

Asongu, Simplice; Efobi, Uchenna; Beecroft, Ibukun

**Working Paper**

## FDI, Aid, Terrorism: Conditional Threshold Evidence from Developing Countries

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WP/15/019

**FDI, Aid, Terrorism: Conditional Threshold Evidence from Developing  
Countries**

**ASONGU Simplicé**

African Governance and Development Institute, Cameroon  
E-mail: [asongusimplice@yahoo.com](mailto:asongusimplice@yahoo.com); [asongus@afridev.org](mailto:asongus@afridev.org)

**EFOBI Uchenna**

Covenant University, Nigeria  
E-mail: [uche.efobi@covenantuniversity.edu.ng](mailto:uche.efobi@covenantuniversity.edu.ng) ; [efobi99@yahoo.co.uk](mailto:efobi99@yahoo.co.uk)

**BEECROFT Ibukun**

Covenant University, Nigeria  
E-mail: [ibukun.beecroft@covenantuniversity.edu.ng](mailto:ibukun.beecroft@covenantuniversity.edu.ng); [duchessbeecroft@yahoo.com](mailto:duchessbeecroft@yahoo.com)

## AGDI Working Paper

Research Department

### FDI, Aid, Terrorism: Conditional Threshold Evidence from Developing Countries

Simplice ASONGU, Uchenna 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 following findings are established. First, while the effects of multilateral aid are consistently significant with positive threshold evidence, bilateral aid is only positively significant in 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 0.25<sup>th</sup> quantile with total terrorism, for bilateral aid regressions, and (ii) the 0.25<sup>th</sup> quantile with domestic terrorism and bottom quantiles of transnational terrorism, for multilateral aid regressions. Third, interactions between terrorism and foreign aid dynamics unexpectedly yield negative effects in: (i) bilateral aid and domestic terrorism in bottom quantiles and (ii) multilateral aid and domestic (transnational) terrorism in the 0.25<sup>th</sup>(bottom) quantile(s). The modifying threshold value of bilateral aid is higher than that of multilateral aid. Fourth, there is positive threshold evidence from GDP growth, infrastructural development and trade openness. Policy implications are discussed.

*JEL Classification:* C52; D74; F23; F35; O40

*Keywords:* FDI; Foreign aid; Terrorism; Quantile regression

#### 1. Introduction

Extreme poverty trends recently published by the World Bank in April 2015 reveal that developing countries in general, and African nations in particular still have a long way to go in attaining the Millennium Development Goals (MDGs) extreme poverty target. According to the account, more than 45% of Sub-Saharan African (SSA) countries are off-

track from the target (World Bank, 2015; Caulderwood, 2015; Asongu & Kodila-Tedika, 2015a).

It is an economic fact that for extreme poverty to be reduced, growth is needed. Whether the growth should be absolute or relative pro-poor is a debate we resist to engage. What is granted is that while growth may increase inequality, there is a wide consensus that it decreases poverty (Mlachila et al., 2014). It is also widely accepted in academic and policy circles that growth essential for poverty reduction can be substantially distorted by political instability, violence and terrorists' activities (Asongu & Nwachukwu, 2015a). According to the authors, nations that are experiencing a persistent 2011 Arab Spring are also seeing their growth prospects blurring, an outlook that can be associated with substantial poverty externalities. It follows that an economic environment that is unstable due to terrorists' activities is likely to be linked with less access to individual opportunities and essential services that are important for economic growth.

This tendency is more relevant in post-conflict and fragile states because threats of terrorism are translated to portray an uncertain economic outlook, often characterised with ambiguity from investors (public and private) who for the most part prefer investment strategies that are not clouded with ambiguity (Le Roux & Kelsey, 2015ab). Essentially, the effects of terrorism may endure, with long-lasting negative externalities on economic growth, notably: increasing cost of investment, reducing economic savings and output, infrastructural damages and burgeoning insurance premiums (Singh, 2001, 2007; Efobi et al., 2015).

