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Abstract

The study investigates whether development assistance can be used to crowd-out the negative effect of terrorism on international trade. The empirical evidence is based on a panel of 78 developing countries for the period 1984-2008 and Quantile Regressions. The following main findings are established. First, bilateral aid significantly reduces the negative effect of transnational terrorism on trade in the top quantiles of the trade distribution. Second, multilateral aid also significantly mitigates the negative effect of terrorism dynamics on trade in the top quantiles of the trade distributions. It follows that it is primarily in countries with above median levels of international trade that development assistance can be used as an effective policy tool for dampening the adverse effects of terrorism on trade. Practical implications are discussed.

1. Introduction

Terrorism represents one the most challenging contemporary policy syndromes to shared global prosperity. The trade channel is one of the mechanisms via which the scourge affects cross-country development (Asongu & Nwachukwu, 2016a). Against this backdrop, a growing body of literature has focused on investigating tools with which conflicts and terrorism can be attenuated (if not eradicated). Some of the documented mechanisms have encompassed, channels of: education (Brockhoff *et al.*, 2014), especially lifelong learning (Asongu & Nwachukwu, 2016b) and bilingualism (Costa *et al.*, 2008); the rule of law (Choi, 2010); the appealing role of the media and freedom of the press (Hoffman *et al.*, 2013); behavourial motivations underpinning terrorism (Gardner, 2007) and employment of military devices (Feridun & Shahbaz, 2010; Asongu & Amankwah-Amoah, 2018; Asongu *et al.*, 2019).

The positioning of the inquiry on linkages between trade, foreign aid and terrorism builds on a gap in the stream of literature on nexuses between terrorism and macroeconomic outcomes. We substantiate this perspective in what follows by first discussing the underlying linkages and then engaging the more specific literature on the trade-terrorism nexus.

A substantial body of literature has been devoted to understand linkages between crimes, violence, terrorism, political instability and macroeconomic outcomes. Such focus has included the following. (i) The incidence of terrorism on foreign direct investment (FDI) (see Abadie & Gardeazabal, 2008) and the relevance of foreign aid in dampening the impact of terrorism on FDI (Bandyopadhyay *et al.*, 2014). Sometimes the interaction is conditioned on FDI thresholds (see Asongu *et al.*, 2015) and on domestic corruption-control levels (Efobi *et al.*, 2015). (ii) The relationship between acts of terror and economic growth, with evidence of bidirectional (Gries *et al.*, 2011; Shahbaz *et al.*, 2013; Shahzad *et al.*, 2015) as well as unidirectional (Piazza, 2006; Gaibulloev & Sandler, 2009; Öcal & Yildirim, 2010; Meierrieks & Gries, 2013; Choi, 2015) causalities. (iii) The nexus between innovation and terrorism (see Koh, 2007). (iv) How terrorism interplays with natural resources (see Humphreys, 2005).

The focus of this inquiry is on the last (iv) and first (i) strands. Hence, we aim to investigate if foreign aid can dampen the incidence of terrorism on international trade. While the link to the first strand reflects the notion of using external flows to crowd-out the effect of terrorism on globalisation, the connection to the last strand is fundamentally based on the fact that international trade encompasses the export of natural resources. We discuss how the

positioning of the inquiry steers clear of existing literature on the relationship between trade and terrorism, which can be discussed in three main themes, notably: the effect of terrorism on trade; the impact of illegal trade on terrorism and setbacks on the modelling of the nexus between terrorism and trade. The themes are engaged chronologically.

As far as I have reviewed, there are four main studies in the first theme which is oriented towards the incidence of terrorism on trade. (1) Richardson (2004) has concluded that measures of security that were put in place after the 2001 September 11 attacks in the USA broadly align with mitigating the negative consequences of terrorism on international trade. (2) The effect of welfare and terrorism on trade has been investigated by Nitsch and Schumacher (2004) who have employed an augmented gravity estimation approach on 200 countries for the period 1960-1993. With the help of a multitude of terrorism, violence and bilateral trade indicators, they have reached the conclusion that terrorism affects trade openness negatively. Furthermore, they have also maintained that trade openness reduces by about four percent when terrorism incidents are doubled. (3) De Sousa *et al.* (2009a) have examined the link between "nearness to the source of terror" and the unappealing consequences on trade. The authors have documented that it is imperative to carefully establish a theory that elucidate nexuses between transnational terrorism, trade and security policies. They have also emphasised the relevance of establishing more robust assessments on the spillovers of terrorism to varying definitions of neighbouring effects. (4) In an extension, De Sousa *et al.* (2009b) have investigated the impact of the diffusion of international terrorism on security and trade. The study is motivated by the hypothesis that closeness to the origin of terror is negatively connected to the corresponding spillover impacts. The underlying motivation of the study is that security initiatives that influence trade have a simultaneous incidence in the source-country and neighbouring nations. On the contrary, nations that are located very far from the origin of terror could be positively affected in terms of trade benefits which correspond to the "loss of trade" by the country from which the terror originates. Moreover, its immediate neighbours also experience negative trade effects as a result of the underlying terrorism. De Sousa and co-authors have established three main results, notably: (i) the existence of a direct negative impact on trade from transnational terrorism; (ii) trade activities increase in the presence of terror remoteness and (iii) a negative impact of terror has spillovers beyond the source country of terror to neighbouring countries.

With regard to the second theme on the effect of illegal trade on terrorism, two studies are apparent in the sparse literature. On the one hand, Piazza (2011) has investigated the

relationship between terrorism and "trade in drugs" to conclude that the production of cocaine, opiate and illicit drugs substantially boost both domestic and transnational terror activities. Moreover, banning drugs and eradicating illicit crops produce opposite effects. On the other hand, using binomial regressions, Piazza (2012) has assessed the nexus between trade in opium and terrorism for the period 1996-2008 in thirty-four provinces in Afghanistan. The study establishes that high rates of terrorism are associated with Afghan provinces in which the cultivation of opium is relatively more important. The direction of causality is therefore established to flow from opium production to terrorism.

