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**Working Paper**

## Aid in modulating the impact of terrorism on FDI: No positive thresholds, no policy

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# A G D I Working Paper

WP/17/061

## **Aid in Modulating the Impact of Terrorism on FDI: No Positive Thresholds, No Policy**

Forthcoming: Forum for Social Economics

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**Aid in Modulating the Impact of Terrorism on FDI: No Positive Thresholds, No Policy****Simplice A. Asongu, Uchenna R. Efobi & Ibukun Beecroft**

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**Abstract**

We investigate how foreign aid dampens the effects of terrorism on FDI using interactive quantile regressions. The empirical evidence is based on 78 developing countries for the period 1984-2008. Bilateral and multilateral aid variables are used, while terrorism dynamics entail: domestic, unclear, transnational and total number of terrorist attacks. The main finding is that foreign aid cannot be used as a policy tool to effectively address a hypothetically negative effect of terrorism on FDI. The positive threshold we cannot establish is important for policy makers because it communicates a cut-off point at which foreign aid completely neutralizes the negative effect of terrorism on FDI. From the conditioning information set, we also establish for the most part that the effects of GDP growth, infrastructural development and trade openness are an increasing function of FDI. Policy implications are discussed.

*JEL Classification:* C52; D74; F23; F35; O40*Keywords:* FDI; Foreign aid; Terrorism; Quantile regression**Acknowledgments**

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## 1. Introduction

Over the past decade, political instability, conflicts and terrorism have considerably influenced foreign direct investment (FDI) location decisions to developing countries. Some recent examples of violent activities that have affected FDI location include: sabotage activities in Nigeria's oil Delta region by the Movement for the Emancipation of the Niger Delta (Obi, 2010; Onuoba, 2010; Akpan et al., 2013; Taylor, 2014); substantial disruptions of oil production in Libya in the post-Gaddafi era (Gaub, 2014); recent Al-Qaeda attacks in In Amenas of Algeria (Onyeji et al., 2014) and the control of many petroleum installations in Syria by the Islamic State of Iraq and Levant (ISIL) (Le Billon, 2015; Celso, 2015). A number of solutions have been proposed in recent literature as means of preventing terrorism on the one hand and mitigating its negative externalities on economic development, on the other hand. These include: the importance of transparency (see Bell et al., 2015); the relevance of the rule of law (Choi, 2010); the role of educational channels (Brockhoff et al., 2014) like bilingualism (Costa et al., 2008); enhanced press freedom and publicity (Hoffman et al., 2013); the employment of military strategies and tactics (Feridun & Shahbaz, 2010), behavioural investigations of attitudes towards terrorism (Gardner, 2007), policy harmonization against terrorism (Asongu & Nwachukwu, 2018; Asongu et al., 2018a), the role of inclusive development, governance and military expenditure in fighting the scourge (Asongu et al., 2017, 2018b) and the relevance of foreign aid in mitigating the effect of terrorism on trade (Asongu & Kodila-Tedika, 2017) and natural resources (Asongu & Nwachukwu, 2016, 2017a).

To stem the activities of terrorist, and to sustain the flow of FDI into developing countries, recent studies have also been oriented towards the improvement of development assistance in reducing the potentially negative effect (Bandyopadhyay et al., 2014; Efobi et al., 2015). Consistent with Efobi et al. (2015), the relevance of foreign aid in curbing the adverse consequences of terrorism on FDI in developing nations is a well-known convention. This consensus is motivated by the fact that countries that are affected by terrorism are economically poor and short of vital resources to fight the scourge (Bandyopadhyay & Younas, 2014). The authors maintain that the principal issue with terrorist activities in developing countries is that such countries have begun tailoring their foreign policy strategies to attract more foreign investment, and terrorist attack will be counter-productive to this goal. Against this background, Bandyopadhyay et al. (2014) and Lee (2017) have established that

developing assistance can mitigate this potentially counter-productive effect of terrorism in developing nations by providing the much needed finance to fight terrorist activities.

Whereas Efobi et al. (2015) have extended Bandyopadhyay et al. (2014) and Bandyopadhyay and Younas (2014) research by conditioning the mitigating role of development assistance on corruption-control levels in recipient countries, the present inquiry extends Efobi et al. (2015), Bandyopadhyay et al. (2014) and Bandyopadhyay and Younas (2014) by assessing the role of foreign aid in mitigating the potentially negative effect of terrorism on FDI throughout the conditional distributions of FDI. Hence, for the purpose of comparison, we are consistent with the underlying studies in using a panel of 78 developing nations for the period 1984-2008. There are at least two other justifications for restricting the scope to developing countries: (i) the negative effects of terrorists' activities have been established to be relatively more apparent in developing countries, compared to developed nations which can absorb terrorists' activities without considerable negative externalities (Gaibulloev & Sandler, 2009) and (ii) the impact of development assistance to less developed countries is apparent especially with regards to creating hard and soft infrastructure for development. Enders and Sandler (1996) have established a negative effect from terrorism to foreign direct investment, while Blomberg and Mody (2005) have shown that violence in the perspectives of revolutions, wars and terrorism deter international investment and such a deterrent effect is mainly apparent in developing countries.

Focusing on foreign aid in mitigating the potentially negative effect of terrorism on FDI throughout the conditional distributions of FDI is important because of current global efforts towards sustaining external flows like FDI in developing countries (Asiedu, 2006; Asiedu & Lien, 2011; Apkan et al., 2014; Boly, et al., 2015). In essence: (i) FDI is important in driving the growth needed to mitigate extreme poverty and (ii) it is important to fight terrorism in order to create an enabling environment for growth. A Quantile regression (QR) is employed as estimation strategy. This technique which assesses the relationship throughout the conditional distribution of FDI is contrary to Efobi et al. (2015) and Bandyopadhyay et al. (2014) who have assessed the underlying nexuses at the mean values of FDI. Whereas mean values are important, corresponding findings have blanket policy implications because all countries are provided with the same policy prescription. This is different from the QR approach because a distinction is made between countries with low, intermediate and high initial levels of FDI. Given these insights, we argue that blanket policies are not likely to

succeed unless they are contingent on existing levels of FDI and tailored differently across countries with low, intermediate and high levels of FDI.

The main finding is that foreign aid cannot be effectively used as a policy tool to effectively address a hypothetically negative effect of terrorism on FDI when considering the different FDI inflow levels across countries. The rest of the study is structured as follows: the review of the literature and theoretical underpinnings are discussed in Section 2, while. Section 3 covers the data and methodology. The empirical results and policy implications are engaged in Section 4. Section 5 concludes with recommendations for future research.

