, the kidnapping of a foreign executive for ransom to support a group's terrorist campaign is a transnational terrorist event. An armed attack on foreign nations – e.g., the Mumbai massacre of 26-29 November 2008 – constitutes a transnational terrorist incident. As in the case of domestic terrorism, transnational terrorism can divert FDI owing to heightened risks and reduced output. The relative impact of the two forms of terrorism on FDI is an empirical question that depends on the nature and frequency of the two types of attacks. There are, however, grounds for anticipating a greater marginal impact of transnational terrorism on FDI since foreign personnel and assets are directly targeted.

We draw our terrorism data from the Global Terrorism Database (GTD) that is

maintained by the National Consortium for the Study of Terrorism and Responses to Terrorism (START, 2009). In particular, we use terrorism event data from 1984-2007 to quantify terrorism's impact on FDI. We utilize the Enders et al. (2011) partition of GTD into three categories of terrorist attacks: domestic, transnational, and ambiguous.[6] Their breakdown allows us to estimate not only the impact of total terrorism on FDI, but also the separate impacts of domestic and transnational terrorism on FDI for our sample developing countries. Our estimate of the effects of these two types of terrorism is a novel contribution of this study.

The data for net aggregate disbursement of official development assistance, commonly known as foreign aid, are taken from online database of Development Assistance Committee (DAC-2010) of OECD (2010). The existing literature on aid and FDI indicates contrasting effects of aid on FDI (e.g., Asiedu et al., 2009; Harms and Lutz, 2006; Selaya and Sunesen, 2008). On the positive side, aid may raise the marginal productivity of capital by financing complementary inputs, such as infrastructure or human capital. Also, aid may help FDI by limiting terrorist attacks. On the negative side, aid may be fungible as it crowds out private investment. Alternatively, aid may generate rent-seeking activities by empowering politicians to misappropriate public funds. The impact of aid on FDI may, thus, be positive or negative. One of the central objectives of this study is, however, to test whether aid can reduce the adverse effects of terrorism on FDI in recipient countries. In the empirical model, this will be revealed by the sign of the estimated coefficient on the interaction term of aid and terrorism.

3.2. Control variables

While drawing control variables, we take guidelines from the empirical literature on the

[6] Total terrorism incidents include both domestic and transnational incidents as well as some other incidents whose category is unclear. In our sample, there are a total of 34,781 incidents of terrorism of which 26,756 are domestic terrorism and only 4,332 are transnational incidents of terrorism.

determinants of FDI; however, one limitation is that time-variant data for some of the variables, used in the past for developed countries, are not available for developing countries. This shortcoming is overcome by: (i) applying a fixed-effects econometric model that controls for the geographic, strategic, or other time-invariant FDI influences, and (ii) performing a careful sensitivity analysis by including a host of institutional variables that may potentially affect FDI. Moreover, we demonstrate that our results are robust to different specifications.

Specifically, the control variables that we consider for our benchmark specification are: GDP growth rate, trade openness, log inflation, log GDP per capita (in constant 2000 US dollars), the log numbers of telephones per 10 people in a country, and lagged level of FDI/GDP. GDP growth captures the expected return on investment, while GDP per capita serves as a proxy for the host country's market size. Inflation measures macroeconomic stability and the number of telephones reflect infrastructure availability in a country.

The impact of trade openness, measured by the ratio of exports plus imports to GDP, is linked to the type of foreign investment in the host country (e.g., see Asiedu, 2002). Busse and Hefeker (2007) argue that, while horizontal investment may be attracted by higher trade barriers, export-oriented or vertical investment may favor relatively more open economies. Nevertheless, past studies often find that trade openness has a positive influence on FDI. We also include lagged FDI to check the persistence in foreign investment, which several studies find to be positively related to current FDI (e.g., Asiedu et al., 2009; Asiedu and Lien, 2010; Busse and Hefeker, 2007; Walsh and Yu, 2010).

To determine whether the results of our primary variables are robust to the inclusion of other control variables, we also include log adult literacy rate and log exchange rate, measured as

local currency per US dollar.[7] The effect of the literacy rate on FDI is not clear. Since low education results in lower wage rates, a multinational firm may prefer operations in countries with lower literacy for reduced costs of production. Alternatively, multinational firms requiring skilled labor may choose countries with higher literacy rate. Depreciation of local currency may attract more FDI as this makes the country's exports more competitive at world prices. Data for all of the above control variables are taken from World Development Indicators (WDI) (2010).

We also include a number of variables reflecting institutional quality, which likely influence a foreign investor's decision. In particular, we draw data on investment profile, democratic accountability, and socioeconomic conditions from International Country Risk Guide (2010) of the Political Risk Group. Investment profile assesses risks to investment and is based on three sub-components: contract viability/expropriation, profits repatriation, and payment delays. Socioeconomic conditions represent pressures at work in society that might restrain government action or fuel social dissatisfaction, which may destabilize the political regime. These conditions' subcomponents are unemployment, consumer confidence, and poverty. Democratic accountability stands for a government's responsiveness to its citizens and the extent of political freedom and civil liberties. A higher value of these indices reflects lower investment risks, better socioeconomic conditions, and more freedom.

Finally, we also control for political globalization and internal civil conflicts in a country for our sensitivity analysis. Political globalization reflects political integration of a country with the rest of the world. Its weighted index is measured loosely by the numbers of embassies in a country, the number of international organizations it belongs to and the number of peacekeeping

[7] There are missing values for adult literacy rate in WDI data. We have used interpolation to generate those missing values. Although adult literacy rate is found to affect the net FDI positively in all regressions, it is not statistically significant. The results of our main variables of interest remain qualitatively the same with or without the inclusion of literacy.

missions it participated in and the number of international treaties it signed. A higher value of this index implies more political openness. Its data come from KOF Index of Globalization, compiled by Dreher (2006) and updated by Dreher et al. (2008). The index of internal civil conflicts is based on the acts of civil violence, civil war, ethnic violence, and ethnic war in a country, whose higher value reflects more civil unrest. Its data are taken from Global Report (2009) of the Center of Systematic Peace.