As concerns the third theme, concerns about modelling has been raised by Mirza and Verdier (2008) after a review of existing literature. The authors have documented four main pitfalls in the literature on the relationship between terrorism and trade. They have cautioned that in order to improve robustness in the underlying relationship, studies have to: (i) account for omitted variables; (ii) acknowledge that terrorism is inter-temporally persistent; (iii) distinguish the impact of incidental country-specific terrorism impacts from the effect of occurrences that are related to source-nations and (iv) control for endogeneity.

The positioning of this inquiry improves the engaged literature in three main areas, namely by: controlling for more indicators of terrorism; exploring the relevance of foreign policy dynamics in the terrorism-trade nexus and adopting an empirical approach that controls for existing levels of the outcome indicator. The three points are substantiated in the paragraphs that follow.

First, in accordance with Choi (2015), it is important to control for more indicators when assessing the nexus between terrorism macroeconomic outcomes. Hence, this study considers four measurements of terrorism in order to avail room for more policy options. The adopted variables include: domestic terrorism, transnational terrorism, unclear terrorism and total terrorism. The adoption of multiple terrorism variables steers clear of the engaged trade-terrorism studies in the perspectives that only few terrorism indicators have been used in the underlying literature, notably: domestic and transnational terrorism on the one hand by Piazza (2011) and transnational terrorism by De Sousa *et al.* (2009a, 2009b), on the other.

Second, in the interest of availing more room for policy implications, a policy variable is adopted in the terrorism-trade relationship. Accordingly, we assess how foreign aid can be used to dampen the negative relationship of terrorism with international trade. Two development assistance variables are employed, namely: bilateral aid and multilateral aid. The employment of a policy variable is in accordance with literature on the relevance of aid in the

terrorism-FDI relationship (see Bandyopadhyay *et al*., 2014; Efobi *et al*., 2015). The adoption of a policy variable has been cautioned by Choi (2015) and the intuition of a potentially negative influence of terrorism on trade is consistent with the findings of Richardson (2004) and De Sousa *et al*. (2009a, 2009b).

Third, in the light of the caution expressed by Mirza and Verdier (2008) on the imperative to use more robust estimation techniques, we adopt an empirical strategy that controls for initial levels of trade. The adoption of the quantile regression approach which enables us to account for existing levels of international trade is motivated by the fact that, blanket aid-related policies aimed at curbing the negative consequences of terrorism on international trade, may be ineffective unless such policies are contingent on initial levels of trade and tailored differently across countries with high, intermediate and low existing trade levels.

The rest of the study is organised as follows. The theoretical underpinnings, world trade and corresponding theoretical strategies are discussed in Section 2. Section 3 covers the data and methodology. The empirical results and corresponding discussion are engaged in Section 4 while Section 5 concludes with future research directions.

2. Stylized facts and theoretical underpinnings
2. 1 Stylized facts and conflict management theoretical insights

Terrorism is increasingly very costly to the average tax payer in the world. In accordance with Anderson (2015) from the 2014 Global Peace Index (GPI) report, approximately 13% of global Gross Domestic Product (GDP) is lost to curtailing violence, terrorism and political instability around the world. The report maintains that the corresponding government expenditure of 14.3 trillion USD is equivalent to the combined GDP of some developed world economic powers, namely: Canada, Brazil, France, Germany, Spain and the United Kingdom. By the same estimates, the underlying expenditure (which is largely allocated to preventing and fighting terrorism) is likely to increase in the coming years because terrorism activities have been growing both in scale and scope. For instance, compared to 2008, in 2014, terrorism activities represented a sixty-one percent rise in killings.

Whereas developed countries are more equipped with the financial and logistical facilities with which to absorb the consequences of terrorism on macroeconomic outcomes, developing countries need development assistance from the international community in order to limit/assuage the negative economic consequences of terrorism. Consistent with the

motivation in the introduction, the relevance of foreign aid in reducing the potentially negative effect of terrorism on trade represents an important gap in the literature. In what follows, we discuss the theoretical insights supporting the underlying linkages. This is also in accordance with a recommendation by De Sousa *et al.* (2009a) on the imperative of clearly documenting theoretical concepts motivating relationships to be investigated.

In accordance with the extant literature on terrorism (see Asongu *et al.*, 2015; Efobi *et al.*, 2015), there are two main theories substantiated by Akinwale (2010) which support this line of inquiry, notably: the Conflict Management Model (CMM) of Thomas-Kilman (1992) and the Social Control Theory (SCT) of Black (1990). On the one hand, within the CMM framework, intentions that are strategic in nature are very likely to rotate around a matrix defined by two factors (of cooperation and assertiveness), which when combined with collaboration yields five fundamental conflict management styles, namely: accommodation, competition, collaboration, compromise and avoidance. On the other hand, with regards to the SCT, nexuses between individuals, organisations and groups affect the exercise of one of the five principal mechanisms of social control, namely: avoidance, negotiation, tolerance, self-help and settlement. The suggested theoretical underpinnings are in line with the literature on peace and conflict management (see Borg, 1992; Volkema & Bergmann, 1995; Asongu & Nwachukwu, 2016b). Furthermore, foreign aid is relevant in boosting factors needed in the fight against terrorism, notably: education and institutional quality (Heyneman, 2002; Heyneman, 2008a, 2008b; Beets, 2005; Oreopoulos & Salvanes, 2009;) and enhancement of government expenditure (Gaibulloev & Sandler, 2009).

It is important to articulate why foreign aid might modulate the effect of terrorism on trade on the one hand and the why it might vary according to the quantile of unexplained trade on the other hand. First, foreign aid might reduce the potentially negative effect of terrorism on trade because it provides financial, technical and logistical mechanisms with which to fight and prevent terrorism. The narrative on the relevance of foreign aid in boosting government expenditure and reducing the potentially negative effect of terrorism on macroeconomic outcomes is consistent with recent empirical literature (Gaibulloev & Sandler, 2009; Bandyopadhyay *et al.*, 2014; Efobi *et al.*, 2015). Second, from logic and common sense, terrorism is likely to affect more globalised countries differently from their less globalised counterparts. In essence, terrorists' activities targeting trade activities will naturally not affect countries with high trade intensity with the same magnitude as their counterparts of low trade intensity.