According to the 2014 Global Terrorism Index (GTI, 2014, p. 13), the global trend of terrorists' activities has been increasing since the aftermath of the 2011 Arab Spring. Highlighting a few, first, post-Gaddafi Libya is now a failed state, characterised by total anarchy with multiple rebel factions and two rival governments, claiming to dictate the law of the land. Second, the Yemeni situation is also deteriorating by the day because; recently a proxy war has erupted that is being fought by Iran and Saudi Arabia who are in support of rebels and the government respectively. It is established in some circles that a cause of the conflict is the failure by the government to respect clauses of its socio-economic contract with the Yemeni, after the ouster of President Ali Abdullah Saleh (Asongu & Nwachukwu, 2016a). Third, the repeated attacks from the Boko Haram in Nigeria are cutting across boundaries without respect of territorial integrity, thus affecting neighbouring nations like Chad, Cameroon and Niger. Fourth, negative externalities from the conflict in Syria and fragile political situation in Iraq have produced a powerful Islamic State of Iraq and the Levant

(ISIL) that is gaining territory in Iraq and Syria by the day. The effects of ISIL have been far-reaching, namely the: foiled February 2015 Australian attacks, Sydney-Australian hostage crisis in December 2014, failed Verviers-Belgium attacks of January 2015 and Paris-France 'Charlie Hebdo' attacks of January 2015, which have drawn substantial sympathetic mobilisation and global condemnation.

With the above stylized facts, an evolving stream of the literature is increasingly focusing on mechanisms through which various forms of terrorism and political violence can be stemmed. Some of the documented instruments include, inter alia: education through bilingualism (Costa et al., 2008); respect of the rule of law (Choi, 2010) and the corruption-control as the most effective weapon in the fight against conflicts (Asongu & Kodila-Tedika, 2016); internal and external transparency (Bell et al., 2014); publicity and freedom of the press (Hoffman et al., 2013); military instruments (Feridun & Shahbaz, 2010); examination of terrorism behaviour (Gardner, 2007); education (Brockhoff et al., 2014), especially lifelong-learning in the mitigation of political violence and instability (Asongu & Nwachukwu, 2016a), geopolitical fluctuations as primary factors explaining the warfare landscape in SSA (Straus, 2012), and the increase of foreign aid (Bandyopadhyay et al., 2014; Bandyopadhyay & Younas, 2014).

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 paid extensive attention to estimating the economic value of terrorist attacks on foreign investors. It is observed that a terrorist attack will cost an average developing country, whose GDP totalled 70 billion US\$, to lose between 324 million US\$ and 513 million US\$ of FDI, and between 296 million US\$ and 736 million US\$ of FDI, depending on the origin of the attack (Efobi et al., 2015). This amount is significant for developing countries as the inflow of these investors are supposed to augment their resource gap considering the low savings, the declining state of development assistance, and poor integration of the region in the global capital market (Asiedu, 2006).

To stem the activities of terrorist, and to sustain the flow of FDI into developing countries, recent studies have 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 afflicted by terrorism are poor and short of vital resources to fight the scourge (Bandyopadhyay & Younas, 2014). They sustain that the principal issue with the statistics is that developing nations have begun tailoring their foreign policy strategies to attract more foreign investment, hence, terrorism is counter-productive to the goal. Against this background, Bandyopadhyay et al. (2014) and Lee (2015) 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 the scourge.

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 effect of terrorism on corruption-control levels in recipient countries. They have concluded 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), while the stance that only multilateral aid mitigates the adverse consequence of FDI is confirmed principally because it curbs the negative effect of transnational terrorism on FDI. Moreover, the authors also find that the adverse impacts of unclear and total terrorism are mitigated by multilateral aid.

The above literature leaves room 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. First, in relation to the need for more dynamics of terrorism, Cho (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. Second, 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 evidence 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 because it permits us to investigate the determinants of FDI throughout the conditional distributions of FDI.

In light of the above, the line of inquiry adopted by this study is straight forward and simple to follow. It 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) development assistance is donated by developed nations to less developed countries.

The empirical evidence is important to the stylized facts enunciated in the first paragraph of this introduction 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; Asongu & Kodila-Tedika, 2015b; Asongu & Nwachukwu, 2015b). 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.

