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**Trade, Aid and Terror**

**Simplice  A. Asongu**
African Governance and Development Institute,
Yaoundé, Cameroon.
E-mail: asongusimplice@yahoo.com


**Oasis Kodila-Tedika**
Department of Economics
University of Kinshasa
B.P. 832 KIN XI
Kinshasa, Democratic Republic of Congo.
oasiskodila@yahoo.fr

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**Simplice A. Asongu & Oasis Kodila-Tedika**

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## Abstract

This study assesses the role of foreign aid in reducing the hypothetically negative impact of terrorism on trade using a panel of 78 developing countries with data for the period 1984-2008. The empirical evidence is based on interactive GMM estimations with forward orthogonal deviations. Bilateral, multilateral and total aid dynamics are employed whereas terrorism entails: domestic, transnational, unclear and total terrorism dynamics.  The following findings have been established. First, while bilateral aid has no significant effect on trade, multilateral and total aids have positive impacts. Second total terrorism, domestic terrorism and transnational terrorism increase trade with increasing order of magnitude. Third, corresponding negative marginal effects on the interaction between foreign aid (bilateral and total) and terrorism display thresholds that are within range. Unexpected signs are clarified and policy implications discussed.

## 1. Introduction

The mid-June 2015 publication of the Global Peace Index (GPI) estimates that more than 13% of global Gross Domestic Product (GDP) is spent on costs related to violent activities (Anderson, 2015). According to the report, in 2014, about 14.3 trillion USD (or

13.4% of Global GDP) was spent to curtail political instability, crimes, and violence, inter alia. The underlying estimated cost is equivalent to the total economic output of the United Kingdom (UK), Spain, Germany, France, Canada and Brazil. The report further warns that most of violence-related cost is linked to terrorism and the trend in terrorists' activities is very likely to increases in the years ahead. In essence, networks of terrorism have substantially expanded in terms of operational scope, representing 61% more killings in 2014 when compared with 2008. Most of the terrorists' activities are in developing countries and corresponding poverty externalities are also quite substantial given that the year 2014 recorded the highest number of internally displaced persons since the Second World War[1].

Against the above background, an evolving stream of the literature is increasingly being devoted to the assessments of mechanisms by which terrorism, conflicts, crimes and political instability can be mitigated. Some of the documented tools and channels include: respect of laws in place (Cho, 2010); relevance of transparency (Bell et al., 2014); greater publicity and freedom of the press (Hoffman et al., 2013); behavioural analysis of motivations towards terrorism (Gardner, 2007); imperative of educational mechanisms (Brockhoff et al., 2014) like lifelong-learning in the mitigation of political instability/violence (Asongu & Nwachukwu, 2016) and bilingualism (Costa et al., 2008); corruption-control as most effective governance mechanism in the battle against conflicts and crimes (Asongu & Kodila-Tedika, 2016); employment of military tactics and strategies (Feridun & Shahbaz, 2010) and policy harmonization for predicting conflicts like the 2011 Arab Spring (Asongu & Nwachukwu, 2015a) and fighting terrorism (Asongu & Nwachukwu, 2015b).

Another stream of the literature has been focused on investigating the relationships between political instability, violence and macroeconomic indicators. To the best of our knowledge, this stream includes: Abadie and Gardeazabal (2008) on the effect of terrorism on foreign direct investment (FDI); Koh (2007) on the terrorism-innovation nexus; the influence of natural resources (Humphreys, 2005); the terrorism-growth nexus, (i) with causality flowing from terrorism to economic growth (Gaibulloev & Sandler, 2009; Öcal & Yildirim, 2010; Meierrieks & Gries, 2013), (ii) causality from economic growth to terrorism (Piazza, 2006; Cho, 2015) and (iii) bidirectional causalities (Gries et al., 2011; Shahbaz et al., 2013;

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[1] It is interesting to also note that, the mid-April 2015 publication of World Development Indicators by the World Bank has shown that most developing countries are still far from attaining the Millennium Development Goals (MDGs) extreme poverty target (World Bank, 2015; Caulderwood, 2015; Asongu & Kodila-Tedika, 2015).