## **2. Literature review and theoretical underpinnings**

An important reason for desiring to stem the rise of terrorist activities is its devastating effect on global capital flow. There is a nascent body of literature (e.g. Humphreys, 2005; Koh, 2007; Abadie & Gardeazabal, 2008; Meierrieks & Gries, 2013; Bandyopadhyay & Younas, 2014; Choi, 2015) that have given extensive attention to estimating the economic value of terrorist attacks on foreign investors. It is observed that terrorist attacks cost an average developing country a significant amount of foreign direct investment, and this depends on the origin of the attack (Efobi et al., 2015). This impact is significant for developing countries as the inflow of foreign investors is supposed to augment the prevalent resource gap from prevailing low savings, the declining state of development assistance, and poor integration of the region in the global capital market (Asiedu, 2006).

Efobi et al. (2015) have extended Bandyopadhyay et al. (2014) and Bandyopadhyay and Younas (2014) by conditioning the dampening role of foreign aid in the terrorism-FDI nexus across corruption-control levels in the recipient countries. The authors conclude that: (i) the negative impact of terrorism on FDI is only apparent in estimations with above-average corruption-control levels; (ii) development assistance dampens the negative impact of terrorism on FDI exclusively in countries with above-average corruption-control levels; (iii) the modifying role of bilateral aid on the effect of transnational terrorisms is consistent with Bandyopadhyay et al. (2014). Moreover, the authors also find that the adverse impacts of unclear and total terrorism are mitigated by multilateral aid.

The above literature allows for improvement in at least two main areas: the need to incorporate more terrorism dynamics into the investigated relationships and the relevance of FDI conditionality. Considering the need for more dynamics of terrorism, Choi (2015) has established in the terrorism-growth literature that it is important to use a plethora of variables

when investigating the nexus between terrorism and macroeconomic indicators. The author has shown that political instability variables have various effects across space and time. Hence, we are consistent with Efobi et al. (2015) in employing four terrorism indicators, namely: domestic, unclear, transnational and total terrorisms. Also, conditioning the assessed relationships on FDI levels may have relevant policy implications because blanket policies may be ineffective unless they are based on initial FDI levels, and are tailored distinctly across high-FDI and low-FDI developing countries. The empirical evidences motivating this intuition are the findings of Öcal and Yildirim (2010) which show that the effect of terrorism on economic prosperity depends on cross-regional initial levels of growth. The quantile regression empirical strategy adopted by this study is in accordance with this second contribution to the literature.

It is also important to briefly highlight the theoretical underpinnings on which the study is based. Our study is also consistent with Akinwale (2010, p. 125) lines of inquiry that are focused on how to resolve conflicts and motivated by the Conflict Management Model of Thomas-Kilman and the Social Control Theory of Black. The former model has advanced strategic intentions that are very likely to surround a two-factor matrix (of assertiveness and cooperation) which when combined with collaboration, leads to five main styles of conflict management, namely: avoidance, competition, collaboration, accommodation and compromise. Considering the latter theory, the relationships among individuals, groups and organisations significantly affect the exercise of one of the five fundamental instruments of social control, namely: tolerance, self-help, settlement, negotiation and avoidance. The accounts of Akinwale are broadly consistent with the conflict management literature, *inter alia*: Black (1990), Thomas (1992), Borg (1992) and Volkema and Bergmann (1995).

The theoretical underpinnings converge with the present paper in the perspective that foreign aid is a policy variable that influences conditions articulated by the Social Control theory and Conflict Management Model. Accordingly, development assistance, among others, increases education, improves compliance with the rule of law, increases government expenditure and encourages social responsibility. For instance, Gaibullov and Sandler (2009) have established that terrorism decreases growth potentials by reducing government expenditure allocated for growth-enhancing investments. For brevity and lack of space, the interested reader can have more insights into other factors (respect for the rule of law, education and social responsibility) from the wealth of studies on political violence and instability (e.g. Heyneman, 2002; Beets, 2005; Heyneman, 2008a, 2008b; Oreopoulos &

Salvanes, 2009; Campos & Gassebner, 2013). Given the above, the testable hypothesis of the present line of inquiry is as follows: we examine the role of foreign aid in mitigating a hypothetically negative effect of terrorism on FDI.

It is also important to articulate why different types of terrorism can affect FDI differently. This is essentially because four main types of terrorism are used in this study, namely: domestic terrorism, transnational terrorism, unclear terrorism and total terrorism. Consistent with Bandyopadhyay et al. (2014, p. 20), we exclusively elucidate differences between domestic terrorism and transnational terrorism because of two main reasons. On the one hand, the theoretical underpinnings of unclear terrorism are difficult to ascertain. On the other hand, total terrorism is the sum of the three types of terrorism. Bandyopadhyay et al. (2014) theoretically demonstrate that when the impacts of transnational and domestic terror on FDI are compared, the deleterious effect from transnational terrorism is higher. This is essentially because the marginal effect associated with transnational terrorism is stronger given that domestic terrorism increases the foreign company's threat perception for the host country at a slower rate compared to transnational terrorism. The underlying inequality in responsiveness is more apparent when transnational groups are in pursuit of foreign investment which depicts the very notion behind transnational terror.

In the light of the above, the main objective of the study is to assess thresholds at which foreign aid mitigates the potentially negative effect of terrorism on FDI. Threshold within the context of this inquiry is a critical mass of foreign aid that is relevant for informing policy. Accordingly, a positive threshold is important for policy makers because it communicates a cut-off point at which foreign aid completely neutralizes the negative effect of terrorism on FDI. Hence, above this threshold, foreign aid interacts with terrorism to improve FDI. The establishment of a positive threshold requires a positive estimated effect from the interaction between the policy variable (foreign aid) and the policy syndrome (terrorism). Otherwise when the estimated interactive effect is negative, a negative threshold is more likely to be apparent. Such a conception and definition of threshold is in accordance with recent literature, notably: the need for a certain level in language proficiency before advantages in a second language are enjoyed (Cummins, 2000); a turning point for an appealing economic outcome (Roller & Waverman, 2001; Batuo, 2015) and requirements for Kuznets and U-shaped curves (Ashraf & Galor, 2013).



### 3. Data and Methodology

#### 3.1 Data

Consistent with Bandyopadhyay et al. (2014) and Efobi et al. (2015), we examine a panel of 78<sup>1</sup> developing countries with three year non-overlapping intervals data for the period 1984-2008. The choice of sample size and periodicity are based on: (i) availability of foreign aid and terrorism data; and (ii) constraints in the availability of other variables in the conditioning information set.