2.2 Word trade and strategy: intuition and theoretical highlights

A multitude of international trade approaches can be adopted by both governments and managers of trade companies in order to limit the negative effects of terrorism on the cost of trading. In accordance with Mazzarella (2005), we organise this section into two principal categories, notably: (i) identification of the cost of terrorism on international trade and (ii) management of risks related to terrorism. The categories are expanded in what follows.

There are four main perspectives on the potential cost of terrorism in international trade, notably: (i) enhancement of the physical security of personnel, equipment and plant; (ii) improvement of global supply chains and security in the transport of goods and services as well as risks that are associated with the disruption of sources of global supply; (iii) political risk insurance; (iv) hiring of security consultants and (v) reduction of direct investment and operations in high-risk areas.

Two perspectives are worth articulating on the second point, namely: methods of managing terrorism and risk modelling. On the one hand, cost minimisation of terrorism is contingent on the effectiveness of risk modelling approaches. The main contemporary practice for most managers of international trade companies consists of estimating loses of the future with computer-based risk modelling approaches which employ physical security analysis as inputs in order to determine potential damages and corresponding probability of attacks. Managers of international trade are ultimately informed about the levels of terrorism linked to the coverage of risk insurance that is essential for a specific business operation. On the other hand, various management methods for terrorism exist. These are adopted by managers in order to, *inter alia*: consolidate physical assets and work sites; hire more security personnel and consultants; employ subcontractors to mitigate further risk; train more personnel to prevent being terrorism targets and ensure good environmental and human rights records.

The discussed theoretical framework is in line with contemporary literature on international trade with regards to measures of the addressing negative effects resulting from terrorism, notably: anticipation of the potential impacts of terrorism (Harvey *et al*., 2017), management of individuals in hostile terrains (Barder *et al*., 2015), especially in relation to expatriate personnel (Barder & Berg, 2014a; Barder & Berg, 2014b; Bader *et al*., 2016) and Corporate Social Responsibility by international trade companies as a strategic management tool (Agwu & Taylor, 2015).

3. Data and Methodology

3.1 Data

A panel of 78 developing countries is investigated. The data is for the period 1984-2008. The sample which consists of three-year non-overlapping intervals is from Bandyopadhyay *et al.* (2014), Asongu and Ssozi (2017) and Asongu and Nwachukwu (2018)[1]. The variables are originally from three main sources, namely: (i) World Development Indicators of the World Bank; (ii) the Global Terrorism Database, (iii) terrorism incidents from Gailbulloev *et al.* (2012) and Enders *et al.* (2011).

There are three main justifications for the choice of the sample and periodicity. *First* and foremost, consistent with Gaibulloev and Sandler (2009), compared to developed countries, the negative macroeconomic externalities of terrorism are more apparent in developing countries. This is for the most part because accordingly to Gaibulloev and Sandler (2009), developing nations lack the technological, logical and financial mechanisms that are essential for absorbing negative consequences related to terrorism. *Second*, development assistance is channelled from developed to developing countries. Hence, the analytical scope should not be on the former set of countries. *Third*, the present inquiry also aims to compare corresponding results with the stream of FDI literature that is based on the same sample and periodicity (see Bandyopadhyay *et al.*, 2014; Efobi *et al.*, 2015).

The dependent variable is trade exports while the independent variables of interest are: (i) terrorism variables (transnational, unclear, domestic, unclear and total terrorisms) and (ii) foreign aid indicators (bilateral and multilateral aids). Terrorism is defined in this study as the threatened and actual use of force by subnational actors with the aim of employing intimidation to achieve political objectives (Enders & Sandler, 2006). The terrorism indicators measure the number of yearly terrorism incidents registered in a country. In order to avoid mathematical concerns that are related to log-transforming zeros and correct the positive skew in the data, the study considers the natural logarithm of terrorism incidents by adding one to the base. This transformation approach is in accordance with recent literature (Choi &

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[1] The adopted countries include: "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".

Salehyan, 2013; Bandyopadhyay *et al.*, 2014; Asongu *et al.*, 2017, 2018a, 2018b; Asongu & Nwachukwu, 2017). Terrorism-specific definitions are from Efobi et al. (2015, p. 6). Domestic terrorism "*includes all incidences of terrorist activities that involve[s] 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 of terrorism that concern[s] 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.

Control variables are also adopted by the study in order to ascertain whether some pre-established relationships with the outcome variable are apparent. The macroeconomic and institutional variables of control include: internal conflicts, political globalisation, exchange rate, infrastructure, inflation and GDP growth. We discuss anticipated signs.

(1) Improvements in exchange rates should positively affect trade from the perspective of exports (see Akpan, 2015; Asongu, 2015), whereas inflation and civil conflicts intuitively have the opposite effects. In essence: (i) inflation is likely to decrease trade because investors have been documented to prefer doing business in economic environments that are less ambiguous (see Kelsey & le Roux, 2017, 2018); (ii) high exchange rate in developing countries are associated with low levels of exports (Rodrik, 2008) and (iii) trade logically does not thrive in an economic environment that is clouded with civil conflicts and political instability.

(2) GDP growth and infrastructure should stimulate trade whereas the effect of political globalisation should be negative. (i) The impact of GDP growth is intuitively positive because economic prosperity is associated with opportunities of investment and trade. (ii) Good infrastructure also facilitates investment and trade domestically. (iii) The anticipated effect of political globalisation is negative because developing countries are more concerned with the socio-economic effects of globalisation, contrary to advanced countries that are concerned with leadership roles in processes of the international 'decision-making' (Lalountas *et al.*, 2011; Asongu, 2014).