Shahzad et al., 2015); and the instrumentality of foreign aid in mitigating the negative impact on FDI from terrorism (Bandyopadhyay et al., 2014; Efobi et al., 2015; Asongu et al., 2015). This study is positioned as an extension of this last current of the literature, notably: the role of development assistance in mitigating the potentially negative impact of terrorism on trade openness.

As far as we have reviewed, the available literature on the terrorism-trade nexus has focused on three main themes, notably: causality flowing from terrorism to trade, the effect of trade on terrorism and issues in modelling the underlying relationship. First, on the impact of terrorism on trade, Nitsch and Schumacher (2004) have assessed the incidence of terrorism and welfare on international trade by employing an augmented gravity model on 200 countries for the period 1960-1993. Using bilateral trade flows and a plethora of large-scale violence and terrorism indicators, they establish compelling evidence that terrorism reduces trade volume. Accordingly, doubling terrorists' incidence decreases bilateral trade by about 4%. Richardson (2004) documents post-9/11[2] security measures that have been implemented to reduce the potentially negative effects of terrorism on global trade. De Sousa et al. (2009a) have empirically assessed how nearness to the source of terrorism exerts negative spillovers on trade to conclude that more work is needed for: (i) a theory to elucidate the interplay between security policy, spread of transnational terrorism and international trade and (ii) more robustness checks on transnational terrorism spillovers to alternative definitions of both neighbouring incidents and relationships. De Sousa et al. (2009b) assess the effect of international terrorism diffusion on trade and security. The empirical model is based on the assumption that nearness to the sources of terrorism bears an inverse relation with the corresponding negative spillovers. The underlying idea is that measures of security that reduce trade affect both the source-country of terror and her neighbours. Conversely, countries that are located relatively far from the 'country of terror' could benefit by witnessing more trade. The authors find: (i) a direct negative effect on trade from transnational terrorism; (ii) an indirect negative effect accruing from terrorism to neighbouring nations and (iii) that with remoteness to terror, trade increases.

Second, on causality flowing from trade to terrorism, the scanty literature has for the most part focused on the trade of illicit commodities. Piazza (2011), using the conventional wisdom that trade in illicit drugs fuel terrorism has assessed the link between 'drugs trade' and terrorism to establish that the production of illicit drugs, cocaine and opiate significantly

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[2] 9/11 refers to the September 11th 2001 terrorists attacks in the United States of America (USA).

increase domestic and transnational terrorism whereas, drug interdiction and crop eradication have the opposite effects. Piazza (2012) has investigated the nexus between 'trade in opium' and terrorism in 34 Afghan provinces for the period 1996-2008, using binomial regressions. The author concludes that provinces in which opium is produced are associated with high levels of attacks and casualties, with the direction of causation flowing from the production of opium to higher levels of terrorism.

To the best of our knowledge, the third strand on modelling issues in the underlying relationship is clearly articulated by Mirza and Verdier (2008) after a survey. They have presented some pitfalls in the empirical literature on the trade-terrorism nexus, namely, the need to: (a) account for omitted variables which could be correlated with both trade and terrorism; (b) seriously acknowledge the inter-temporal persistent character of the terrorism; (c) distinguish between the effects of incidental occurrences in particular countries from the impact of incidents targeting the source-country and (d) controlling for endogeneity..