Whereas the dependent variable is net FDI flows as a percentage of GDP, the main independent variable of interest consists of terrorism dynamics, namely: unclear, domestic, transnational and total terrorisms. Terrorism-specific definitions are from Efobi et al. (2015, p. 6). Domestic terrorism “includes all incidences of terrorist activities that involve the nationals of the venue country: implying that the perpetrators, the victims, the targets and supporters are all from the venue country” (p.6). Transnational terrorism is “terrorism including those acts that concern at least two countries. This implies that the perpetrator, supporters and incidence may be from/in one country, but the victim and target is from another”. Unclear terrorism is that, “which constitutes incidences of terrorism that can neither be defined as domestic nor transnational terrorism” (p.6). Total terrorism is the sum of domestic, transnational and unclear terrorisms (Asongu & Biekpe, 2018; Asongu & Nwachukwu, 2017b).

We employ two development assistance ‘modifying variables’ in the interactive regressions: multilateral and bilateral aid. The adopted control variables are: trade openness, GDP growth, inflation and infrastructural development. The choice of these dependent, independent, modifying and control variables are consistent with the underlying studies motivating this line of inquiry.

We now devote some space to briefly provide further justification for the choice of our variables. Development assistance provides economic resources, much needed for logistical

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<sup>1</sup>The panel includes the following developing countries : “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 and 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 and Sudan”. It is important to note that some countries may be more developed than others (e.g. Malta). Unfortunately, we are employing a dataset from Bandyopadhyay et al. (2014) and are leaving it unchanged for the purpose of comparing our findings with those of the underlying study.

and infrastructural investments in the fight against terrorism. Moreover, it may also create an enabling environment for decreasing political instability and non-violence by providing resources like human capital (Asiedu et al., 2009). It follows that education; especially lifelong-learning can reduce the proportion of vulnerable citizens recruited for terrorist activities. The interest of decomposing aggregated foreign aid into its multilateral and bilateral components is to enable more options for policy implications (Asiedu & Nandwa, 2007; Johnson & Quartery, 2009; Asiedu, 2014; Efobi et al., 2014)<sup>2</sup>.

The choice of control variables are also in line with mainstream FDI literature (Asiedu, 2006; Asiedu & Lien, 2011). Drawing from the literature, we expect trade openness, GDP growth and infrastructural development to positively affect FDI, while inflation should have a negative effect. Accordingly, GDP growth pulls foreign investment owing to anticipated returns of investment. Trade openness is most likely to be positively associated with FDI because FDI activities entail the importing and exporting of raw materials and finished commodities. This narrative should be balanced with the fact that there may be a substitution effect of FDI if there are high trade barriers (Barrell & Pain, 1999). Developing countries with better infrastructural development intuitively have an edge in attracting FDI owing to relatively lower transaction and production costs, *ceteris paribus*. We expect high inflation to reduce foreign investment prospects due to, *inter alia*: (i) a negative economic outlook and (ii) reducing purchasing power and domestic consumption.

**Table 1: Definition and source of variables**

Variables	Signs	Definitions	Sources
Foreign Investment	FDI	Foreign Direct Investment, net inflows (% of GDI)	
GDP growth	GDPg	GDP growth rate (annual %)	
Trade Openness	LnTrade	Ln. of Exports plus Imports of Commodities (% of GDP)	
Infrastructure	LnTel	Ln. of Number of Telephone lines (per 100 people)	Bandyopadhyay et al. (2014) and Efobi et al. (2015)
Inflation	LnInflation	Ln. of Consumer Price Index (% of annual)	
Bilateral Aid	LnBilaid	Ln. of Bilateral aid, net disbursement (million USD)	
Multilateral Aid	LnMulaid	Ln. of Multilateral aid, net disbursement (million USD)	
Domestic terrorism	Domter	Number of Domestic terrorism incidents	
Transnational terrorism	Tranater	Number of Transnational terrorism incidents	
Unclear terrorism	Unclter	Number of terrorism incidents whose category is unclear	
Total terrorism	Totter	Total number of terrorism incidents	

<sup>2</sup> Asiedu and Nandwa (2007), Johnson and Quartery (2009), Asiedu (2014) and Efobi et al. (2014) consistently articulate the need to integrate foreign aid heterogeneity.

GDP: Gross Domestic Product. WDI: World Development Indicators. All variables were sourced from Bandyopadhyay et al. (2014) and Efobi et al. (2015).

Table 1 summarises the definition of the variables, while Table 2 provides the summary statistics. Some of the variables have been defined in logarithms in the former to enable the comparison of ‘mean values’ in the latter. The substantial variation informs us that reasonable estimated linkages would emerge from the empirical analysis.

**Table 2: Summary statistics**

	<b>Mean</b>	<b>S.D</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Obs.</b>
Foreign Direct Investment	2.494	3.240	-8.875	26.067	612
GDP growth	3.852	3.467	-10.933	17.339	612
Trade Openness (ln)	4.118	0.534	2.519	5.546	612
Infrastructure (ln)	1.475	1.017	0.091	4.031	616
Inflation (ln)	2.414	1.384	-3.434	9.136	581
Bilateral Aid (ln)	5.181	1.286	0.765	8.362	602
Multilateral Aid (ln)	4.163	1.518	-1.249	7.105	600
Domestic terrorism	14.292	45.179	0	419.33	624
Transnational terrorism	2.316	6.127	0	63	624
Unclear terrorism	1.972	7.479	0	86	624
Total terrorism	18.581	55.595	0	477.66	624

S.D: Standard Deviation. Obs.: Observations.

The purpose of Table 3 is to decrease potential issues of over-parameterization and multicollinearity that are articulated in bold. As expected, terrorism and foreign aid variables are highly correlated. Hence, we avoid employing two foreign aid or terrorism variables in the same specification. We also notice that while the dependent variable is negatively correlated with terrorism variables, it is also negatively (positively) correlated with bilateral (multilateral) aid. Whereas the negative correlation between FDI and bilateral aid is contrary to the intuition motivating the testable hypothesis enunciated in the introduction, however, two justifications motivate pursuing the line of inquiry. First, it is standard in econometrics that correlations should not be assimilated to causalities. Second, the bilateral aid variable is employed as a modifying policy variable. Hence, it could interact with terrorism to reveal other unexpected dynamics.

**Table 3: Correlation Matrix**

FDI	Control Variables				Foreign Aid		Terrorism Dynamics				
	GDPg	LnTrade	LnTel	LnInflation	LnBilaid	LuMulaid	Domter	Tranater	Unclter	Totter	
1.000	0.193	0.430	0.263	-0.113	-0.049	0.001	-0.118	-0.093	-0.112	-0.121	FDI
	1.000	0.089	0.065	-0.236	0.195	0.178	-0.058	-0.021	-0.042	-0.055	GDPg
		1.000	0.296	-0.230	-0.267	-0.289	-0.236	-0.206	-0.240	-0.246	LnTrade
			1.000	-0.121	-0.376	-0.514	0.023	0.072	-0.003	0.026	LnTel
				1.000	-0.047	-0.023	0.171	0.164	0.091	0.169	LnInflation
					1.000	<b>0.721</b>	0.116	0.088	0.093	0.117	LnBilaid
						1.000	0.014	-0.039	0.069	0.016	LnMulaid
							1.000	<b>0.743</b>	0.733	0.993	Domter
								1.000	0.528	0.785	Tranater
									1.000	0.789	Unclter
										1.000	Totter

FDI: Foreign Direct Investment, net inflows. GDPg: GDP growth rate. LnTrade: Trade Openness. LnTel: Number of Telephone lines. LnBilaid: Bilateral aid. LnMulaid: Multilateral aid. Domter: Number of Domestic terrorism incidents. Tranater: Number of Transnational terrorism incidents. Unclter: Number of terrorism incidents whose category is unclear. Totter: Total number of terrorism incidents.