Table 1 reports descriptive statistics; Table 2 presents the correlation matrix of the highly correlated variables, and Figure 1 shows the kernel density and histogram plot of FDI. Data for all variables are broken into separate three-year averages, giving us a total of eight time periods.[8] This transformation is warranted for at least two reasons: (i) it smoothes out cyclical fluctuations in the data, and (ii) it augments the variation in the dependent and independent variables. The latter assists in fixed-effects estimation.

[Table 1 near here]

Descriptive statistics in Table 1 reveal that we also transform our terrorism variables as the number of incidents per 100000 persons in a country. We use this transformation because it accounts for terrorism relative to the country's population, and it provides a better reflection of the degree of threat perception in a country to foreign investors. For robustness, we also investigate other measures of the terrorism variable – e.g., the number of terrorist incidents.

[Table 2 near here]

Table 2 shows that there is high correlation between log GDP per capita and log phones, which indicates a multicollinearity problem if they are simultaneously included in the regression. Because the latter measures infrastructure availability, which can be of great interest to foreign

[8] Data for all variables are for 1985-2008, except for the terrorism and political globalization variables which are for 1984-2007.

investors, we report regression results that include it. However, a major drawback of the GDP per capita is that it suffers from a skewed distribution due to high income inequalities in developing countries. We include GDP growth rate in all regressions which also captures market growth potential and expected investment returns in a country.[9]

[Figure 1 near here]

Figure 1 illustrates that the majority of countries over the sample period are clustered around the net FDI that range from 0.01 to 5% of their GDP. While a few countries also experienced negative net FDI inflows (i.e., Botswana, Cameroon, Gabon, Iran, Libya, Mali, Panama, Sierra Leone, and Yemen), some exhibit a relatively high net FDI inflows (i.e., Angola, Bahrain, Bolivia, Guyana, Lebanon, Malta, Republic of Congo, Panama, and Vietnam). In our sample, net FDI over GDP average around 2.5 percentage points with a standard deviation of 3.2 percentage points (see descriptive statistics in Table 2).

4. Empirical methodology and estimation results

4.1. Dynamic panel estimation

We rely on a dynamic panel model, based on a generalized method of moment (GMM) estimator for deriving estimation results. This method has been favored by several recent contributors investigating panel data for developing countries (e.g., Asiedu et al., 2009; Asiedu and Lien, 2010; Busse and Hefeker, 2007; Walsh and Yu, 2010). We prefer this methodology for the following reasons: First, as investors incur considerable expenditures for starting a business in a host country, most of which are sunk cost, it is important to capture the persistence of FDI in a dynamic panel framework. Second, measuring the relationship between FDI and most of its

[9] Our regression results remain qualitatively the same if we include log GDP per capita instead of log phones. These results are available from the authors upon request.

explanatory variables (especially terrorism, foreign aid, GDP growth rate, and trade openness) raises endogeneity concerns. One obvious solution to these simultaneity concerns is to employ the method of two-stage least square (2SLS); however, the lack of appropriate instruments for many endogenous variables renders this approach infeasible. The use of invalid instruments can contaminate the estimation results.[10] Our system-GMM estimator employs suitable lagged differences of the endogenous variables as instruments, and also uses additional moment conditions to address this issue (see below). Third, it is important to control for country-specific, unobservable fixed factors in the model that may correlate with the variables of interest. This is especially relevant for FDI regressions because factors such as geographical distance, colonial history, and political regime type display little, if any, variation over sample period. Finally, the system-GMM estimator technique is most suitable for large cross sections and a small number of time periods, characteristic of our data.

Our reduced-form equation takes the following form:

$$FDI_{it} = \alpha + \beta T_{it} + \gamma A_{it} + \delta \left(T \times A\right)_{it} + \theta FDI_{i,t-1} + X_{it}^{'}\lambda + \eta_i + \kappa_t + \varepsilon_{it}. \quad (15)$$

In Eq. (15), *i* represents the country, while *t* stands for the time period. *FDI* is expressed as a share of GDP; lagged FDI/GDP captures the persistence of FDI; *T* denotes incidents of terrorism per 100000 persons; *A* stands for net aggregate disbursement of aid as a share of GDP; and *X* is the vector of all other control variables. η_i represents time-invariant, country-specific fixed effects; κ_t includes time dummies; and ε_{it} is the disturbance term.

The interaction term of terrorism and foreign aid, $(T \times A)_{it}$, is introduced to examine the

[10] The implicit identification assumption behind instrument(s) is that it affects the dependent variable only through its exogenous impact on the instrumented endogenous variable. For example, to derive results using 2SLS, we tried various instruments for foreign aid which have been used in the previous studies (e.g., Burnside and Dollar, 2002; Djankov et al., 2005; Werker et al., 2009). However, first-stage regressions do not approve the validity of our instruments for aid. Also, note that there are hardly any studies on FDI, especially for developing countries, that have employed instruments for aid.

influence of aid on the marginal effect of terrorism on FDI/GDP. That is, this term captures Eq. (14) from the theoretical model. Whether or not the flow of aid reduces the adverse effect of terrorism on FDI will be revealed by the sign and the magnitude of the estimated coefficient of this interaction term. For all regressions results, we calculate the partial effect of terrorism at the average value of foreign aid in our sample. Our main hypothesis postulates a significantly positive coefficient for this term. In short, we hypothesize that $\beta \prec 0$, $\delta \succ 0$, and $\beta + \delta \prec \beta$. The hypothesis regarding the sign of β follows from the comparative statics in our theoretical model – see Eq. (12).