Noticeably in the above literature, there is room for improvement in at least three main dimensions, notably, the: imperative of exploring more terrorism dynamics, role of a policy variable in the effect of terrorism on trade and need for modelling approaches that are robust to endogeneity. First, Cho (2015) has cautioned on the need to explore more indicators when investigating the relationship between terrorism and macroeconomic variables. To this end, recent literature (Efobi et al., 2015; Asongu et al., 2015) has employed a plethora of terrorism indicators, namely: domestic, transnational, unclear and total terrorisms. Our employment of these four terrorism dynamics, complements available studies on the trade-terrorism nexus which have fundamentally been based on: (i) transnational terrorism, for causality flowing from terrorism to trade (De Sousa et al., 2009ab) and (ii) transnational and domestic terrorism, for the effect of trade on terrorism (Piazza, 2011). Second, in order to avail room for more policy implications, we include a policy available that mitigates the potentially negative effect of terrorism on trade. Consistent with a stream of recent studies on the terrorism-FDI relationship (Bandyopadhyay et al., 2014; Efobi et al., 2015), we employ foreign aid as the policy variable. Hence, we steer clear of the engaged terrorism-trade literature above that does not employ policy interactive variables. Moreover, we are consistent with the highlighted caution of Cho (2015) by employing three foreign aid variables to avail room for more policy options, namely: bilateral aid, multilateral aid and total aid. The underlying motivation is to examine the role of foreign aid in dampening the potentially negative effects of terrorism on trade. As we have seen above, evidence of a

potentially negative effect has been established in exploratory (Richardson, 2004) and empirical (De Sousa et al., 2009ab) literature. Third, Mirza and Verdier (2008) have cautioned from their survey on the imperative of empirical strategies that are robust to endogeneity. To this end, we adopt a Generalized Methods of Moments (GMM) with forward orthogonal deviations that has been documented to be more robust relative to traditional System and Difference GMM approaches because it accounts for cross-sectional dependence and mitigates the proliferation of instruments or limits over-identification (Love & Zicchino, 2006; Baltagi, 2008; Roodman, 2009ab).

In light of above underpinnings, this line of inquiry assesses how foreign aid dynamics mitigate the potentially negative impact of terrorism on trade in a panel of 78 developing countries for the period 1984-2008. The focus on developing countries and periodicity has a threefold motivation. First, Gaibulloev and Sandler (2009) have established that the negative effects of terrorism on macroeconomic indicators are more pronounced in developing countries because, relative to their developed counterparts, they lack the financial, technological and logistical means to absorbing the corresponding economic shocks without significant negative externalities. Hence, the policy syndrome is more relevant to developing countries. Second, foreign aid is conventionally channelled from developed to developing countries. Third, we are also motivated by the interest of comparing the findings with those established in prior literature on the terrorism-FDI nexus that has been based on the same periodicity and sample. Accordingly, the underlying FDI oriented literature has also investigated the role of foreign aid in mitigating the potentially negative effect of terrorism on FDI (Bandyopadhyay et al., 2014), especially when the nexus is conditioned the on corruption-control levels in recipient countries (Efobi et al., 2015) or assessed throughout the conditional distribution of the dependent variable or FDI (Asongu et al., 2015).

Consistent with the engaged terrorism-trade literature above, De Sousa et al. (2009a) have cautioned inter alia, on the need to clearly articulate a theory that elucidates the interplay between security policy, terrorism and international trade. Within the context of this line of inquiry, security policy is captured by the foreign aid variable. To this end, we briefly engage the theoretical underpinnings motivating the line of inquiry. In accordance with recent FDI-terrorism literature (Efobi et al., 2015; Asongu et al., 2015), theories surrounding the intuition of the study are consistent with the Conflict Management Model (CMM) of Thomas-Kilman (1992) and the Social Control Theory (SCT) from Black (1990), documented by Akinwale (2010, p. 125). The SCT postulates that, nexuses among groups, individuals and organisations

influence the exercise of one out of five principal mechanisms of social control, namely: avoidance, settlement, negotiation, self-help and tolerance. On the other hand, the CMM postulates that strategic intentions which are most probable of revolving around a two-factor matrix (of assertiveness and cooperation), when combined with collaboration yield five main conflict management styles, namely: accommodation, competition, compromise, avoidance and collaboration. The above theoretical underpinnings are broadly consistent with the literature on conflict management (Borg, 1992; Volkema & Bergmann, 1995). These underpinnings converge with the positioning of this study in the perspective that foreign aid can be employed as a foreign policy variable to enhance conditions that mitigate terrorism, notably: subsidising of government expenditure as established by Gaibulloev and Sandler (2009), rule of law and education (Heyneman, 2002; Beets, 2005; Heyneman, 2008ab; Oreopoulos & Salvanes, 2009; Asongu & Nwachukwu, 2016).