### 3.2 Methodology

Consistent with the literature on conditional determinants (Billger & Goel, 2009), and in order to examine if existing levels in FDI affect the incidence of terrorism and/or foreign aid on ‘FDI location decisions’ in developing countries, we employ a quantile regression (QR) approach. It entails investigating the determinants of FDI throughout the distributions of FDI (Koenker & Hallock, 2001).

Previous studies on FDI determinants have reported estimated parameters at the conditional mean of FDI (Apkan et al., 2014; Bandyopadhyay et al., 2014; Efobi et al., 2015). While mean impacts are important, we extend the underlying stream of literature by employing QR to distinguish between initial levels of FDI. For example, while Ordinary Least Squares (OLS) is based on the assumption that FDI and error terms are distributed normally, the QR approach is not founded on the hypothesis that error terms are normally distributed. Hence, the technique enables us to examine the impact of terrorism on FDI with particular emphasis on best- and worst-performing countries (in terms of FDI flow) among the sampled developing nations. In essence, with QR, parameter estimates are derived at multiple points of the conditional distributions of FDI (Koenker & Bassett, 1978). The employed QR technique is increasingly being adopted in development literature, among others, in corruption studies (Billger & Goel, 2009; Okada & Samreth, 2012).

The  $\theta^{\text{th}}$  quantile estimator of FDI is obtained by solving for the following optimization problem, which is presented without subscripts in Eq. (1) for the purpose of simplicity and ease of presentation.

$$\min_{\beta \in R^k} \left[ \sum_{i \in \{i: y_i \geq x_i' \beta\}} \theta |y_i - x_i' \beta| + \sum_{i \in \{i: y_i < x_i' \beta\}} (1 - \theta) |y_i - x_i' \beta| \right], \quad (1)$$

where  $\theta \in (0,1)$ . As opposed to OLS which is fundamentally based on minimizing the sum of squared residuals, with QR, the weighted sum of absolute deviations are minimised. For instance the 25<sup>th</sup> or 75<sup>th</sup> quartiles (with  $\theta=0.25$  or  $0.75$  respectively) by approximately weighing the residuals. The conditional quantile of FDI or  $y_i$  given  $x_i$  is:

$$Q_y(\theta / x_i) = x_i' \beta_\theta, \quad (2)$$

where unique slope parameters are modelled for each  $\theta$ th specific quantile. This formulation is analogous to  $E(y / x) = x_i' \beta$  in the OLS slope where parameters are investigated only at the mean of the conditional distribution of FDI. For the model in Eq. (2), the dependent variable  $y_i$  is the FDI indicator while  $x_i$  contains a constant term, *trade*, *inflation*, *infrastructure*, and *GDP growth*. The specifications in Eq. (1) are tailored to mitigate the multicollinearity and over-parameterization issues identified in Table 3.

## 4. Empirical results

### 4.1 Presentation of results

The empirical findings presented in Table 4 and Table 5 respectively correspond to bilateral aid and multilateral aid regressions. *Panel A (B)* of both Tables presents findings for domestic and transnational (unclear and total) terrorisms. Consistent with the motivation discussed in the methodological section, an OLS baseline specification is provided to articulate modelling differences between conditional means and median values of FDI. Hence, the interest of adopting the QR technique is justified by differences in significance and magnitude of estimated coefficients between the OLS and QR results. In accordance with Brambor et al. (2006), the overall effect of the modifying development assistance variable on the examined relationship is assessed in terms of marginal effects.

The following can be established for Table 4 on the relationships among FDI, terrorism and bilateral aid. First, in *Panel A*, the unconditional impact of domestic terrorism on FDI is positive in the 10<sup>th</sup> decile and 25<sup>th</sup> quartile of the Left Hand Side (*LHS*), whereas the unconditional effect of transnational terrorism is negative for the 25<sup>th</sup> quartile in the Right Hand Side (*RHS*). In *Panel B*, the unconditional effect of unclear terrorism is consistently insignificant on the *LHS*, while the unconditional impact of total terrorism is positively

significant in the 25<sup>th</sup> quartile of the *RHS*. Second, the unconditional effect of foreign aid is consistently positive only in bottom quantiles of the FDI distributions. Third, contrary to the intuition motivating the study, interactions between terrorism and foreign aid do not significantly increase FDI as expected. On the contrary, we find that the combined effect on FDI is negative, in: (i) bottom quantiles in the *LHS* of *Panel A* for ‘domestic terrorism and bilateral aid’ and (ii) the 25<sup>th</sup> quartile in the *RHS* of *Panel B*, for ‘total terrorism and bilateral aid’. Only the modifying negative threshold for ‘bilateral aid and domestic terrorism’ is within the range (0.765 to 8.362) provided by the summary statistics, notably: 5.5 (0.011/0.002) and 9 (0.009/0.001) respectively for (i) and (ii).

The significant control variables have the expected signs. While the effect of inflation is consistently not significant, the other control variables consistently display increasing returns to foreign investment. Hence, the positive impact of GDP growth, infrastructure and trade increase from low to high quantiles of the FDI distributions. The increasing returns to FDI imply, the benefits of corresponding variables in stimulating FDI consistently increase with higher initial levels of FDI. In other words, the positive responsiveness of FDI to the variables increases with increasing levels of FDI.