Table 1 provides definitions and sources of the discussed variables. Table 2 presents the summary statistics of the indicators while the corresponding correlation matrix is provided in Appendix 3. The purpose of the summary statistics is to ascertain two main concerns. On

the one hand, based on mean values, the variables are comparable. On the other hand, from the standard deviations, we can be confident that reasonable estimated linkages would emerge. The objective of the correlation matrix is to control for potential multicollinearity concerns between non-interactive indicators. In essence, in interactive models, whereas the issue of multicollinearity is not relevant for interactive variables (terrorism and foreign aid), the concern is important for non-interactive variables as in linear additive models (Brambor *et al.*, 2006).

Table 1: Definition and source of variables

Variables	Signs	Definitions	Sources
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)	
Inflation	LnInflation	Ln. of Consumer Price Index (% of annual)	
Exchange rate	LnXrate	Ln. of Exchange rate (local currency per USD)	
Bilateral Aid	LnBilaid	Ln. of Bilateral aid, net disbursement (million USD)	
Multilateral Aid	LnMulaid	Ln. of Multilateral aid, net disbursement (million USD)	
Total Aid	LnTotaid	Ln. of Total aid, net disbursement (million USD)	Bandyopadhyay et al. (2014) and Efobi et al. (2015)
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	
Political globalisation	LnPolglob	Ln. of Index of political globalisation	
Internal conflicts	Civcon	Index of internal civil conflicts	

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

Table 2: Summary statistics

	Mean	S.D	Minimum	Maximum	Obs
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
Exchange rate (ln)	2.908	3.870	-22.121	21.529	618
Bilateral Aid (ln)	5.181	1.286	0.765	8.362	602
Multilateral Aid (ln)	4.163	1.518	-1.249	7.105	600
Total Aid (ln)	5.550	1.276	0.800	8.495	608
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
Political globalisation (ln)	4.036	0.301	2.861	4.530	624
Internal conflicts	0.965	1.906	0	10	615

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

Table 3: Correlation Matrix

GDPg	LnTrade	LnTel	LnInflation	LnXrate	LnBilad	LnMulaid	LnTotaid	Domter	Tranater	Unclter	Totter	LnPolglob	Civcon	
1.000	0.089	0.065	-0.236	0.112	0.195	0.178	0.227	-0.058	-0.021	-0.042	-0.055	0.117	-0.010	GDPg
	-0.309	0.450	-0.025	-0.095	0.230	-0.002	0.172	0.205	0.207	0.184	0.213	0.525	0.191	LnRGDP
	-0.106	0.095	0.016	-0.002	0.230	-0.090	-0.007	0.044	0.066	0.013	0.044	0.207	0.043	LnFuelExp
	0.103	0.080	-0.001	-0.055	0.126	0.025	0.093	0.049	0.0007	-0.001	0.040	0.109	-0.079	LnOIExp
	1.000	0.296	-0.230	0.043	-0.267	-0.289	-0.282	-0.236	-0.206	-0.240	-0.246	-0.122	-0.299	LnTrade
		1.000	-0.121	-0.191	-0.376	-0.514	-0.450	0.023	0.072	-0.003	0.026	0.268	-0.183	LnTel
			1.000	-0.284	-0.047	-0.023	-0.039	0.171	0.164	0.091	0.169	-0.150	0.185	LnInflation
				1.000	0.114	0.183	0.144	-0.081	-0.001	-0.050	-0.073	0.089	-0.120	LnXrate
					1.000	**0.721**	**0.970**	0.116	0.088	0.093	0.117	0.233	0.259	LnBilad
						1.000	**0.833**	0.014	-0.039	0.069	0.016	0.167	0.194	LnMulaid
							1.000	0.093	0.059	0.094	0.094	0.227	0.255	LnTotaid
								1.000	**0.743**	**0.733**	**0.993**	0.127	0.428	Domter
									1.000	0.528	**0.785**	0.120	0.418	Tranater
										1.000	**0.789**	0.072	0.347	Unclter
											1.000	0.126	0.441	Totter
												1.000	-0.024	LnPolglob
													1.000	Civcon

GDPg: GDP growth rate. LnTrade: Trade Openness. LnTel: Number of Telephone lines. LnXrate: Exchange rate. LnBilaid: Bilateral aid. LnMulaid: Multilater aid. LnTotaid: Total aid. Domter: Number of Domestic terrorism incidents. Tranater: Number of Transnational terrorism incidents. Unclter: Number of terrorism incidents whose category in unclear. Totter: Total number of terrorism incidents. LnPolglob: Index of political globalisation. Civcon: Index of internal civil conflicts.

3.2 Methodology

Consistent with the economic development literature on conditional determinants (see Billger & Goel, 2009; Okada & Samreth, 2012), in order to examine how initial levels of trade openness affect the nexuses between terrorism, aid and trade; we use the quantile regression (QR) approach. The methodology consists of assessing the determinants of trade openness throughout the conditional distribution of trade openness (Keonker & Hallock, 2001).

While previous studies on the relationship between terrorism and macroeconomic outcomes have reported parameter estimates at the conditional mean of the macroeconomic variables (see Bandyopadhyay *et al.*, 2014; Efobi et al., 2015), we complement the underlying literature by using the QR strategy. In essence, whereas mean effects on the dependent variable are important, effects on the conditional distribution provide more space for policy implications. For instance, while Ordinary Least Squares (OLS) assume that the outcome variable and error terms are distributed normally, such an assumption is not the basis for the QR approach. Hence, the empirical strategy enables the study to assess the impact of the 'underlying independent variables of interest' on the outcome variable with particular emphasis on low- intermediate- and high-'trade openness' countries. Accordingly, with QR, parameter estimates are obtained at various points of the conditional distributions of 'trade openness' (Keonker & Hallock, 2001; Tchamyou & Asongu, 2017; Boateng *et al.*, 2018).