It is also important to briefly highlight the theoretical underpinnings on which the study is based. Consistent with Asongu and Nwachukwu (2016a) from Akinwale (2010, p. 125), lines of inquiry that are focused on how to resolve conflicts are for the most part motivated by the Conflict Management Model of Thomas-Kilman and the Social Control Theory of Black. On the other hand, 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. On the one hand, according to the latter, 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, Asongu and Nwachukwu 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 may be designed to influence 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, Gaibulloev 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 (Heyneman, 2002; Beets, 2005; Heyneman, 2008ab; Oreopoulos & Salvanes, 2009; Asongu & Nwachukwu, 2016ab). For example, Asongu and Nwachukwu (2016b) have established that development assistance positively affects the demand-side of education and lifelong-learning and in a latter study, they have concluded that education and lifelong-learning increase political stability and non-violence (Asongu & Nwachukwu, 2016a). Given the above, the testable hypothesis of the present line of inquiry is simply and straight forward to follow: we examine the role of foreign aid in mitigating a hypothetically negative effect of terrorism on FDI.

The rest of the study is structured as follows. Section 2 covers the data and methodology. The empirical results and policy implications are discussed in Section 3. Section 4 concludes with recommendations for future research.

## **2. Data and Methodology**

### **2.1 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, (ii) constraints in the availability of other variables in the

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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”.



conditioning information set and (iii) the motivation of comparing the findings with results of previous studies that have employed the same sample and periodicity, notably: Bandyopadhyay et al. (2014) and Efobi et al. (2015).

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. 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 providing further justification for the choice of variables. First, development assistance provides economic resources, much needed for logistical 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). Accordingly, foreign aid increases education (Asongu & Nwachukwu, 2016b) and improving education has been recently established to decrease political instability and violence (Asongu & Nwachukwu, 2016a). 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; Asongu, 2014ab; 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. 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,

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<sup>2</sup> For instance, Asongu (2014a) by decomposing aggregated aid has clarified the questionable economic of development assistance advanced by Asongu (2014b). Asiedu and Nandwa (2007), Johnson and Quartey (2009), Asiedu (2014) and Efobi et al. (2014) consistently articulate the need to integrate foreign aid heterogeneity.

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 in unclear	
Total terrorism	Totter	Total number of terrorism incidents	

GDP: Gross Domestic Product. WDI: World Development Indicators.

Table 1 summarises the definition of the variables while Table 2 provides the summary statistics. It can be noticed that 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**

	Mean	S.D	Minimum	Maximum	Obs.
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 overparameterization 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, 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.

## 2.2 Methodology

Consistent with the literature on conditional determinants (Billger & Goel, 2009; Asongu, 2013), 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 (Keonker & Hallock, 2001).

Previous studies on FDI determinants have reported estimated parameters at the conditional mean of FDI (Apkan et al., 2014; Bandyopadhyay; 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, 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: health (Asongu, 2014c) and corruption (Billger & Goel, 2009; Okada & Samreth, 2012) studies

The  $\theta$ 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> quantiles (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 overparameterization issues identified in Table 3.

### 3. Empirical results

#### 3.1 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 impact of domestic terrorism on FDI is positive in the 0.10<sup>th</sup> and 0.25<sup>th</sup> quantiles of the Left Hand Side (*LHS*), whereas the effect of transnational terrorism is negative for the 0.25<sup>th</sup> quantile in the Right Hand Side (*RHS*). In *Panel B*, the effect of unclear terrorism is consistently insignificant on the *LHS* while the impact of total terrorism is positively significant in the 0.25<sup>th</sup> quantile of the *RHS*. Second, the 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 0.25<sup>th</sup> quantile in the *RHS* of *Panel B*, for ‘total terrorism and bilateral aid’. Only the modifying 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 positive threshold effects. Hence, the positive impact of GDP growth, infrastructure and trade increase from low to high quantiles of the FDI distributions. The positive threshold effects imply, the benefits of corresponding variables in stimulating FDI consistently increase with higher initial 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> Fisher	0.216 <b>19.47***</b>	0.040	0.107	0.142	0.150	0.201	0.216 <b>18.11***</b>	0.040	0.105	0.142	0.149	0.197
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)	- (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> Fisher	0.216 <b>20.24***</b>	0.039	0.105	0.142	0.149	0.199	0.216 <b>19.65***</b>	0.040	0.107	0.142	0.150	0.200
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 impact of domestic terrorism on FDI is

positive in: the 0.25<sup>th</sup> quantile of the *LHS* and bottom distributions of the *RHS* for transnational terrorism. In *Panel B*, the effects of unclear and total terrorisms are not significant. Second, the effect of foreign aid is consistently positive with threshold evidence. 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 0.25<sup>th</sup> quantile 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 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 0.10<sup>th</sup> and 0.25<sup>th</sup> quantiles of transnational terrorism respectively.