**Table 4: FDI, Bilateral aid, Terrorism**

Dependent Variable: Foreign Direct Investment (FDI) Inflows												
Panel A: Domestic Terrorism and Transnational Terrorism												
	Domestic Terrorism (Domter)						Transnational Terrorism (Tranater)					
	OLS	Q.10	Q.25	Q.50	Q.75	Q.90	OLS	Q.10	Q.25	Q.50	Q.75	Q.90
Constant	<b>-9.43***</b> (0.000)	<b>-2.50***</b> (0.000)	<b>-4.38***</b> (0.000)	<b>-4.58***</b> (0.000)	<b>-8.68***</b> (0.000)	<b>-11.3***</b> (0.001)	<b>-9.43***</b> (0.000)	<b>-2.23***</b> (0.000)	<b>-3.94***</b> (0.000)	<b>-4.57***</b> (0.000)	<b>-9.041***</b> (0.000)	<b>-11.4***</b> (0.001)
Domter	0.004 (0.343)	<b>0.011***</b> (0.000)	<b>0.011***</b> (0.001)	0.005 (0.471)	-0.004 (0.799)	-0.008 (0.601)	---	---	---	---	---	---
Tranater	---	---	---	---	---	---	0.001 (0.985)	-0.007 (0.835)	<b>-0.064*</b> (0.076)	-0.012 (0.850)	-0.003 (0.983)	0.040 (0.772)
LnBilaid	<b>0.190*</b> (0.090)	<b>0.222***</b> (0.000)	<b>0.202***</b> (0.000)	0.116 (0.149)	0.219 (0.196)	0.143 (0.562)	0.181 (0.115)	<b>0.173***</b> (0.001)	<b>0.152***</b> (0.000)	0.101 (0.201)	0.229 (0.163)	0.146 (0.551)
Domter × LnBilaid	-0.001 (0.202)	- (0.001)	- (0.000)	-0.001 (0.414)	0.0002 (0.941)	0.0006 (0.820)	---	---	---	---	---	---
Tranater × LnBilaid	---	---	---	---	---	---	-0.003 (0.778)	0.0004 (0.936)	0.009 (0.136)	0.001 (0.917)	-0.004 (0.880)	-0.009 (0.635)
GDP growth	<b>0.133***</b> (0.000)	<b>0.055***</b> (0.000)	<b>0.064***</b> (0.000)	<b>0.077***</b> (0.003)	<b>0.127***</b> (0.021)	<b>0.190**</b> (0.022)	<b>0.135***</b> (0.000)	<b>0.039**</b> (0.047)	<b>0.066***</b> (0.000)	<b>0.076***</b> (0.000)	<b>0.123**</b> (0.016)	<b>0.184**</b> (0.043)
LnTrade	<b>2.322***</b> (0.000)	<b>0.284***</b> (0.001)	<b>0.871***</b> (0.000)	<b>1.129***</b> (0.000)	<b>2.327***</b> (0.000)	<b>3.376***</b> (0.000)	<b>2.332***</b> (0.000)	<b>0.295***</b> (0.005)	<b>0.829***</b> (0.000)	<b>1.138***</b> (0.000)	<b>2.400***</b> (0.000)	<b>3.437***</b> (0.000)
LnInflation	0.107 (0.331)	-0.016 (0.662)	-0.009 (0.796)	0.001 (0.976)	0.096 (0.444)	0.213 (0.295)	0.108 (0.323)	0.002 (0.956)	-0.016 (0.688)	0.011 (0.853)	0.091 (0.451)	0.177 (0.386)
LnInfrastructure	<b>0.401***</b> (0.006)	<b>0.213***</b> (0.000)	<b>0.313***</b> (0.000)	<b>0.569***</b> (0.000)	<b>0.500**</b> (0.013)	<b>0.724**</b> (0.016)	<b>0.403***</b> (0.005)	<b>0.162***</b> (0.008)	<b>0.303***</b> (0.000)	<b>0.570***</b> (0.000)	<b>0.526***</b> (0.006)	<b>0.704**</b> (0.041)
Pseudo R <sup>2</sup> /R <sup>2</sup>	0.216	0.040	0.107	0.142	0.150	0.201	0.216	0.040	0.105	0.142	0.149	0.197
Fisher	<b>19.47***</b>						<b>18.11***</b>					
Observations	546	546	546	546	546	546	546	546	546	546	546	546

Panel B: Unclear Terrorism and Total Terrorism												
	Unclear Terrorism (Unclter)						Total Terrorism (Totter)					
	OLS	Q.10	Q.25	Q.50	Q.75	Q.90	OLS	Q.10	Q.25	Q.50	Q.75	Q.90
Constant	<b>-9.38***</b> (0.000)	<b>-2.24***</b> (0.000)	<b>-4.08***</b> (0.000)	<b>-4.51***</b> (0.000)	<b>-8.24***</b> (0.001)	<b>-10.8***</b> (0.002)	<b>-9.41***</b> (0.000)	<b>-2.31***</b> (0.000)	<b>-4.35***</b> (0.000)	<b>-4.58***</b> (0.000)	<b>-8.587***</b> (0.000)	<b>-11.1***</b> (0.002)
Unclter	0.001 (0.963)	0.021 (0.215)	0.001 (0.954)	0.020 (0.764)	-0.046 (0.173)	-0.128 (0.437)	---	---	---	---	---	---
Totter	---	---	---	---	---	---	0.003 (0.449)	0.001 (0.458)	<b>0.009**</b> (0.011)	0.004 (0.474)	-0.003 (0.821)	-0.008 (0.531)
LnBilaid	0.171 (0.117)	<b>0.186***</b> (0.000)	<b>0.167***</b> (0.003)	0.099 (0.196)	0.172 (0.370)	0.096 (0.691)	<b>0.189*</b> (0.093)	<b>0.195***</b> (0.000)	<b>0.201***</b> (0.000)	0.115 (0.115)	0.221 (0.215)	0.133 (0.579)
Unclter × LnBilaid	-0.001 (0.801)	-0.004 (0.167)	-0.001 (0.776)	-0.004 (0.706)	0.005 (0.796)	0.016 (0.581)	---	---	---	---	---	---
Totter × LnBilaid	---	---	---	---	---	---	-0.0009 (0.272)	-0.0004 (0.360)	<b>0.001***</b> (0.000)	-0.0009 (0.418)	0.0001 (0.961)	0.0007 (0.740)
GDP growth	<b>0.135***</b> (0.000)	<b>0.044**</b> (0.016)	<b>0.066***</b> (0.000)	<b>0.080***</b> (0.001)	<b>0.141**</b> (0.025)	<b>0.207**</b> (0.023)	<b>0.134***</b> (0.000)	<b>0.044**</b> (0.030)	<b>0.064***</b> (0.000)	<b>0.078***</b> (0.002)	<b>0.125**</b> (0.031)	<b>0.193**</b> (0.038)
LnTrade	<b>2.337***</b> (0.000)	<b>0.279***</b> (0.002)	<b>0.845***</b> (0.000)	<b>0.137***</b> (0.000)	<b>2.257***</b> (0.000)	<b>3.319***</b> (0.000)	<b>2.320***</b> (0.000)	<b>0.272***</b> (0.007)	<b>0.863***</b> (0.000)	<b>1.130***</b> (0.000)	<b>2.310***</b> (0.000)	<b>3.347***</b> (0.000)
LnInflation	0.099 (0.366)	-0.012 (0.752)	-0.013 (0.758)	-0.0006 (0.991)	0.079 (0.589)	0.193 (0.348)	0.107 (0.331)	-0.0008 (0.984)	-0.009 (0.827)	0.0001 (0.998)	0.090 (0.495)	0.220 (0.294)
LnInfrastructure	<b>0.390***</b> (0.007)	<b>0.180***</b> (0.003)	<b>0.300***</b> (0.000)	<b>0.556***</b> (0.000)	<b>0.547**</b> (0.019)	<b>0.729**</b> (0.014)	<b>0.401***</b> (0.006)	<b>0.192***</b> (0.000)	<b>0.316***</b> (0.000)	<b>0.568***</b> (0.000)	<b>0.495**</b> (0.018)	<b>0.729**</b> (0.016)
Pseudo R <sup>2</sup> /R <sup>2</sup>	0.216	0.039	0.105	0.142	0.149	0.199	0.216	0.040	0.107	0.142	0.150	0.200
Fisher	<b>20.24***</b>						<b>19.65***</b>					
Observations	546	546	546	546	546	546	546	546	546	546	546	546