By construction, the dynamic model of the GMM estimator takes first difference of Eq. (15), which eliminates the time-invariant, country-specific fixed-effects, and, thus, it takes the following form:

$$FDI_{it} - FDI_{i,t-1} = \alpha + \beta\left(T_{it} - T_{i,t-1}\right) + \gamma\left(A_{it} - A_{i,t-1}\right) + \delta\left[\left(T \times A\right)_{it} - \left(T \times A\right)_{i,t-1}\right] + \theta\left(FDI_{i,t-1} - FDI_{i,t-2}\right) + \left(X'_{i,t} - X'_{i,t-1}\right)\lambda + \left(\kappa_t - \kappa_{t-1}\right) + \left(\varepsilon_{it} - \varepsilon_{i,t-1}\right) \quad (16)$$

The two obvious choices for estimating dynamic panel models, based on GMM estimators, are the difference-GMM (Arellano and Bond, 1991) and the system-GMM (Blundell and Bond, 1998). Concerning endogeneity, Arellano and Bover (1995) point out that the lagged levels are often poor instruments for the first differences. The system-GMM estimator uses additional moment conditions and combines the regressions, one in first differences and one in levels, using both lagged differences and lagged levels as instruments. This estimator reduces the potential biases and imprecision associated with the difference-GMM, thereby increasing efficiency.

The system-GMM is also particularly well suited for large cross sections and a small number of time periods, as in our application. One potential concern about this estimator is that

it may increase the bias in the estimates, since it utilizes more instruments. This is not a problem here because the numbers of instruments in our regressions are far less than not only the numbers of observations, but also the numbers of countries.[11] We should, however, note that the instruments and the estimates from either of these dynamic estimation procedures are consistent if the error term is not serially correlated. We checked each of our regressions, and our results strongly confirm the validity of instruments and the absence of serial correlation.[12]

4.2. Estimation results − Total terrorism incidents

In Table 3, column (1) reports the results of our baseline model by regressing FDI/GDP on total terrorism incidents per 100000 persons, aid, the interaction term between terrorism and aid, and lagged FDI/GDP, which constitute our primary variables. As expected, the coefficient on the terrorism term is negative and statistically significant at the 1% level. Its magnitude suggests that total terrorism has a large adverse effect on FDI. An increase of one incident of total terrorism per 100000 persons induces a reduction of 2.07% in the share of FDI in GDP. To illustrate its harmful effect, we calculate this loss in terms of its monetary value for an average level of FDI in our sample, which stands at 1682.48 million US dollars. This loss amounts to a fall in net FDI position of 34.83 million US dollars for the average country. Given that FDI is an important source of savings and therefore, growth and development, this finding is disconcerting for developing countries.

[Table 3 near here]

The negative and significant coefficient on aid suggests that aid reduces FDI, thus

[11] According to Roodman (2007), the number of instruments in a dynamic panel GMM model should ideally be less than the number of countries. In all of our regressions, the countries-to-instruments ratio is always well over 1. Moreover, we use the two-step GMM estimator in all regressions, which is asymptotically efficient and robust to all kinds of heteroskedasticity (Asiedu and Lien, 2010).

[12] See the numbers of instruments utilized, Sargan test, and second-order autocorrelation test reported in Tables 3-6.

indicating that the negative influences of aid on FDI outweigh the positive influences. Asiedu et al. (2009) also find a negative effect of aid on FDI for sub-Saharan Africa and a few other developing countries. Harms and Lutz (2006), however, argue that the effect of aid on foreign investment is unclear. If the rent-seeking effect of aid dominates its infrastructure building effect, then it will be negative; otherwise aid will have a positive influence on FDI. Following similar line, Selaya and Sunesen (2008) also note that the complementarity between aid and FDI does not account for opposing influences. Aid may also have a positive effect if it is tied to fighting terrorism.

Next, we consider the interaction term between terrorism and aid, whose purpose is to test whether increasing aid leads to a significant reduction in the negative effect of terrorism on FDI. The partial effect, ($\partial FDI/\partial T=\beta + \delta \times A$), implies that β and δ are parameters of interest. The results show that the coefficient on this term is positive and significant at the 1% level, supporting our hypothesis that an increasing flow of aid ameliorates the adverse effect of terrorism on FDI. For an average level of aid in our sample countries, we calculate and report this partial effect of terrorism in the last line of Table 3. This shows that the negative independent effect of higher terrorism incidents per 100000 persons on FDI goes from −2.070 to −0.373 when net aid flows to a country make up 6.427% of its GDP. In terms of its monetary effect, this reduces the loss in FDI from 34.83 to 6.28 million U.S. dollars. Because donors increasingly link aid to encouraging enforcement efforts against terrorism (Azam and Thelen, 2010; Fleck and Kilby, 2010), aid's greater flow signals lower future threat perception, which appears to boost investors' confidence.[13] The effect of lagged FDI/GDP on its current rates is positive and significant, indicating persistence in FDI over time.