The rest of the study is structured as follows. Section 2 presents the data and methodology.  The empirical results, discussion and implications are covered in Section 3. Section 4 concludes with future research directions.

**2. Data and Methodology**

**2.1 Data**

Consistent with the motivation of the study, we examine a panel of 78 developing countries with data for the period 1984-2008. Justifications for the choice of sample and periodicity have been provided in the introduction. In accordance with the underlying terrorism-FDI literature, not all developing countries are included into the sample to avoid the findings being influenced by terrorism outliers (Efobi et al., 2015; Asongu et al., 2015; Bandyopadhyay et al., 2014). Therefore, Afghanistan, Western Gaza, Iraq and Palestine are not included in the sample[3]. The data consists of three-year averages in terms of non-overlapping intervals. This structuring helps to mitigate business cycle (or short-run) disturbances that may substantially loom.

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[3] 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".

The dependent variable is trade openness which is defined as the sum of exports to imports as a percentage of GDP. Independent variables of interest consist of terrorism dynamics, notably: domestic, transnational, unclear and total terrorisms. The foreign aid variables include: multilateral, bilateral and total aid. The control variables are: *GDP growth*, *infrastructure*, *inflation*, *exchange rate*, *political globalisation* and *internal conflicts*. These variables are broadly consistent with the underlying terrorism-FDI literature (Efobi et al., Asongu et al., 2015; Bandyopadhyay et al., 2014). We expect GDP growth, infrastructural development and increasing exchange rate to exert positive impacts on trade, while, inflation and civil/internal conflicts should have the opposite effect.  Consistent with Rodrik (2008), high exchange rates are very likely to stimulate trade in developing counties. Infrastructural development and GDP growth have been documented to affect trade openness positively (Asongu, 2015a; Akpan, 2014). High inflation should reduce the volume of trade owing to greater uncertainty. This is essentially because investors have been documented to prefer investment strategies that are less ambiguous (Le Roux & Kelsey, 2015ab). The impact of political globalisation cannot be established 'a priori' because its effect substantially depends on the leverage in international 'decision making' processes (Asongu, 2014a). The discussed variables are defined in Table 1.

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

| Variables | Signs | Definitions | Sources |
|---|---|---|---|
| GDP growth | GDPg | GDP growth rate (annual %) | |
| Trade Openness | Trade | 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.

The summary statistics of the variables are provided in Table 2. Two main observations are noteworthy: variables are comparable in terms of means and there is a substantial variation to enable us to be confident that reasonable estimated linkages would emerge.

**Table 2: Summary statistics**

|  | **Mean** | **S.D** | **Minimum** | **Maximum** | **Obs** |
|---|---|---|---|---|---|
| GDP growth | 3.852 | 3.467 | -10.933 | 17.339 | 612 |
| Trade Openness | 70.677 | 39.226 | 12.420 | 256.30 | 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.

The purpose of the correlation matrix in Table 3 is to address issues of overparameterization and multicollinearity that are highlighted in bold. We observe that foreign aid and terrorism indicators are highly correlated among themselves respectively. Hence, we avoid using more than two aid or terrorism variables in the same specification.

**Table 3: Correlation Matrix**

| GDPg | Trade | LnTel | LnInflation | LnXrate | LnBilad | LnMulaid | LnTotaid | Domter | Tranater | Unclter | Totter | LnPolglob | Civcon | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 0.093 | 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 |
| | 1.000 | 0.336 | -0.193 | -0.031 | -0.288 | -0.310 | -0.296 | -0.197 | -0.179 | -0.194 | -0.205 | -0.159 | -0.231 | Trade |
| | | 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 | LnBilaid |
| | | | | | | 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. Trade: 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.