\*, \*\*, \*\*\*: significance levels of 10%, 5% and 1% respectively. Bilaid: Bilateral aid. GDPg: GDP growth rate. OLS: Ordinary Least Squares. R<sup>2</sup> for OLS and Pseudo R<sup>2</sup> for quantile regression. Lower quantiles (e.g., Q 0.1) signify nations where FDI is least.

The following can be established for Table 5 on the relationships among FDI, terrorism and multilateral aid. First, in *Panel A*, the unconditional impact of domestic terrorism on FDI is positive in the 25<sup>th</sup> quartile of the *LHS* and bottom distributions of the *RHS* for transnational terrorism. In *Panel B*, the unconditional effects of unclear and total terrorisms are not significant. Second, the unconditional effect of foreign aid is consistently positive with increasing returns to FDI. That is, the impact consistently increases in magnitude from bottom to top quantiles of the FDI distribution. Third, contrary to the intuition motivating the study, the interactions between terrorism and multilateral aid does not significantly increase FDI as expected. On the contrary, we find that the effect on FDI is negative, in: (i) the 25<sup>th</sup> quartile of the *LHS* of Panel A for ‘domestic terrorism and multilateral aid’ and (ii) bottom quantiles of the *RHS* of Panel A for ‘transnational terrorism and multilateral aid’.

The modifying negative thresholds of multilateral aid are within the range (-1.249 and 7.105) provided by the summary statistics, notably: 4.00 (0.004/0.001) for ‘domestic terrorism’ and 3.13 (0.047/0.015) and 3.90 (0.039/0.010) for the 10<sup>th</sup> decile and 25<sup>th</sup> quartile of transnational terrorism respectively.

On the control variables, with the exception of GDP growth for which the evidence of positive increasing returns to FDI is not very apparent, their significances and magnitudes are broadly consistent with those established in Table 4, notably: (i) the insignificant effect of inflation and (ii) evidence of increasing returns to FDI from the effects of trade openness and infrastructural development.

When the findings from Table 4 and Table 5 are compared and contrasted in the light of thresholds, it is apparent that only negative thresholds have been established because of the overwhelming evidence of negative estimated effects from interactions between foreign and terrorism variables. It is important to note that, had the estimated interactive effects been positive, positive thresholds would have been established because the corresponding unconditional effects from terrorism dynamics would have been negative<sup>3</sup>. The positive thresholds would have represented critically masses at which a foreign aid completely dampens the negative unconditional effect of terrorism on FDI.

**Table 5: FDI, Multilateral aid, Terrorism**

Dependent Variable: Foreign Direct Investment (FDI) Inflows												
Panel A: Domestic Terrorism and Transnational Terrorism												
	Domestic Terrorism (Domter)						Transnational Terrorism (Tranater)					
	OLS	Q.10	Q.25	Q.50	Q.75	Q.90	OLS	Q.10	Q.25	Q.50	Q.75	Q.90
Constant	-11.1*** (0.000)	-2.71*** (0.000)	-4.56*** (0.000)	-6.08*** (0.000)	-9.35*** (0.000)	-14.5*** (0.000)	-11.2*** (0.000)	-2.58*** (0.000)	-4.22*** (0.000)	-6.15*** (0.000)	-9.74*** (0.000)	-13.92*** (0.001)
Domter	0.007** (0.012)	0.001 (0.308)	0.004** (0.030)	0.003 (0.196)	0.002 (0.798)	0.0007 (0.984)	---	---	---	---	---	---
Tranater	---	---	---	---	---	---	0.049** (0.030)	0.047*** (0.000)	0.039*** (0.000)	0.021 (0.237)	0.010 (0.886)	0.022 (0.600)
LnMulaid	0.454*** (0.000)	0.192*** (0.000)	0.230*** (0.000)	0.281*** (0.000)	0.479*** (0.007)	0.690*** (0.002)	0.460*** (0.000)	0.193*** (0.000)	0.220*** (0.000)	0.250*** (0.000)	0.460** (0.010)	0.710*** (0.005)
Domter × LnMulaid	- 0.002*** (0.004)	-0.0002 (0.520)	- 0.001*** (0.008)	-0.001 (0.045)	-0.001 (0.627)	-0.001 (0.426)	---	---	---	---	---	---
Tranater × LnMulaid	---	---	---	---	---	---	-0.017** (0.010)	- 0.015*** (0.000)	- 0.010*** (0.000)	-0.006 (0.213)	-0.006 (0.742)	-0.013 (0.303)
GDP growth	0.108*** (0.002)	0.039* (0.070)	0.055*** (0.001)	0.048*** (0.008)	0.084 (0.169)	0.169* (0.060)	0.108*** (0.002)	0.044* (0.065)	0.054*** (0.000)	0.052*** (0.005)	0.089 (0.159)	0.168* (0.097)
LnTrade	2.45*** (0.000)	0.441*** (0.000)	0.916*** (0.000)	1.330*** (0.000)	2.187*** (0.000)	3.484*** (0.000)	2.480*** (0.000)	0.399*** (0.003)	0.843*** (0.000)	1.375*** (0.000)	2.303*** (0.000)	3.337*** (0.000)
LnInflation	0.123 (0.268)	-0.026 (0.585)	-0.019 (0.643)	0.017 (0.713)	0.083 (0.597)	0.197 (0.348)	0.130 (0.240)	-0.023 (0.639)	-0.009 (0.787)	0.031 (0.504)	0.075 (0.614)	0.129 (0.608)
LnInfrastructure	0.651*** (0.000)	0.240*** (0.003)	0.434*** (0.000)	0.723*** (0.000)	0.869*** (0.000)	1.289*** (0.000)	0.649*** (0.000)	0.278*** (0.001)	0.403*** (0.000)	0.674*** (0.000)	0.874*** (0.000)	1.349*** (0.000)
Pseudo R <sup>2</sup> /R <sup>2</sup>	0.239	0.036	0.113	0.151	0.161	0.222	0.238	0.038	0.113	0.149	0.160	0.218
Fisher	19.35***						18.80***					
Observations	543	543	543	543	543	543	543	543	543	543	543	543

<sup>3</sup> This assertion is based on the assumption that, in interactive regressions, the unconditional effects have a sign that is opposite to the sign of the conditional effects.