The θth quantile estimator of trade is obtained by solving the following optimization problem, which is presented without subscripts in Eq. (1) for the purpose of simplicity and ease of presentation.

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

where $\theta \in (0,1)$. As opposed to OLS which is fundamentally based on minimizing the sum of squared residuals, with the QR technique, we minimise the weighted sum of absolute deviations. For instance, the 50th quartile or 90th decile (with θ=0.50 or 0.90 respectively) are estimated by approximately weighing the residuals. The conditional quantile of trade or y_i given x_i is:

$$Q_y(\theta / x_i) = x_i'\beta_\theta \tag{2}$$

where unique slope parameters are modelled for each θth 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 trade. For the model in Eq. (2) the dependent variable y_i is the trade openness indicator while x_i contains a constant term, *inflation, infrastructure, exchange rate, political globalisation* and *civil/internal conflicts*.

4. Empirical results

Table 4 and Table 5 show results corresponding respectively to bilateral development assistance and multilateral development assistance. All the tables embody four-sets of specifications, namely: (i) transnational and domestic terrorism modelling in Panel A and (ii) total and unclear terrorism estimations in Panel B. Accordingly, the left-hand-side (LHS) of Panel A (B) shows findings for domestic (unclear) terrorism while the right-hide-side (RHS) of Panel A (B) displays findings for transnational (total) terrorism. In both tables, we consistently notice that the OLS estimates are different from QR estimates in terms of signs and significance. The substantial differences between OLS estimates and various quantiles further support the relevance of the adopted QR strategy.

The following findings can be established with respect to Table 4 on linkages between trade openness, bilateral aid and terrorism indicators. First, bilateral aid significantly contributes to mitigate the negative effect of transnational terrorism on trade in the top quantiles of the trade distribution. Second, the effect of bilateral aid is not significant in dampening the potentially negative effects of domestic, unclear and total terrorism on trade openness. Third, most of the significant control variables display the expected signs.

The following findings can be established with respect to Table 5 on linkages between trade openness, multilateral aid and terrorism indicators. First, multilateral aid significantly contributes to mitigate the negative effect of terrorism dynamics on trade in the top quantiles of the trade distributions. While this is the case at the 90th decile with regards to 'domestic terrorism'- and 'total terrorism'-related regressions, such a dampening impact is apparent in the 75th quartile and 90th decile of 'transnational terrorism' and 'unclear terrorism'-related regressions. Second, the significant control variables display expected signs.

Table 4: Trade, Bilateral aid, Terrorism

	Dependent Variable: Trade (Ln)											
	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	**5.558***	**4.138***	**5.448***	**5.871***	**5.944***	**5.974***	**5.657***	**4.217***	**5.477***	**5.547***	**5.908***	**5.981***
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Domter	-0.001	-0.001	-0.002	-0.003	-0.0007	-0.002	---	---	---	---	---	---
	(0.301)	(0.726)	(0.165)	(0.297)	(0.668)	(0.166)						
Tranater	---	---	---	---	---	---	**-0.036***	-0.019	-0.021	-0.030	**-0.054****	**-0.045***
							(0.008)	(0.249)	(0.212)	(0.174)	**(0.020)**	**(0.005)**
LnBilaid	**-0.053***	**-0.096***	**-0.073***	-0.056*	-0.029	-0.042	**-0.062***	**-0.103***	**-0.079***	-0.052*	-0.041	-0.053*
	(0.004)	**(0.000)**	**(0.000)**	**(0.051)**	(0.223)	(0.180)	**(0.001)**	**(0.000)**	**(0.000)**	**(0.067)**	(0.107)	**(0.068)**
Domter × LnBilaid	0.00009	0.0004	0.0004	0.0004	-0.0002	0.00002	---	---	---	---	---	---
	(0.770)	(0.574)	(0.184)	(0.441)	(0.438)	(0.946)						
Tranater × LnBilaid	---	---	---	---	---	---	**0.005****	0.004	0.003	0.003	**0.007***	**0.004***
							(0.045)	(0.193)	(0.206)	(0.358)	**(0.086)**	**(0.082)**
GDPg	0.010	**0.034***	**0.022***	0.009	-0.008	0.014	0.011	**0.033***	**0.023***	0.009	-0.00004	0.014
	(0.174)	**(0.001)**	**(0.000)**	(0.297)	(0.336)	(0.127)	(0.137)	**(0.002)**	**(0.000)**	(0.288)	(0.996)	(0.185)
LnInflation	**-0.053****	**-0.092***	**-0.059***	**-0.066***	-0.020	0.013	**-0.051****	**-0.089***	**-0.055***	**-0.047****	-0.018	0.010
	(0.023)	**(0.004)**	**(0.000)**	**(0.005)**	(0.330)	(0.587)	**(0.027)**	**(0.006)**	**(0.001)**	**(0.038)**	(0.390)	(0.685)
LnInfrastructure	**0.106***	0.065	**0.095***	**0.092****	**0.154***	**0.221***	**0.111***	0.062	**0.103***	**0.093***	**0.159***	**0.237***
	(0.000)	(0.132)	**(0.000)**	**(0.011)**	**(0.000)**	**(0.000)**	**(0.000)**	(0.167)	**(0.000)**	**(0.009)**	**(0.000)**	**(0.000)**
LnXrate (Exchange rate)	0.009	**0.022***	**0.012****	0.005	-0.005	**-0.016***	0.011	**0.023***	**0.011****	0.013	-0.001	-0.013
	(0.171)	**(0.008)**	**(0.031)**	(0.517)	(0.506)	**(0.056)**	(0.100)	**(0.009)**	**(0.048)**	(0.108)	(0.841)	(0.109)
Ln (Political globalisation)	**-0.298***	-0.029	**-0.320***	**-0.357***	**-0.353***	**-0.339***	**-0.316***	-0.040	**-0.325***	**-0.299***	**-0.341***	**-0.331***
	(0.000)	(0.784)	**(0.000)**	**(0.002)**	**(0.001)**	**(0.004)**	**(0.000)**	(0.772)	**(0.000)**	**(0.007)**	**(0.001)**	**(0.004)**
Civil Conflicts	**-0.044***	**-0.089***	**-0.087***	**-0.057***	-0.019	0.012	**-0.049***	**-0.085***	**-0.091***	**-0.047***	**-0.037****	0.022
	(0.006)	**(0.000)**	**(0.000)**	**(0.001)**	(0.194)	(0.536)	**(0.002)**	**(0.000)**	**(0.000)**	**(0.006)**	**(0.014)**	(0.257)
Pseudo R²/R²	0.207	0.191	0.148	0.113	0.120	0.163	0.209	0.196	0.151	0.116	0.114	0.149
Fisher	**15.67***						**15.76***					
Observations	540	540	540	540	540	540	540	540	540	540	540	540