## 2.2 Methodology

Consistent with the motivation in the introduction and underlying terrorism literature (Efobi et al., 2015), we adopt a *two-step* GMM with forward orthogonal deviations instead of differencing as empirical strategy. This technique is an extension by Roodman (2009ab) of Arellano and Bover (1995) that has the advantage of controlling for cross-sectional dependence and restricting the proliferation of instruments (Love & Zicchino, 2006; Baltagi, 2008). This endogeneity-robust empirical technique is important because as we have seen in the introduction, trade has also been documented to influence terrorism activities (Piazza, 2011, 2012)[4].

The following equations in levels (1) and first difference (2) summarize the estimation procedure.

$$Trade_{i,t} = \sigma_0 + \sigma_1 Trade_{i,t-\tau} + \sigma_2 A_{i,t} + \sigma_3 T_{i,t} + \sigma_4 AT_{i,t} + \sum_{j=1}^{6}\sum_{h=1}^{6}\delta_j W_{h,i,t-\tau} + \eta_i + \xi_t + \varepsilon_{i,t} \qquad (1)$$

$$Trade_{i,t} - Trade_{i,t-\tau} = \sigma_0 + \sigma_1(Trade_{i,t-\tau} - Trade_{i,t-2\tau}) + \sigma_2(A_{i,t} - A_{i,t-\tau}) + \sigma_3(T_{i,t} - T_{i,t-\tau})$$
$$+ \sigma_4(AT_{i,t} - AT_{i,t-\tau}) + \sum_{j=1}^{6}\sum_{h=1}^{6}\delta_j(W_{h,i,t-\tau} - W_{h,i,t-2\tau}) + (\xi_t - \xi_{t-\tau}) + \varepsilon_{i,t-\tau} \qquad (2)$$

Where: $Trade_{i,t}$ is trade openness of country $i$ at period $t$; $\alpha$ is a constant; $\tau$ represents tau ; $A$, Foreign aid; $T$, Terrorism; $AT$, interaction between Foreign aid ($A$) and Terrorism ($T$); $W$ is the vector of control variables (*GDP growth, exchange rate, inflation, infrastructure, political globalisation* and *internal conflicts*), $\eta_i$ is the country-specific effect, $\xi_t$ is the time-specific constant and $\varepsilon_{i,t}$ the error term. In the specification, we prefer the *two-step* to the *one-step* procedure because it is heteroscedasticity-consistent.

Since the estimation procedure entails interaction among variables, it is important to briefly discuss how we avoid pitfalls to interactive regressions which have been documented by Brambor et al. (2006). We enter all constitutive variables into the specifications. In addition, for our estimations have economic meaning, the combined significance are interpreted in terms of marginal impacts. Accordingly, the modifying or policy foreign aid indicators should be within the ranges provided by the summary statistics for the corresponding marginal effects to be economically meaningful.

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[4] Moreover, the concern of endogeneity is also evident by the political cycles of violence and non-violence in political strife (Singh, 2001, 2007).

## 3. Empirical results

## 3.1 Presentation of results

Tables 4, 5 and 6 below show the findings corresponding to bilateral aid, multilateral aid and total aid respectively. All the tables entail four specification categories, notably on: domestic, transnational, unclear and total terrorism dynamics. The left-hand-side (LHS) of respective tables entails specifications in the absence of the conditioning information set (or control variables) whereas those of the right-hand-side (RHS) incorporate control variables.

In accordance with Efobi et al. (2015), four principal criteria are employed to assess the validity of specified models. First, the null hypothesis of the second-order Arellano and Bond autocorrelation test (AR(2)) in difference for the absence of autocorrelations in the residuals should not be rejected. Second the Sargan and Hansen over-identification restrictions (OIR) tests should not be significant because their null hypotheses are the positions that the instruments are valid or not correlated with the error terms. In essence, the Sargan OIR test is not robust but not weakened by instruments while the Hansen OIR is robust but weakened by instruments. In order to restrict identification or limit the proliferation of instruments, we have ensured that the instruments are lower than the number of cross-sections in all specifications. Third, the Difference in Hansen Test (DHT) for the exogeneity of instruments is also employed to confirm the validity of findings from the Hansen OIR test. Fourth, we also provide the Fisher test which assesses the joint validity of estimated coefficients.