The results in column (1) cannot qualify as causation insofar as this model's specification

[13] See Bandyopadhyay et al. (2011) for the link between foreign aid and counterterrorism policy.

does not include other variables that may affect FDI. Therefore, we introduce control variables that are commonly used in FDI regressions – e.g., GDP growth rate, trade openness, log inflation, and log phones. In column (2), the signs and significance of our primary (baseline) variables remain about the same after including these control variables in the regression specification; however, the coefficient on the terrorism variable declines somewhat. This suggests that an increase of one incident of total terrorism per 100000 persons depresses FDI's share of GDP by 1.49% on average in a sample country. The coefficient of the interaction term reveals that aid mitigates the adverse effect of terrorism in developing countries. This can be inferred from the estimated effect of terrorism on FDI/GDP, which decreases from −1.490 to −0.365 for a sample country that receives an average amount of aid. The interpretation of the findings for aid and lagged FDI/GDP remains the same as before.

As anticipated, GDP growth rate and trade openness exhibit positive and significant impacts on FDI/GDP, while log inflation negatively impacts FDI/GDP, but is not statistically significant. The positive coefficient on the phone term suggests that better infrastructure availability attracts FDI; however, this coefficient is also not significant.

4.3. Robustness analysis

We perform several robustness checks on our model's specification. In particular, we extend our variables to capture the institutional environment in a country, as well as other influences that could potentially affect a country's net FDI position.

As a first robustness check, we include log adult literacy rate, log exchange rate, and investment profile. The results in column (3) of Table 3 show that the findings of our primary variables remain robust to the inclusion of these variables. In fact, the coefficient on the phone term turns marginally significant with their inclusion. As expected, the coefficients on all of

these additional control variables are positive, but the coefficient of adult literacy rate is not significant.

Next, we drop investment profile and separately include two other institutional variables in the regression. The results of democratic accountability and socioeconomic conditions in columns (4) and (5), respectively, reveal that both attract FDI to developing countries, but the latter is not statistically significant. The relatively larger magnitude of the democratic accountability coefficient implies that foreign investors prefer locating operations where governments grant more political freedom and civil liberties to citizens.

We further include the variables of political globalization and internal civil conflicts in the regression, as shown in column (6). The significant positive effect of political globalization suggests that foreign investors prefer a venue country that is more integrated with the world. By contrast, the effect of internal civil conflicts is statistically insignificant.

As a final sensitivity analysis, we include all variables together in the regression, because they impart somewhat different information. Their simultaneous inclusion does not pose any statistical problem because correlations between these variables are not high. The results in column (7) further confirm that foreign investors locate where governments value political freedom and civil liberties. This is consistent with the findings of a recent study by Asiedu and Lien (2010), which concludes that democracy attracts more FDI to countries where the share of natural resources in total exports is low. Democratic accountability are generally believed to promote economic growth and development (e.g., see Persson and Tabellini, 2007). The signs and significance of our variables of interest remain unaltered with the simultaneous inclusion of all other potential determinants of FDI. The *P* values for the Sargan and autocorrelation tests confirm the validity of our instruments and the absence of serial correlation in each regression.

These robustness checks strongly support our two central hypotheses: First, terrorism poses a substantial threat to the inflow of FDI. In all regression specifications, an increase of one incident of total terrorism per 100000 persons depresses FDI from 1.581 (for the fully specified model) to 2.070 (for the baseline model) percent of GDP. In monetary terms, this is a loss of 26.60 and 34.83 million US dollars in FDI, respectively. Second, aid mitigates the adverse effect of terrorism on FDI in developing countries. That is, the coefficients on total terrorism range from −1.581 (for the fully specified model) to −2.070 (for the baseline model); however, its partial effect on FDI, calculated for an average level of aid ranges from −0.296 (for the fully specified model) to −0.373 (for the baseline model), confirms the mitigating effect of aid. For the baseline model, this implies that aid reduces this adverse effect down from 34.82 million US dollars (without the aid-mitigating influence) to 6.28 million US dollars (with the aid-mitigating impact). While, for the fully specified model, this adverse effect goes down from 26.60 million US dollars (without the aid-mitigating influence) to 4.98 million US dollars (with the aid-mitigating impact).

4.4. Estimation result − Domestic vs. transnational terrorism incidents

We now investigate the separate influences of domestic and transnational terrorist incidents on the FDI share of GDP. Given their targeting differences and their relative frequency of attacks, we anticipate that domestic and transnational terrorist incidents will have different impacts on FDI shares. Owing to its direct impact on foreign personnel and assets, we postulate that transnational terrorism will have a larger adverse effect than domestic terrorism on the investment decision of foreign investors.

[Table 4 near here]

We adopt our previous estimation strategy when distinguishing FDI effects of the two

types of terrorism. Table 4 reports the regression results for domestic incidents of terrorism. The coefficient magnitudes, signs, and significance of our primary and control variables are quite similar to those for total terrorism. This is not surprising because domestic incidents make up about 77% of total terrorism incidents in our dataset, while transnational incidents account for just 12% of total terrorism. The remaining category of terrorism accounts for 11% of the total and corresponds to terrorist events that Enders et al. (2011) cannot unequivocally classify as domestic or transnational terrorism owing to missing data.

These domestic terrorism results further confirm that terrorism negatively affects FDI, and that aid helps mitigate this negative effect. To put the estimated effect of domestic terrorism on FDI in perspective, an increase of one incident of domestic terrorism per 100000 persons depresses FDI from −2.106 (for the fully specified model) to −2.362 (for the baseline model) percent of GDP; however, its partial effect on FDI, calculated for an average level of aid, ranges from −0.281 to −0.440, respectively. In monetary terms, this amounts to a loss in FDI of 35.43 million US dollars (for the fully specified model) and 39.74 million US dollars (for the baseline model); however, aid reduces this loss down to 4.73 and 7.40 million US dollars for the average country, respectively.