On the control variables, with the exception of GDP growth for which the positive threshold evidence 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 threshold from the effects of trade openness and infrastructural development.

**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	<b>-11.1***</b> (0.000)	<b>-2.71***</b> (0.000)	<b>-4.56***</b> (0.000)	<b>-6.08***</b> (0.000)	<b>-9.35***</b> (0.000)	<b>-14.5***</b> (0.000)	<b>-11.2***</b> (0.000)	<b>-2.58***</b> (0.000)	<b>-4.22***</b> (0.000)	<b>-6.15***</b> (0.000)	<b>-9.74***</b> (0.000)	<b>-13.92***</b> (0.001)
Domter	<b>0.007**</b> (0.012)	0.001 (0.308)	<b>0.004**</b> (0.030)	0.003 (0.196)	0.002 (0.798)	0.007 (0.984)	---	---	---	---	---	---
Tranater	---	---	---	---	---	---	<b>0.049**</b> (0.030)	<b>0.047***</b> (0.000)	<b>0.039***</b> (0.000)	0.021 (0.237)	0.010 (0.886)	0.022 (0.600)
LnMulaid	<b>0.454***</b> (0.000)	<b>0.192***</b> (0.000)	<b>0.230***</b> (0.000)	<b>0.281***</b> (0.000)	<b>0.479***</b> (0.007)	<b>0.690***</b> (0.002)	<b>0.460***</b> (0.000)	<b>0.193***</b> (0.000)	<b>0.220***</b> (0.000)	<b>0.250***</b> (0.000)	<b>0.460**</b> (0.010)	<b>0.710***</b> (0.005)
Domter* LnMulaid	- <b>0.002***</b> (0.004)	-0.0002 (0.520)	- <b>0.001***</b> (0.008)	-0.001 (0.045)	-0.001 (0.627)	-0.001 (0.426)	---	---	---	---	---	---
Tranater* LnMulaid	---	---	---	---	---	---	<b>-0.017**</b> (0.010)	- <b>0.015***</b> (0.000)	- <b>0.010***</b> (0.000)	-0.006 (0.213)	-0.006 (0.742)	-0.013 (0.303)
GDP growth	<b>0.108***</b> (0.002)	<b>0.039*</b> (0.070)	<b>0.055***</b> (0.001)	<b>0.048***</b> (0.008)	0.084 (0.169)	<b>0.169*</b> (0.060)	<b>0.108***</b> (0.002)	<b>0.044*</b> (0.065)	<b>0.054***</b> (0.000)	<b>0.052***</b> (0.005)	0.089 (0.159)	<b>0.168*</b> (0.097)
LnTrade	<b>2.45***</b> (0.000)	<b>0.441***</b> (0.000)	<b>0.916***</b> (0.000)	<b>1.330***</b> (0.000)	<b>2.187***</b> (0.000)	<b>3.484***</b> (0.000)	<b>2.480***</b> (0.000)	<b>0.399***</b> (0.003)	<b>0.843***</b> (0.000)	<b>1.375***</b> (0.000)	<b>2.303***</b> (0.000)	<b>3.337***</b> (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	<b>0.651***</b> (0.000)	<b>0.240***</b> (0.003)	<b>0.434***</b> (0.000)	<b>0.723***</b> (0.000)	<b>0.869***</b> (0.000)	<b>1.289***</b> (0.000)	<b>0.649***</b> (0.000)	<b>0.399***</b> (0.001)	<b>0.403***</b> (0.000)	<b>0.674***</b> (0.000)	<b>0.874***</b> (0.000)	<b>1.349***</b> (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	<b>19.35***</b>						<b>18.80***</b>					