The following findings can be established in relation to Table 4 on linkages between trade, bilateral aid and terrorism. First, only the sixth specification does not fulfil the information criteria for the validity of models. It should be noted that we are working with significant levels of 1% and 5%. Second, bilateral aid does not significantly affect trade. Third, in the first and fourth specifications, domestic and total terrorism respectively increase trade with the positive magnitude of the former relatively higher. Fourth, the corresponding negative marginal effects on the interaction between bilateral aid and terrorism display thresholds that are within the range (0.765 to 8.362) of bilateral aid provided by the summary statistics, with respective thresholds of: (i) 5.347 (0.123/0.023) for domestic terrorism and (ii) 5.125 (0.082/0.016) for total terrorism. Fifth, on the control variables: (i) infrastructural development and exchange rate improvements have the expected signs (Rodrik, 2008; Apkan, 2014); (ii) the positive sign of internal conflicts is consistent with that of terrorism and (iii)

inflation could positively influence trade and economic prosperity if it is low and stable. Accordingly, the mean value of inflation is 2.41.

### Table 4: Trade, Bilateral aid and Terrorism

| | Dependent Variable: Trade | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Without conditioning information set | | | | With conditioning information set | | | |
| | Domter | Tranater | Unclter | Totter | Domter | Tranater | Unclter | Totter |
| Constant | 3.208 | -1.406 | -1.944 | 2.585 | -1.981 | 23.583 | 32.474 | 4.592 |
| | (0.626) | (0.862) | (0.738) | (0.717) | (0.927) | (0.300) | (0.179) | (0.850) |
| Trade (-1) | **1.023** | **1.047** | **1.015** | **1.026** | **0.924** | **0.923** | **0.908** | **0.921** |
| | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** |
| Domestic T. (Domter) | **0.123*** | --- | --- | --- | 0.058 | --- | --- | --- |
| | **(0.012)** | | | | (0.109) | | | |
| Transnational T. (Tranater) | --- | 0.833 | --- | --- | --- | 0.081 | --- | --- |
| | | (0.115) | | | | (0.833) | | |
| Unclear T. (Unclter) | --- | --- | -0.223 | --- | --- | --- | -0.245 | --- |
| | | | (0.528) | | | | (0.396) | |
| Total T. (Totter) | --- | --- | --- | **0.082*** | --- | --- | --- | 0.022 |
| | | | | **(0.044)** | | | | (0.502) |
| Bilateral Aid (LnBilaid) | 0.032 | 0.390 | 1.036 | -0.053 | 0.286 | 0.432 | -0.016 | 0.287 |
| | (0.974) | (0.703) | (0.429) | (0.957) | (0.706) | (0.525) | (0.982) | (0.698) |
| Domter* LnBilaid | **-0.023** | --- | --- | --- | **-0.018** | --- | --- | --- |
| | **(0.005)** | | | | **(0.004)** | | | |
| Tranater* LnBilaid | --- | -0.164 | --- | --- | --- | -0.060 | --- | --- |
| | | (0.059) | | | | (0.331) | | |
| Unclter* LnBilaid | --- | --- | 0.029 | --- | --- | --- | 0.017 | --- |
| | | | (0.616) | **-0.016*** | | | (0.918) | |
| Totter* LnBilaid | --- | --- | --- | **(0.020)** | --- | --- | --- | -0.010 |
| | | | | | | | | (0.058) |
| GDP growth | --- | --- | --- | --- | 0.038 | 0.099 | 0.187 | 0.033 |
| | | | | | (0.829) | (0.558) | (0.289) | (0.849) |
| LnInflation | --- | --- | --- | --- | **2.985** | **2.889** | **2.552** | **2.957** |
| | | | | | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** |
| LnInfrastructure | --- | --- | --- | --- | **1.914*** | 0.737 | 0.666 | **1.693** |
| | | | | | **(0.024)** | (0.326) | (0.450) | **(0.046)** |
| LnXrate (Exchange rate) | --- | --- | --- | --- | 0.718 | 0.287 | 0.635 | 0.752 |
| | | | | | (0.087) | (0.443) | (0.168) | (0.073) |
| Ln (Political globalisation) | --- | --- | --- | --- | -0.424 | -7.029 | -7.700 | -2.047 |
| | | | | | (0.940) | (0.216) | (0.173) | (0.714) |
| Civil Conflicts | --- | --- | --- | --- | 0.425 | 0.384 | **1.058** | 0.607 |
| | | | | | (0.396) | (0.533) | **(0.003)** | (0.281) |
| | | | | | | | | |
| AR(1) | (0.026) | (0.024) | (0.027) | (0.025) | (0.046) | (0.043) | **(0.053**) | (0.047) |
| AR(2) | **(0.133)** | **(0.118)** | **(0.090)** | **(0.129)** | **(0.280)** | **(0.189)** | **(0.154)** | **(0.249)** |
| Sargan OIR | **(0.689)** | **(0.174)** | **(0.811)** | **(0.632)** | (0.000) | (0.000) | (0.000) | (0.000) |
| Hansen OIR | **(0.405)** | **(0.440)** | **(0.389)** | **(0.350)** | **(0.096)** | (0.039) | **(0.170)** | **(0.094)** |
| | | | | | | | | |
| DHT for instruments | | | | | | | | |
| (a)Instruments in levels | | | | | | | | |
| H excluding group | **(0.293)** | **(0.193)** | **(0.351)** | **(0.264)** | **(0.121)** | **(0.118)** | **(0.193)** | **(0.123)** |
| Dif(null, H=exogenous) | **(0.462)** | **(0.626)** | **(0.395)** | **(0.416)** | **(0.192)** | **(0.077)** | **(0.254)** | **(0.185)** |
| (b) IV (years, eq(diff)) | | | | | | | | |
| H excluding group | **(0.194)** | **(0.287)** | **(0.530)** | **(0.146)** | **(0.149)** | **(0.068)** | **(0.075)** | **(0.108)** |
| Dif(null, H=exogenous) | **(0.630)** | **(0.543)** | **(0.282)** | **(0.638)** | **(0.157)** | **(0.131)** | **(0.824)** | **(0.252)** |
| | | | | | | | | |
| Fisher | **197.34** | **124.40** | **193.38** | **190.24** | **175.24** | **134.83** | **137.33** | **158.31** |
| Instruments | 21 | 21 | 21 | 21 | 45 | 45 | 45 | 45 |
| Countries | 78 | 78 | 78 | 78 | 76 | 76 | 76 | 76 |
| Observations | 516 | 516 | 516 | 516 | 480 | 480 | 480 | 480 |