The regression results in Table 5 show that, like domestic terrorism, transnational terrorism also negatively affects FDI. An increase of one incident of transnational terrorism per 100000 persons decreases FDI from −5.236 (for the fully specified model) to −7.412 (for the baseline model) percent of GDP. In monetary terms, this results in a loss of FDI of 88.09 and 124.71 million US dollars, respectively. This suggests that a transnational terrorism incident induces a detrimental effect on FDI that is 2.49 to 3.12 times higher than that of a domestic terrorism incident. This substantially larger adverse impact of the former agrees with our prior.

[Table 5 near here]

Interestingly, the coefficient on the interaction term between transnational terrorism and aid is only statistically significant in the baseline regression, and does not withstand any of our sensitivity analysis. This suggests that aid fails to mitigate the negative effect of transnational terrorism on FDI. This result is probably due to the inability of aid-recipient countries to address its transnational terrorist problem, which comes from abroad. Developing countries have little ability to be proactive against terrorists using foreign bases to launch cross-border terrorist attacks. Moreover, many transnational terrorist groups set up shop in failed states, which have limited governance (Bandyopadhyay et al., 2011), which also works against an effective counterterrorism outcome.

4.5. Further robustness checks

Following Krueger and Malečková (2003), we also check the robustness of our findings by excluding Colombia and India as they are large outliers in terms of terrorist events. For this case, the results for somewhat parsimonious and fully specified models for total, domestic, and transnational terrorism are presented in Table 6. These results also strongly support our findings above. In fact, the magnitude of the coefficients on terrorism variables shows that their negative influence on FDI for all types of terrorism has marginally increased. Interpretation of all other results remains the same as above.

[Table 6 near here]

We also used the numbers of terrorist incidents in a country, instead of the numbers of terrorist incidents per 100000 persons, for total, domestic and transnational terrorism events. To

conserve space, we do not report these results, which generally support our central findings.[14]

Our findings suggest policy conclusions on the part of developing and donor countries. The apparent inability of aid to mitigate transnational terrorism's negative effect on FDI calls for supplementary strategies. In this regard, internal self-enforcement and joint efforts with other developing and developed countries are the best strategies for curbing such threats. The mitigating effect of aid in curbing the risk to FDI from total and domestic terrorism is extremely important because domestic terrorism is an overwhelming fraction of the total for many developing nations, and FDI is an evolving and important engine of development for many terrorism-ridden developing nations. The best strategy for donors is not only to increase aid to developing countries experiencing terrorism, but also to link this aid to their enforcement efforts against terrorism.

5. Concluding remarks

This paper investigates the impact of terrorism on FDI/GDP in 78 developing countries for 1984-2008. We apply a system-GMM estimator to a dynamic panel, consisting of eight three-year averages of all variables. For the baseline model, terrorism has a negative and significant impact on FDI as a share of GDP. This is also true of foreign aid, presumably because of the dominance of crowding out and rent-seeking activity. However, an interactive term between terrorism and aid indicates that aid greatly mitigates the adverse effect of terrorism on FDI – for an average country, this marginal impact falls to about a fifth of its initial value in millions of US dollars. These results are robust to the introduction of the standard control variables, whose

[14] In addition, we performed regressions using the numbers of incidents with casualties and/or just the numbers of casualties. In this case, our findings are not robust across various specifications. In our view, a terrorist incident, even without any casualties, creates concerns that signal higher investment risks in a country. Therefore, excluding non-casualty terrorist events leaves out important information from the model.

coefficients generally agree with those in the FDI literature.

This study also distinguishes the adverse FDI consequences of domestic (homegrown) terrorism from those of transnational terrorism. The negative impact of transnational terrorism on FDI/GDP is 2.5 to 3 times as large as that of domestic terrorism. The mitigating influence of foreign aid on the adverse FDI effect is, however, only significant for domestic terrorism. Thus, the two forms of terrorism respond quite differently to foreign aid. It is not good news that aid does not alleviate the FDI consequences of the more damaging form of terrorism. This probably stems from the inability of developing countries to confront transnational terrorists who take refuge in neighboring states or who may be supplied from abroad.

Because FDI is an important source of savings for developing countries and, thus, an engine of growth, the interplay between terrorism, aid, and FDI is of paramount importance. Our study shows that donor countries may receive an extra dividend from aid to domestic-terrorism-plagued countries as aid ameliorates the negative FDI consequences of terrorism. In the case of transnational terrorism, this amelioration is absent. Developing countries must find a way to curb transnational terrorism if they are to attract more FDI. This may require seeking military assistance from interested and powerful developed countries, especially those targeted by the same transnational terrorist group(s) operating on the soil of developing countries.

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Table 1
Summary statistics

Variables	Obs	Mean	S.D.	Min	Max
FDI/GDP (%)	612	2.494	3.240	−8.873	26.067
Total terrorism incidents	624	18.582	55.596	0	477.67
Domestic terrorism incidents	624	14.293	45.180	0	419.33
Transnational terrorism incidents	624	2.316	6.128	0	63
Total terrorism (per 100000 persons)	624	0.116	0.397	0	4.393
Domestic terrorism (per 100000 persons)	624	0.086	0.319	0	3.963
Transnational terrorism (per 100000 persons)	624	0.020	0.084	0	1.420
Aid/GDP (%)	611	6.427	9.074	−0.243	62.325
GDP growth (%)	612	3.852	3.467	−10.933	17.339
Trade/GDP (%)	612	70.677	39.226	12.420	256.303
ln (inflation)	581	2.414	1.384	−3.434	9.137
ln (1+Phones per 10 people)	616	3.315	1.424	0.673	6.318
ln (GDP per capita constant 2000 US$)	614	6.930	1.197	4.408	9.693
ln (Adult literacy)	624	4.149	0.447	2.079	4.595
ln (Exchange rate LCU per US$)	618	2.909	3.870	−22.122	21.529
Investment profile	622	6.518	2.037	1	11.500
Democratic accountability	622	3.264	1.313	0	6
Socioeconomic conditions	622	4.885	1.639	0	9.681
Political globalization	624	59.118	16.610	17.484	92.777
Internal civil conflicts	615	0.966	1.906	0	10

Note: Aid data are aggregate net disbursement of official development assistance. LCU stands for local currency units. All data are broken into separate three-year data averages for all variables, giving us a total of eight time periods.