	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	**5.584***	**3.911***	**5.325***	**5.832***	**5.886***	**5.745***	**5.548***	**4.116***	**5.372***	**5.783***	**5.901***	**6.025***
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Unclter	-0.001	0.003	0.003	.0004	-0.004	**-0.027***	---	---	---	---	---	---
	(0.910)	(0.858)	(0.844)	(0.746)	(0.697)	**(0.009)**						
Totter	---	---	---	---	---	---	-0.001	-0.001	-0.001	-0.001	-0.0005	-0.002
							(0.284)	(0.512)	(0.259)	(0.492)	(0.696)	(0.177)
LnBilaid	**-0.050***	**-0.090***	**-0.064***	-0.052**	-0.030	-0.039	**-0.053***	**-0.095***	**-0.070***	-0.052	-0.033	-0.048*
	(0.006)	**(0.001)**	**(0.002)**	**(0.025)**	(0.241)	(0.192)	**(0.005)**	**(0.001)**	**(0.001)**	(0.054)	(0.174)	**(0.072)**
Unclter × LnBilaid	-0.001	-0.001	-0.001	-0.002	-0.001	0.002	---	---	---	---	---	---
	(0.509)	(0.710)	(0.764)	(0.364)	(0.478)	(0.359)						
Totter × LnBilaid	---	---	---	---	---	---	0.00007	0.0004	0.0003	0.0001	-0.0002	-0.00003
							(0.792)	(0.446)	(0.308)	(0.816)	(0.353)	(0.909)
GDPg	0.009	**0.033***	**0.021***	0.007	-0.004	0.014	0.010	**0.034***	**0.023***	0.009	-0.005	0.014
	(0.182)	**(0.002)**	**(0.001)**	(0.324)	(0.562)	(0.126)	(0.180)	**(0.006)**	**(0.000)**	(0.240)	(0.500)	(0.126)
LnInflation	**-0.057****	**-0.087***	**-0.053***	**-0.066***	-0.029	0.012	-0.052	**-0.091****	**-0.051***	**-0.058***	-0.013	0.018
	(0.012)	**(0.008)**	**(0.004)**	**(0.001)**	(0.157)	(0.614)	(0.024)	**(0.010)**	**(0.006)**	**(0.008)**	(0.521)	(0.448)
LnInfrastructure	**0.106***	0.058	**0.101***	**0.091***	**0.135***	**0.216***	**0.108***	0.065	**0.105***	**0.085****	**0.148***	**0.229***
	(0.000)	(0.190)	**(0.000)**	**(0.002)**	**(0.000)**	**(0.000)**	**(0.000)**	(0.168)	**(0.000)**	**(0.012)**	**(0.000)**	**(0.000)**
LnXrate (Exchange rate)	0.009	**0.025***	0.008	0.009	-0.007	-0.013	0.009	**0.023****	**0.012****	0.008	-0.008	**-0.015****
	(0.174)	**(0.004)**	(0.185)	(0.195)	(0.329)	(0.109)	(0.161)	**(0.014)**	**(0.040)**	(0.282)	(0.281)	**(0.040)**
Ln (Political globalisation)	**-0.305***	0.016	**-0.299***	**-0.353***	**-0.326***	**-0.287****	**-0.297***	-0.025	**-0.314***	**-0.344***	**-0.337***	**-0.348***

	(0.005)	(0.881)	(0.000)	(0.000)	(0.003)	(0.014)	(0.000)	(0.825)	(0.000)	(0.001)	(0.001)	(0.000)
Civil Conflicts	-0.042***	-0.083***	-0.085***	-0.054***	-0.019	-0.004	-0.042***	-0.089***	-0.088***	-0.044***	-0.013	0.019
	(0.005)	(0.000)	(0.000)	(0.000)	(0.201)	(0.819)	(0.009)	(0.000)	(0.000)	(0.008)	(0.358)	(0.318)
Pseudo R²/R²	0.217	0.195	0.149	0.120	0.119	0.154	0.209	0.191	0.148	0.115	0.122	0.166
Fisher	16.95***						16.32***					
Observations	540	540	540	540	540	540	540	540	540	540	540	540

*,**,***: significance levels of 10%, 5% and 1% respectively. Bilaid: Bilateral aid. GDPg: GDP growth rate. OLS: Ordinary Least Squares.
R² for OLS and Pseudo R² for quantile regression. Lower quantiles (e.g., Q 0.1) signify nations where Trade is least.