Observations	543	543	543	543	543	543	543	543	543	543	543	543
<b>Panel B: Unclear Terrorism and Total Terrorism</b>												
	<b>Unclear Terrorism (Unclter)</b>						<b>Total Terrorism (Totter)</b>					
	OLS	Q.10	Q.25	Q.50	Q.75	Q.90	OLS	Q.10	Q.25	Q.50	Q.75	Q.90
Constant	<b>-11.1***</b> (0.000)	<b>-13.9***</b> (0.001)	<b>-4.03***</b> (0.000)	<b>-5.72***</b> (0.000)	<b>-8.96***</b> (0.000)	<b>-14.0***</b> (0.000)	<b>-11.1***</b> (0.000)	<b>-2.73***</b> (0.000)	<b>-4.45***</b> (0.000)	<b>-6.10***</b> (0.000)	<b>-9.34***</b> (0.000)	<b>-14.01***</b> (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	---	---	---	---	---	---	<b>0.005**</b> (0.016)	0.001 (0.306)	0.002 (0.153)	0.002 (0.211)	0.001 (0.828)	0.001 (0.897)
LnMulaid	<b>0.426***</b> (0.000)	<b>0.191***</b> (0.000)	<b>0.179***</b> (0.000)	<b>0.218***</b> (0.000)	<b>0.443***</b> (0.005)	<b>0.675***</b> (0.003)	<b>0.454***</b> (0.000)	<b>0.194***</b> (0.000)	<b>0.221***</b> (0.000)	<b>0.279***</b> (0.000)	<b>0.480***</b> (0.008)	<b>0.678***</b> (0.004)
Unclter * LnMulaid	<b>-0.006*</b> (0.099)	-0.001 (0.595)	0.0001 (0.949)	-0.002 (0.635)	-0.004 (0.711)	-0.005 (0.705)	---	---	---	---	---	---
Totter* LnMulaid	---	---	---	---	---	---	-	-0.0002	-	<b>-0.001*</b>	-0.0008	-0.001
GDP growth	<b>0.110***</b> (0.002)	0.036 (0.104)	<b>0.064***</b> (0.000)	<b>0.059***</b> (0.003)	0.090 (0.118)	<b>0.169*</b> (0.084)	<b>0.108***</b> (0.002)	<b>0.039*</b> (0.076)	<b>.055***</b> (0.000)	<b>0.048**</b> (0.010)	0.084 (0.169)	0.170 (0.070)
LnTrade	<b>2.480***</b> (0.000)	<b>0.434***</b> (0.000)	<b>0.835***</b> (0.000)	<b>1.294***</b> (0.000)	<b>2.15***</b> (0.000)	<b>3.40***</b> (0.000)	<b>2.456***</b> (0.000)	<b>0.443***</b> (0.000)	<b>0.901***</b> (0.000)	<b>1.337***</b> (0.000)	<b>2.187***</b> (0.000)	<b>3.36***</b> (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	<b>0.634***</b> (0.000)	<b>0.244***</b> (0.003)	<b>0.381***</b> (0.000)	<b>0.681***</b> (0.000)	<b>0.866***</b> (0.000)	<b>1.267***</b> (0.000)	<b>0.650***</b> (0.000)	<b>0.239***</b> (0.003)	<b>0.422***</b> (0.000)	<b>0.721***</b> (0.000)	<b>0.867***</b> (0.001)	<b>1.300***</b> (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	<b>20.00***</b>						<b>19.55***</b>					
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.