Panel B: Unclear Terrorism and Total Terrorism												
	Unclear Terrorism (Unclter)						Total Terrorism (Totter)					
	OLS	Q.10	Q.25	Q.50	Q.75	Q.90	OLS	Q.10	Q.25	Q.50	Q.75	Q.90
Constant	-11.1*** (0.000)	-13.9*** (0.001)	-4.03*** (0.000)	-5.72*** (0.000)	-8.96*** (0.000)	-14.0*** (0.000)	-11.1*** (0.000)	-2.73*** (0.000)	-4.45*** (0.000)	-6.10*** (0.000)	-9.34*** (0.000)	-14.01*** (0.000)
Unclter	0.023 (0.273)	0.007 (0.676)	-0.003 (0.979)	0.009 (0.710)	0.008 (0.899)	0.001 (0.977)	---	---	---	---	---	---
Totter	---	---	---	---	---	---	0.005** (0.016)	0.001 (0.306)	0.002 (0.153)	0.002 (0.211)	0.001 (0.828)	0.001 (0.897)
LnMulaid	0.426*** (0.000)	0.191*** (0.000)	0.179*** (0.000)	0.218*** (0.000)	0.443*** (0.005)	0.675*** (0.003)	0.454*** (0.000)	0.194*** (0.000)	0.221*** (0.000)	0.279*** (0.000)	0.480*** (0.008)	0.678*** (0.004)
Unclter × LnMulaid	-0.006* (0.099)	-0.001 (0.595)	0.0001 (0.949)	-0.002 (0.635)	-0.004 (0.711)	-0.005 (0.705)	---	---	---	---	---	---
Totter × LnMulaid	---	---	---	---	---	---	- 0.001*** (0.004)	-0.0002 (0.504)	- 0.0007** (0.046)	-0.001* (0.062)	-0.0008 (0.637)	-0.001 (0.700)
GDP growth	0.110*** (0.002)	0.036 (0.104)	0.064*** (0.000)	0.059*** (0.003)	0.090 (0.118)	0.169* (0.084)	0.108*** (0.002)	0.039* (0.076)	0.055*** (0.000)	0.048** (0.010)	0.084 (0.169)	0.170 (0.070)
LnTrade	2.480*** (0.000)	0.434*** (0.000)	0.835*** (0.000)	1.294*** (0.000)	2.15*** (0.000)	3.40*** (0.000)	2.456*** (0.000)	0.443*** (0.000)	0.901*** (0.000)	1.337*** (0.000)	2.187*** (0.000)	3.36*** (0.000)
LnInflation	0.120 (0.279)	-0.015 (0.748)	-0.012 (0.749)	0.033 (0.511)	0.031 (0.821)	0.159 (0.517)	0.124 (0.267)	-0.023 (0.628)	-0.019 (0.620)	0.016 (0.739)	0.080 (0.596)	0.171 (0.438)
LnInfrastructure	0.634*** (0.000)	0.244*** (0.003)	0.381*** (0.000)	0.681*** (0.000)	0.866*** (0.000)	1.267*** (0.000)	0.650*** (0.000)	0.239*** (0.003)	0.422*** (0.000)	0.721*** (0.000)	0.867*** (0.001)	1.300*** (0.000)
Pseudo R <sup>2</sup> /R <sup>2</sup>	0.236	0.036	0.112	0.148	0.160	0.220	0.238	0.036	0.113	0.150	0.161	0.222
Fisher	20.00***						19.55***					
Observations	543	543	543	543	543	543	543	543	543	543	543	543

\*, \*\*, \*\*\*: significance levels of 10%, 5% and 1% respectively. Mulaid: Multilateral aid. GDPg: GDP growth rate. OLS: Ordinary Least Squares. R<sup>2</sup> for OLS and Pseudo R<sup>2</sup> for quantile regression. Lower quantiles (e.g., Q 0.1) signify nations where FDI is least.

## 4.2 Further discussion of results and implication

We set-out to examine how foreign aid can be employed to mitigate the hypothetically negative influence of terrorism on FDI in developing countries. The findings have been mixed with expected and unexpected relationships. While we expected development assistance to boost FDI, the positive influence of terrorism on FDI is quite unexpected. With the slight exception of transnational terrorism on the RHS of *Panel A* in Table 4, we have consistently observed the latter tendency, notably the positive impact of terrorism dynamics, in: (i) bottoms quantiles with domestic terrorism and the 25<sup>th</sup> quartile with total terrorism, for bilateral aid regressions and (ii) the 25<sup>th</sup> quartile with domestic terrorism and bottom quantiles of transnational terrorism, for multilateral aid regressions.

A number of reasons can be advanced for the unexpected results. First, from a broad perspective, terrorism may not significantly affect FDI location decisions in developing countries. Accordingly, some foreign investment decisions may even be motivated by high returns owing to higher underlying risks. For instance, according to Obi (2008), China has been increasing her investment in the Niger Delta region of Nigeria, despite the threatening Movement for the Emancipation of the Niger Delta (MEND). This justification is consistent

with the stream of literature on China targeting investment projects in less developing countries that are fragile and politically unstable (Tull, 2006; De Grauwe et al., 2012). Second, another possible elucidation to the unexpected findings may be traceable to the fact that prior to the 2011 Arab Spring; terrorism incidences have not been very alarming. Accordingly, consistent with the 2014 Global Terrorism Index (GTI, 2014, p. 13), global terrorism activities have been soaring substantially in the aftermath of the Arab Spring. Third, there is a wealth of literature on the nexus between terrorism and macroeconomic variables with the consensus that terrorism might not have very significant negative effects on economic development, especially in countries with comparatively higher levels of development (Gaibulloev & Sandler, 2009). The consistently insignificant effects of unclear and total terrorism dynamics in Panel B of Table 5 broadly attest to this position. Moreover, the varying effects of terrorism in terms of signs and insignificance could find explanations in Meierrieks and Gries (2013) if the findings are strongly influenced by Latin American countries because our sample makes no distinction between the ‘Cold war’ and ‘post-Cold war’ eras. In analysing the effect of terrorism on economic development, the underlying authors have used two sub-samples (the Cold war and post-Cold war eras) to conclude that the nexus varies across space and time. According to the account, in the Cold war époque, growth is established to have swayed terrorists’ activities in nations with intermediate development levels that experienced political instability and terrorism in Latin America. Conversely, in the post-‘Cold war’ era, terrorists’ activities are established to exert more negative economic consequences in Islamic and African nations experiencing: (i) growing terrorism and (ii) high rates of political openness and political instability. This third explanation is expositional and should be treated with caution until it is empirically verified.