Table 5: Trade, Multilateral aid, Terrorism

	Dependent Variable: Trade (ln)											
	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	5.423***	3.766***	4.991***	5.566***	5.518***	5.705***	5.470***	3.747***	5.013***	5.575***	5.559***	5.727***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Domter	-0.001**	-0.0004	-0.001	-0.001	0.002***	0.004***	---	---	---	---	---	---
	(0.044)	(0.501)	(0.425)	(0.317)	(0.006)	(0.000)						
Tranater	---	---	---	---	---	---	-0.017***	-0.012**	-0.009	-0.016**	-0.025***	-0.033***
							(0.000)	(0.011)	(0.151)	(0.013)	(0.000)	(0.000)
LnMulaid	-0.055***	-0.097***	-0.057**	-0.060**	-0.051**	-0.055*	-0.063***	-0.116***	-0.059**	-0.067***	-0.058**	-0.058**
	(0.004)	(0.000)	(0.014)	(0.020)	(0.017)	(0.054)	(0.001)	(0.000)	(0.014)	(0.002)	(0.012)	(0.045)
Domter × LnMulaid	0.00006	-0.0001	0.0002	0.00008	-0.00003	0.0003*	---	---	---	---	---	---
	(0.793)	(0.402)	(0.561)	(0.826)	(0.886)	(0.080)						
Tranater × LnMulaid	---	---	---	---	---	---	0.002	0.003**	0.001	0.001	0.004**	0.003**
							(0.116)	(0.015)	(0.327)	(0.392)	(0.013)	(0.037)
GDPg	0.011	0.032***	0.018**	0.008	-0.005	0.017**	0.012	0.030***	0.019**	0.007	0.002	0.017
	(0.140)	(0.001)	(0.018)	(0.291)	(0.511)	(0.036)	(0.110)	(0.001)	(0.015)	(0.252)	(0.727)	(0.107)
LnInflation	-0.049**	-0.089***	-0.054**	-0.053**	0.0006	0.039*	-0.048**	-0.088***	-0.050**	-0.050**	-0.014	0.040
	(0.037)	(0.005)	(0.022)	(0.018)	(0.972)	(0.087)	(0.045)	(0.006)	(0.036)	(0.007)	(0.470)	(0.100)
LnInfrastructure	0.087***	0.017	0.087**	0.065*	0.116***	0.225***	0.089***	0.001	0.088**	0.076**	0.128***	0.230***
	(0.002)	(0.635)	(0.016)	(0.088)	(0.000)	(0.000)	(0.002)	(0.963)	(0.017)	(0.014)	(0.000)	(0.000)
LnXrate (Exchange rate)	0.010	0.030***	0.011	0.010	-0.009	-0.011	0.013*	0.035***	0.012	0.014**	-0.0003	-0.009
	(0.148)	(0.000)	(0.155)	(0.205)	(0.191)	(0.164)	(0.074)	(0.000)	(0.123)	(0.047)	(0.965)	(0.212)
Ln (Political globalisation)	-0.272***	0.055	-0.236**	-0.294***	-0.228**	-0.289***	-0.280***	0.077	-0.242**	-0.295***	-0.241**	-0.296***
	(0.001)	(0.560	(0.014)	(0.008)	(0.022)	(0.008)	(0.000)	(0.431)	(0.010)	(0.001)	(0.020)	(0.007)
Civil Conflicts	-0.046***	-0.074***	-0.087***	-0.046***	-0.012	0.008	-0.049***	-0.072***	-0.089***	-0.046***	-0.040***	0.018
	(0.004)	(0.000)	(0.000)	(0.007)	(0.362)	(0.616)	(0.001)	(0.000)	(0.000)	(0.001)	(0.006)	(0.309)
Pseudo R²/R²	0.201	0.198	0.145	0.111	0.116	0.158	0.202	0.198	0.147	0.115	0.107	0.150
Fisher	14.35***						15.36***					
Observations	536	536	536	536	536	536	536	536	536	536	536	536

	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	5.483***	3.549***	4.988***	5.767***	5.620***	5.873***	5.407***	3.727***	4.981***	5.520***	5.544***	5.703***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Unclter	-0.013**	-0.003	-0.006	-0.013	-0.030***	-0.043***	---	---	---	---	---	---
	(0.015)	(0.536)	(0.370)	(0.117)	(0.000)	(0.000)						
Totter	---	---	---	---	---	---	-0.001**	-0.0003	-0.0009	-0.001	-0.002***	-0.003***
							(0.028)	(0.533)	(0.389)	(0.210)	(0.000)	(0.000)
LnMulaid	-0.050***	-0.083***	-0.045**	-0.050**	-0.049***	-0.054**	-0.054***	-0.094***	-0.057**	-0.062**	-0.051**	-0.055**
	(0.007)	(0.000)	(0.031)	(0.018)	(0.009)	(0.035)	(0.005)	(0.000)	(0.014)	(0.012)	(0.013)	(0.043)
Unclter × LnMulaid	0.0007	-0.0006	0.0008	0.001	0.003***	0.005***	---	---	---	---	---	---
	(0.554)	(0.645)	(0.607)	(0.494)	(0.000)	(0.000)						
Totter × LnMulaid	---	---	---	---	---	---	0.00001	-0.0001	0.0001	0.00007	0.00001	0.0003**
							(0.933)	(0.386)	(0.550)	(0.787)	(0.904)	(0.049)
GDPg	0.010	0.033**	0.014**	0.007	-0.0004	0.018**	0.011	0.032***	0.018**	0.008	-0.0001	0.017**
	(0.159)	(0.000)	(0.048)	(0.271)	(0.945)	(0.020)	(0.147)	(0.001)	(0.017)	(0.314)	(0.988)	(0.030)
LnInflation	-0.052**	-0.081***	-0.052**	-0.061*	-0.006	0.026	-0.049**	-0.088***	-0.054**	-0.053**	0.0006	0.042*
	(0.024)	(0.007)	(0.016)	(0.061)	(0.697)	(0.224)	(0.038)	(0.006)	(0.020)	(0.014)	(0.972)	(0.063)
LnInfrastructure	0.091***	0.023	0.092***	0.073**	0.131**	0.228***	0.088***	0.019	0.088**	0.061*	0.115***	0.227***
	(0.001)	(0.510)	(0.006)	(0.022)	(0.000)	(0.000)	(0.002)	(0.585)	(0.013)	(0.096)	(0.000)	(0.000)
LnXrate (Exchange rate)	0.010	0.030***	0.011	0.009	-0.007	-0.011*	0.010	0.030***	0.011	0.011	-0.007	-0.012
	(0.144)	(0.000)	(0.118)	(0.172)	(0.211)	(0.084)	(0.140)	(0.000)	(0.134)	(0.174)	(0.259)	(0.123)
Ln (Political globalisation)	-0.291***	0.085	-0.246***	-0.350***	-0.263***	-0.328***	-0.270***	0.059	-0.234**	-0.278***	-0.240**	-0.291***
	(0.000)	(0.348)	(0.000)	(0.000)	(0.003)	(0.002)	(0.001)	(0.528)	(0.013)	(0.009)	(0.011)	(0.005)
Civil Conflicts	-0.045***	-0.070***	-0.082***	-0.052***	-0.023**	0.002	-0.043***	-0.074***	-0.087***	-0.043***	-0.014	0.015
	(0.002)	(0.000)	(0.000)	(0.000)	(0.044)	(0.872)	(0.007)	(0.000)	(0.000)	(0.004)	(0.265)	(0.345)
Pseudo R²/R²	0.210	0.203	0.145	0.116	0.118	0.166	0.203	0.198	0.145	0.114	0.120	0.163
Fisher	17.28***						15.08***					
Observations	536	536	536	536	536	536	536	536	536	536	536	536