Table 2
Correlation matrix of highly correlated variables

	Total terrorism	Domestic terrorism	Trans. terrorism	ln (1+ Phones)
Domestic terrorism	0.987			
Trans. Terrorism	0.639	0.514		
ln (1+Phones)	0.063	0.043	0.129	
ln (GDP PC)	0.123	0.103	0.155	0.878

Note: All terrorism variables are incidents per 100000 persons.

Figure1
Kernel density and histogram plot of FDI

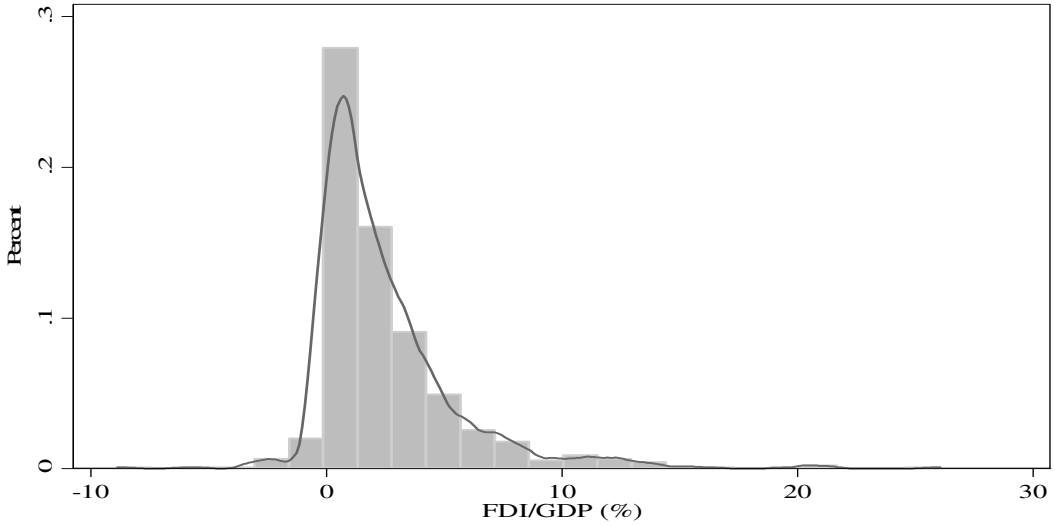

Table 3
The effect of total terrorism incidents and aid on FDI: System-GMM estimations.
Dependent variable: FDI/GDP

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total terrorism (per 100000 persons)	−2.070*** (0.000)	−1.490*** (0.001)	−1.552*** (0.000)	−1.465*** (0.001)	−1.488*** (0.001)	−1.727*** (0.001)	−1.581*** (0.004)
Aid/GDP	−0.043*** (0.000)	−0.069*** (0.000)	−0.079*** (0.000)	−0.075*** (0.000)	−0.074*** (0.000)	−0.081*** (0.000)	−0.084*** (0.000)
T. terrorism × aid/GDP	0.264*** (0.003)	0.175** (0.026)	0.195*** (0.010)	0.175** (0.029)	0.182** (0.020)	0.209*** (0.004)	0.200*** (0.008)
Lagged FDI/GDP	0.615*** (0.000)	0.461*** (0.000)	0.436*** (0.000)	0.434*** (0.000)	0.435*** (0.000)	0.479*** (0.000)	0.452*** (0.000)
GDP growth rate		0.051*** (0.003)	0.046*** (0.005)	0.051*** (0.001)	0.051*** (0.002)	0.036** (0.032)	0.034** (0.034)
Trade/GDP		0.016*** (0.000)	0.018*** (0.000)	0.017*** (0.000)	0.018*** (0.000)	0.017*** (0.000)	0.022*** (0.000)
ln (inflation)		−0.057 (0.429)	−0.039 (0.586)	−0.047 (0.545)	−0.048 (0.521)	−0.048 (0.517)	−0.030 (0.517)
ln (1+Phones)		0.350 (0.166)	0.453* (0.070)	0.578** (0.025)	0.393 (0.117)	0.205 (0.425)	0.293 (0.280)
ln (Adult literacy)			0.522 (0.329)	0.573 (0.228)	0.431 (0.418)	0.240 (0.648)	0.367 (0.432)
ln (Exchange rate)			0.103*** (0.003)	0.102*** (0.006)	0.090*** (0.010)	0.091** (0.014)	0.108*** (0.007)
Investment profile			0.116*** (0.009)				0.082 (0.115)
Democratic accountability				0.332*** (0.001)			0.247*** (0.006)
Socioeconomic conditions					0.087 (0.157)		0.025 (0.728)
Political globalization						0.036*** (0.004)	0.036*** (0.006)
Internal civil conflicts						0.023 (0.775)	0.065 (0.454)
Sargan test[1]	0.311	0.413	0.415	0.429	0.459	0.223	0.235
Autocorrelation test[2]	0.506	0.688	0.695	0.674	0.703	0.804	0.773
Numbers of instruments	37	41	44	44	44	45	48
Numbers of observations	529	496	493	493	493	488	488
Numbers of countries	78	77	77	77	77	76	76
Time effect included	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\frac{\partial(FDI)_{it}}{\partial(T.Terrorsim)_{it}} = \beta + \delta(Aid)_{it}$	−0.373	−0.365	−0.299	−0.340	−0.318	−0.383	−0.296