The immediately preceding narrative has three main implications. (1) The post-2011 impact of terrorism on FDI may be substantially different from the findings established in this study. (2) Low incidences of terrorism have positively affected FDI location decisions. (3) It may be important to also account for the ‘terrorism heterogeneity’ from regional perspectives (Africa versus Latin America for instance) in order to understand how regional dynamics play-out in the underlying relationships. In the present line of inquiry, we have only incorporated heterogeneity in terms of types of terrorisms.

Second, on the effects of foreign aid dynamics, we have seen that while the unconditional effects of multilateral aid are consistently significant with positive increasing returns to FDI, bilateral aid is only positively significant in the bottom quantiles of FDI

distributions. The latter tendency is not very surprising because, from a preliminary analysis based on correlation coefficients, we found bilateral aid to be negatively correlated with FDI. Three implications could be derived. (1) Bilateral aid correlations with economic variables should be treated with caution unless backed by some more robust empirical evidence. (2) The instrumentality of bilateral aid in stimulating FDI is more effective in developing countries with lower initial levels of FDI. (3) The relevance of multilateral aid in stimulating FDI grows consistently with increasing levels of initial FDI.

It is important to devote some space to presenting our perspective of why the findings of bilateral aid are substantially different from those of multilateral aid. A possible elucidation for the difference is that, bilateral aid may be accompanied with more ‘political economy’ strings relative to multilateral aid (Efobi & Nnadi, 2015). It makes sense to infer that bilateral aid is associated with more strings because, since it involves only two parties, a consensus on the strings to attach can easily be reached. Conversely, with multilateral aid, multiple donors with potentially very conflicting interests are involved. Whereas a recent literature survey has established no consistent evidence on the effectiveness of bilateral aid vis-à-vis multilateral aid in the development outcomes of recipient countries (Biscaye et al., 2015), what is granted in our explanation is its consistency with common sense and evidence that bilateral aid to former colonies (from former colonial powers) is strongly tailored in view of preserving colonial legacies and strategic interests. Accordingly, evidence of positive increasing returns to FDI established in our findings may be due to conflicting strategic interests of multilateral donors which may indulge the donors to allocate aid essentially on FDI development outcomes.

A third issue of contention from our findings is that, interactions between terrorism and foreign aid dynamics unexpectedly yield negative effects on FDI. This is visible exclusively in bottom quantiles of FDI distributions. Notably, this tendency is apparent in interactions between: (i) bilateral aid and domestic terrorism in bottom quantiles, (ii) multilateral aid and domestic terrorism in the 25<sup>th</sup> quartile and (iii) multilateral aid and transnational terrorism for the bottom quantiles. Moreover, we also notice that on average, the threshold value for bilateral aid (5.5) is higher than those for multilateral aid (4.00, 3.13 and 3.90). This implies, more bilateral aid is needed to change the positive effect of domestic terrorism on FDI relative to the amount of multilateral aid needed to reverse the positive gains of domestic and transnational terrorisms on FDI.

Drawing from the literature, a possible elucidation for the negative interactive dynamic could be traceable to the political economy of development assistance because some aid categories, allocated for the fight against terrorism, may be inconsistent with the intended purposes of fighting terrorism. This is even more likely when the policy initiative is not substantiated with an established negative effect of terrorism on FDI. It is also important to note that foreign aid allocated to boost government revenue in the fight against terrorism may not have an incremental effect on overall government income because recent literature has established that overly reliance on foreign aid could reduce domestic tax incomes and hence: (i) less political accountability and representation, and (ii) more political instability and violence. This narrative is consistent with Eubank (2012) on Somaliland. Therefore, as a policy implication, it is relevant to have insights into the initial or underlying impact of terrorism on FDI before allocating foreign aid to mitigate a ‘potentially negative effect’ which in real terms, may be ‘positive’. While the discussion of results could read as quite uncritical of international/multilateral aid, it is interesting to note that there are also political biases, which might be, nevertheless, not as rampant for bilateral aid.

## **5. Conclusion, caveat and future research directions**

This study has extended the literature on nexuses between foreign aid, terrorism and FDI by assessing the role of foreign aid on the potentially negative effect of terrorism on FDI. Using an interactive quantile regressions approach, we have steered clear of previous studies by investigating the problem statement throughout the conditional distributions for FDI. The empirical evidence is based on 78 developing countries with data for the period 1984-2008. Bilateral and multilateral aid variables are used, while terrorism dynamics entail: domestic, unclear, transnational and total indicators. The following findings have been established. First, while the effects of multilateral aid are consistently significant with evidence of positive increasing returns to FDI, bilateral aid is only positively significant in the bottom quantiles. Second, with the slight exception of transnational terrorism in bilateral aid regressions, the impacts of terrorism dynamics are unexpectedly positive, in: (i) bottom quantiles with domestic terrorism and the 25<sup>th</sup> quartile with total terrorism, for bilateral aid regressions and (ii) the 25<sup>th</sup> quartile with domestic terrorism and bottom quantiles of transnational terrorism, for multilateral aid regressions. Third, interactions between terrorism and foreign aid dynamics unexpectedly yield a negative effect on FDI, notably in: (i) bilateral aid and

domestic terrorism in bottom quantiles, (ii) multilateral aid and domestic terrorism in the 25<sup>th</sup> quartile; (iii) multilateral aid and transnational terrorism for the bottom quantiles. Moreover, the modifying threshold value of bilateral aid is higher relative to that of multilateral aid. Fourth, there are positive increasing returns to FDI from GDP growth, infrastructural development and trade openness on FDI. The positive increasing returns imply, the benefits of corresponding variables in stimulating FDI consistently increase with higher initial levels of FDI. The main finding is that foreign aid cannot be effectively used as a policy tool to effectively address a hypothetically negative effect of terrorism on FDI. Policy implications have been discussed.

Though not uncommon in the quantile regressions literature (see Billger & Goel, 2009; Okada & Samreth, 2012), the main caveat of the study is that we have not controlled for country and time fixed effects in the modelling. The analysis leaves room for the following future lines of inquiry: (i) investigating by what mechanisms terrorism positively affects FDI, (ii) clarifying why development assistance and terrorism interact to have a negative impact on FDI, (iii) examining the underlying nexuses with a post-2011 terrorism sample (iv) decomposing foreign aid into more components and (v) accounting for regional heterogeneity in the examined nexuses.

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