*,**,***: significance levels of 10%, 5% and 1% respectively. Mulaid: Multilateral aid. GDPg: GDP growth rate. OLS: Ordinary Least Squares. R² for OLS and Pseudo R² for quantile regression. Lower quantiles (e.g., Q 0.1) signify nations where Trade is least.

When the findings in Tables 4 and 5 are compared and contrasted, a common denominator is apparent: it is primarily in countries with above-median levels of international trade that development assistance can be used as an effective policy tool for dampening the negative effect of terrorism on trade. Moreover, the evidence of causality running from terrorism to international trade is consistent the extant literature on the role of terrorism on trade, notably: Richardson (2004), Nitsch and Schumacher (2004) and De Sousa *et al*. (2009a, 2009b). With respect to the role of foreign aid in modulating the effect of terrorism on trade, the established findings are consistent with the stream of literature underpinnings this study, notably: the role of aid in the terrorism-FDI nexus (see Bandyopadhyay *et al*., 2014; Efobi *et al*., 2015; Asongu *et al*., 2015). Briefly discussing how we have improved findings established in prior exposition is worthwhile. For instance it is relevant to note that Asongu *et al*. (2015) have used quantile regressions with a focus on FDI whereas the other two studies (Bandyopadhyay *et al*., 2014; Efobi *et al*., 2015) have also used Generalised Method of

Moments (GMM) with FDI as outcome variable. While the study by Bandyopadhyay *et al.* (2014) has been extended by Efobi *et al.* (2015) using a more robust GMM approach that conditions the investigated relationship on the level of corruption-control in developing countries, the two studies have also been extended by Asongu *et al.* (2015) who have assessed how foreign aid modulates the effect of terrorism on FDI throughout the conditional distributions of FDI.

5. Concluding implications and further research directions

The study has investigated whether development assistance can be used to crowd-out the negative effect of terrorism on international trade. The empirical evidence is based on a panel of 78 developing countries for the period 1984-2008 and Quantile Regressions. The following main findings have been established. First, bilateral aid significantly mitigates the negative effect of transnational terrorism on trade in the top quantiles of the trade distribution. Second, multilateral aid also significantly reduces the negative effect of terrorism dynamics on trade in the top quantiles of the trade distributions. While this marginal effect from the interaction between multilateral aid and terrorism is apparent at the 90th decile with regards to 'domestic terrorism'- and 'total terrorism'-related regressions, such dampening impact is apparent in the 75th quartile and 90th decile of 'transnational terrorism'- and 'unclear terrorism'-related regressions. It follows that it is primarily in countries above-median levels of international trade that development assistance can be used as an effective policy tool for dampening the negative effect of terrorism on trade.

The established findings clarify Asongu and Nwachukwu (2016a) who have concluded that bilateral aid is more relevant at dampening the negative effects of total terrorism and domestic terrorism on iron ore exports. Hence, when trade is considered in the broad sense, the policy relevance of foreign aid is not restricted to the total and domestic dimensions terrorism. Moreover, within this broader spectrum, multilateral aid appears to be a better tool than bilateral development assistance. The findings are also consistent with Bandyopadhyay et al. (2014) who have shown that foreign aid can be employed to dampen the adverse consequences of terrorism on FDI. It what follows we discuss managerial implications for international trade companies.

In the light of established findings, in the absence of development assistance, corporate managers in countries with above median levels of trade openness need to take

preventive measures in view of reducing the potentially negative effect of terrorism on the cost of international trade. It is important to note that while foreign aid is largely allocated to governments of developing countries, the results also apply to managers of trading corporations in developing countries. At least five preventive steps or strategies can be adopted by managers of corporations involved in international trade. (i) Improvement in physical security should be considered in high risky places, notably for personnel, plant and equipments. (ii) The uncertainty linked with politically-risky investment environments can be reduced by insurance schemes subscriptions. (iii) Another measure that corporate managers can adopt is to reduce/avoid costs associated with investments in locations that are very likely to be impacted by terrorism. (iv) Security consultants usually provide very valuable information on economic and political risks linked to areas where international trade companies operate. These insights are relevant for informed decision-making. (v) It is also important to enhance security in networks of transportation because global supply chains of international companies could be seriously compromised by terrorists' attacks.

Given the rise of terrorism incidents in recent years, future studies can focus on alternative policy tools that can be employed to crowd-out the adverse consequences of terrorism on macroeconomic outcomes. A caveat in this study is that foreign aid may be potentially endogenous to conflicts and trade. In other words, aid may be aimed at precisely those countries that fall into conflict but are nonetheless serious traders? This caveat is identified in this study in the perspective that the effectiveness of aid in modulating terrorism is more apparent in countries with above-median levels of international trade. Hence, future studies should account for such possible occurrences of endogeneity.

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