Superscripts ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively. *P* values are in parentheses.
[1] The null hypothesis is that the instruments are not correlated with the residuals. (*P* values)
[2] The null hypothesis is that the error term exhibits no second-order serial correlation. (*P* values)

Table 4
The effect of domestic terrorism incidents and aid on FDI: System-GMM estimations.
Dependent variable: FDI/GDP

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Domestic terrorism (per 100000 persons)	−2.362*** (0.000)	−1.827*** (0.002)	−1.965*** (0.001)	−1.807*** (0.003)	−1.886*** (0.002)	−2.381*** (0.001)	−2.106*** (0.003)
Aid/GDP	−0.041*** (0.000)	−0.068*** (0.000)	−0.078*** (0.000)	−0.074*** (0.000)	−0.073*** (0.000)	−0.082*** (0.000)	−0.083*** (0.000)
D. terrorism × aid/GDP	0.299** (0.020)	0.221** (0.046)	0.252** (0.018)	0.222* (0.054)	0.242** (0.028)	0.308*** (0.002)	0.284*** (0.007)
Lagged FDI/GDP	0.615*** (0.000)	0.463*** (0.000)	0.438*** (0.000)	0.437*** (0.000)	0.437*** (0.000)	0.482*** (0.000)	0.457*** (0.000)
GDP growth rate		0.051*** (0.003)	0.047*** (0.005)	0.050*** (0.002)	0.052*** (0.002)	0.035** (0.045)	0.032* (0.053)
Trade/GDP		0.016*** (0.007)	0.017*** (0.000)	0.017*** (0.000)	0.017*** (0.000)	0.016*** (0.000)	0.021*** (0.000)
ln (inflation)		−0.054 (0.453)	−0.035 (0.628)	−0.049 (0.538)	−0.040 (0.595)	−0.039 (0.604)	−0.023 (0.757)
ln (1+Phones)		0.346 (0.178)	0.455* (0.075)	0.578** (0.024)	0.392 (0.128)	0.214 (0.413)	0.296 (0.278)
ln (Adult literacy)			0.544 (0.314)	0.558 (0.245)	0.438 (0.414)	0.230 (0.662)	0.378 (0.418)
ln (Exchange rate)			0.102*** (0.003)	0.104*** (0.007)	0.090*** (0.011)	0.086** (0.021)	0.107*** (0.009)
Investment profile			0.114** (0.011)				0.076 (0.149)
Democratic accountability				0.336*** (0.001)			0.260*** (0.004)
Socioeconomic conditions					0.098 (0.113)		0.038 (0.605)
Political globalization						0.037*** (0.003)	0.037*** (0.004)
Internal civil conflicts						0.021 (0.788)	0.061 (0.475)
Sargan test[1]	0.347	0.408	0.396	0.409	0.436	0.195	0.211
Autocorrelation test[2]	0.506	0.691	0.701	0.677	0.708	0.807	0.772
Numbers of instruments	37	41	44	44	44	45	48
Numbers of observations	529	496	493	493	493	488	488
Numbers of countries	78	77	77	77	77	76	76
Time effect included	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\frac{\partial(FDI)_{it}}{\partial(D.Terrorsim)_{it}} = \beta + \delta(Aid)_{it}$	−0.440	−0.407	−0.345	−0.380	−0.331	−0.401	−0.281

Superscripts ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively. *P* values are in parentheses.
[1] The null hypothesis is that the instruments are not correlated with the residuals. (*P* values)
[2] The null hypothesis is that the error term exhibits no second order serial correlation. (*P* values)

Table 5
The effect of transnational terrorism incidents and aid on FDI: System-GMM estimations.
Dependent variable: FDI/GDP

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Transnational terrorism (per 100000 persons)	−7.412*** (0.000)	−4.070** (0.051)	−3.523* (0.095)	−4.037** (0.041)	−3.468 (0.117)	−5.197*** (0.008)	−5.236*** (0.007)
Aid/GDP	−0.034*** (0.000)	−0.053*** (0.000)	−0.061*** (0.000)	−0.060*** (0.000)	−0.058*** (0.000)	−0.065*** (0.000)	−0.069*** (0.000)
Tr. terrorism × aid/GDP	0.638*** (0.001)	0.219 (0.281)	0.201 (0.308)	0.206 (0.281)	0.147 (0.442)	0.203 (0.339)	0.248 (0.230)
Lagged FDI/GDP	0.619*** (0.000)	0.452*** (0.000)	0.431*** (0.000)	0.432*** (0.000)	0.430*** (0.000)	0.474*** (0.000)	0.446*** (0.000)
GDP growth rate		0.045** (0.013)	0.041** (0.028)	0.049*** (0.005)	0.048*** (0.009)	0.033* (0.060)	0.029* (0.096)
Trade/GDP		0.020*** (0.007)	0.021*** (0.000)	0.020*** (0.000)	0.021*** (0.000)	0.018*** (0.000)	0.023*** (0.000)
ln (inflation)		−0.055 (0.393)	−0.050 (0.441)	−0.035 (0.597)	−0.060 (0.371)	−0.037 (0.569)	−0.016 (0.807)
ln (1+Phones)		0.319 (0.174)	0.417* (0.083)	0.297** (0.041)	0.375 (0.110)	0.246 (0.318)	0.341 (0.189)
ln (Adult literacy)			0.448 (0.463)	0.444 (0.424)	0.353 (0.570)	0.046 (0.935)	0.297 (0.935)
ln (Exchange rate)			0.108*** (0.001)	0.095*** (0.004)	0.090*** (0.006)	0.099*** (0.005)	0.112*** (0.004)
Investment profile			0.130*** (0.002)				0.102** (0.036)
Democratic accountability				0.282*** (0.002)			0.236*** (0.008)
Socioeconomic conditions					0.067 (0.263)		0.005 (0.941)
Political globalization						0.034*** (0.010)	0.033** (0.017)
Internal civil conflicts						0.032 (0.694)	0.081 (0.335)
Sargan test[1]	0.210	0.428	0.420	0.434	0.448	0.328	0.331
Autocorrelation test[2]	0.452	0.662	0.672	0.657	0.691	0.811	0.776
Numbers of instruments	37	41	44	44	44	45	48
Numbers of observations	529	496	493	493	493	488	488
Numbers of countries	78	77	77	77	77	76	76
Time effect included	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Superscripts ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively. *P* values are in parentheses.
[1] The null hypothesis is that the instruments are not correlated with the residuals. (*P* values)
[2] The null hypothesis is that the error term exhibits no second-order serial correlation. (*P* values)