### 3.2 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 unexpected 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 0.25<sup>th</sup> quantile with total terrorism, for bilateral aid regressions and (ii) the 0.25<sup>th</sup> quantile 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 unstable politically (Tull, 2006; De Grauwe et al., 2012; Asongu & Aminkeng, 2013). 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 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 nationsexperiencing: (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 effects of multilateral aid are consistently significant with positive threshold evidence, 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 and 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, the threshold effect established in our findings may be due to conflicting strategic interests of multilateral donors which may indulge them to end-up allocating aid essentially on FDI development outcomes. This interpretation is in accordance with Asongu (2014b), *“Aid is the outcome of bargaining in a kind of political market made up of donor aid bureaucracies, multilateral aid agencies and recipient government officials. Indeed donors pursue multiple goals and these vary over time. For instance, economic gains seem important in Japanese aid, global welfare improvement in Nordic aid and political goals in French aid. Hence, few would object to the inference that our findings may also be explained by a motivation of the French to maintain their colonial legacies and influence in Africa”* (p. 472).

In summary, the established foreign aid findings are broadly inconsistent with a recent stream of literature on the ‘questionable economics of development assistance’, notably: Wamboye et al. (2013), Marglin (2013), Titumir and Kamal (2013), Ghosh (2013), Krause (2013), Banuri (2013), Monni and Spaventa (2013), Obeng-Odoom (2013), Amin (2013),

Quartey and Afful-Mensah (2014) and Asongu (2014b). In essence, the consistent positive effect: (i) gives credit to the strand of literature clarifying the questionable economics of development assistance (Asongu, 2014a; Efobi et al., 2014) and (ii) confirm the established rewards of development assistance in economic growth (Gyimah-Brempong & Racine, 2014; Kargbo & Sen, 2014), especially when foreign aid is funnelled through educational channels (Asiedu & Nandwa, 2007; Asiedu, 2014). The second point (ii) is very relevant because, as we have highlighted earlier, Asongu and Nwachukwu (2016b) have shown that foreign aid positively affects education and lifelong-learning and in a latter study, they have established using the same methodology, sample and periodicity that education and lifelong-learning mitigate political violence and instability (Asongu & Nwachukwu, 2016a), which should be positively linked with terrorists' activities.

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 0.25<sup>th</sup> quantile 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 not be inconsistent with the intended purposes, especially as we have established that the underlying impact of terrorism on FDI is positive. This may not be understood by foreign policy. 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 and a broad sample of African countries (Asongu, 2015a). 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’.

Given that we have motivated the choice of the data sample and periodicity with the interest of comparing our findings with previous studies which have used the same sample and periodicity, we also devote space to discussing how our findings are different from those established by Efobi et al. (2015) and Bandyopadhyay et al. (2014). While the common element among these strand of studies is that they have investigated the role of foreign aid in mitigating the potentially negative effect of terrorism on FDI, our line of inquiry has steered clear of these previous studies by investigating the underlying nexuses throughout the conditional distributions of the dependent variable. In this light, our findings have improved those of priorexpositions at least in a twofold manner. First, the evidence of a threshold effect present in foreign aid (especially multilateral aid) and some of the control variables (trade, infrastructure and GDP growth) has enriched the literature significantly. Accordingly, the establishment that the benefits of multilateral aid, trade, infrastructural development and GDP growth in stimulating FDI consistently improve with increases in initial levels of FDI is testament to the motivation for our quantile empirical strategy of considering the entire distribution of FDI, contrary to mean values of the dependent variable employed by previous studies. Hence, our findings validate the motivation that blanket FDI location policies may not be effective unless they are contingent on initial FDI levels and tailored differently across high- and low-FDI developing countries. This methodological positioning is being increasingly adopted in the determinants of growth (Asongu, 2015b) and FDI in fast-growing developing countries (Asongu & Kodila-Tedika, 2015).

Second, for brevity, purpose of clarity and lack of space, we follow a pedagogical comparative line, which requires us to follow a chronological order by first clarifying how Efobi et al. (2015) extends Bandyopadhyay et al. (2014) so that the contributions of our findings discussed so far are apparent and self-evident. The former study has concluded 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 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), while the stance that only multilateral aid mitigates the adverse consequence of FDI is confirmed principally because it curbs the negative effect of

transnational terrorism on FDI. Moreover, the authors also find that the adverse impacts of unclear and total terrorism are mitigated by multilateral aid.

For the sake of remaining succinct and avoiding repetition, our results as discussed above differ substantially in terms of: (i) sign of effect of terrorism dynamics; (ii) thresholds of significant impact of foreign aid variables and (iii) signs, significance and quantiles of marginal effects from the interactive regressions. As a policy implication, applied econometrics should not be limited to the mere acceptance or refutation of existing theories, extending previous studies with the same sample and periodicity is a useful scientific activity that could disclose very relevant policy implications.

#### **4. Conclusion and future research directions**

This study has extended the literature on nexuses among, 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 positive threshold evidence, 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 0.25<sup>th</sup> quantile with total terrorism, for bilateral aid regressions and (ii) the 0.25<sup>th</sup> quantile 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 0.25<sup>th</sup> quantile; (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 is positive threshold evidence from GDP growth, infrastructural development and trade openness on FDI. The positive threshold effects imply, the benefits of corresponding variables in stimulating FDI consistently increase with higher initial levels of FDI. Policy implications have been discussed.

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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