Table 6
The effect of terrorism incidents and aid on FDI: System-GMM estimations.
Dependent variable: FDI/GDP

Independent variables	Total terrorism	Domestic terrorism	Trans. terrorism	Total terrorism	Domestic terrorism	Trans. terrorism
Terrorism (per 100000 persons)	−1.793*** (0.000)	−2.118*** (0.001)	−4.442** (0.043)	−2.030*** (0.003)	−2.560*** (0.001)	−6.307*** (0.001)
Aid/GDP	−0.068*** (0.000)	−0.066*** (0.000)	−0.050*** (0.000)	−0.086*** (0.000)	−0.085*** (0.000)	−0.071*** (0.000)
Terrorism × aid/GDP	0.197** (0.046)	0.245** (0.036)	0.223 (0.275)	0.225*** (0.005)	0.315*** (0.004)	0.270 (0.193)
Lagged FDI/GDP	0.462*** (0.000)	0.464*** (0.000)	0.455*** (0.000)	0.447*** (0.000)	0.452*** (0.000)	0.442*** (0.000)
GDP growth rate	0.052*** (0.003)	0.052*** (0.002)	0.047*** (0.010)	0.037** (0.015)	0.036** (0.028)	0.034** (0.041)
Trade/GDP	0.016*** (0.000)	0.016*** (0.001)	0.020*** (0.000)	0.024*** (0.000)	0.023*** (0.000)	0.024*** (0.000)
ln (inflation)	−0.041 (0.577)	−0.036 (0.625)	−0.045 (0.494)	−0.018 (0.811)	−0.008 (0.912)	0.002 (0.974)
ln (1+Phones)	0.306 (0.236)	0.302 (0.250)	0.267 (0.263)	0.168 (0.538)	0.178 (0.516)	0.265 (0.313)
ln (Adult literacy)				0.394 (0.382)	0.400 (0.378)	0.299 (0.532)
ln (Exchange rate)				0.091** (0.017)	0.088** (0.023)	0.087** (0.018)
Investment profile				0.099** (0.047)	0.096* (0.059)	0.108** (0.025)
Democratic accountability				0.237*** (0.008)	0.251*** (0.005)	0.238*** (0.008)
Socioeconomic conditions				0.037 (0.623)	0.048 (0.524)	0.017 (0.817)
Political globalization				0.044*** (0.001)	0.046*** (0.000)	0.038*** (0.006)
Internal civil conflicts				0.081 (0.390)	0.074 (0.424)	0.086 (0.341)
Sargan test[1]	0.404	0.391	0.396	0.211	0.178	0.289
Autocorrelation test[2]	0.687	0.685	0.701	0.793	0.780	0.784
Numbers of instruments	41	41	41	48	48	48
Numbers of observations	482	482	482	474	474	474
Numbers of countries	75	75	75	74	74	74
Time effect included	Yes	Yes	Yes	Yes	Yes	Yes
$\frac{\partial(FDI)_{it}}{\partial(Terrorsim)_{it}} = \beta + \delta(Aid)_{it}$	−0.495	−0.503		−0.547	−0.484	

Superscripts ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively. *P* values are in parentheses.
[1] The null hypothesis is that the instruments are not correlated with the residuals. (*P* values)
[2] The null hypothesis is that the error term exhibits no second-order serial correlation. (*P* values)

Appendix A

List of countries in our study

Albania	Costa Rica	India	Namibia	Syria
Algeria	Cote d'Ivoire	Indonesia	Nicaragua	Tanzania
Angola	Dominican Republic	Iran	Niger	Thailand
Argentina	Ecuador	Jamaica	Nigeria	Togo
Bahrain	Egypt	Jordan	Pakistan	Trinidad & Tobago
Bangladesh	El Salvador	Kenya	Panama	Tunisia
Bolivia	Ethiopia	Lebanon	Papua New Guinea	Turkey
Botswana	Gabon	Libya	Paraguay	Uganda
Brazil	Gambia	Madagascar	Peru	Uruguay
Burkina Faso	Ghana	Malawi	Philippines	Venezuela
Cameroon	Guatemala	Malaysia	Saudi Arabia	Vietnam
Chile	Guinea	Mali	Senegal	Yemen
China	Guinea-Bissau	Malta	Sierra Leone	Zambia
Colombia	Guyana	Mexico	South Africa	Zimbabwe
Congo, D. Republic	Haiti	Morocco	Sri Lanka	
Congo, Republic	Honduras	Mozambique	Sudan	