*,**: significance levels of 5% and 1% respectively. Totaid: Total aid. DHT: Difference in Hansen Test for Exogeneity of Instruments' Subsets. Dif: Difference. OIR: Over-identifying Restrictions Test. The significance of bold values is twofold. 1) The significance of estimated coefficients, Hausman test and the Fisher statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR (1) and AR(2) tests and; b) the validity of the instruments in the Sargan OIR test.

The following findings can be established in relation to Table 5 on linkages between trade, multilateral aid and terrorism. First, only the sixth specification does not fulfil the information criteria for validity of models. Second, multilateral aid positively affects trade only in the third specification. Third, in the first and fourth specifications, domestic and total terrorism respectively, do not significantly increase trade. This is contrary to the findings of Table 4. Fourth, the corresponding negative marginal effects on the interaction between multilateral aid and terrorism cannot be investigated further because the underlying terrorism effects are not significant. Fifth, on the control variables, justification of the positive effects from inflation and civil conflicts are consistent with those provided for Table 4 above.

In relation to Table 6, the following are apparent on the linkages between trade, total aid and terrorism. First, all specifications fulfil the information criteria for validity of models. Second, total aid positively affects trade in the third specification. Third, in the first-two, fourth and fifth specifications, domestic, transnational and total terrorisms increase trade with the following order of increasing magnitude: total terrorism, domestic terrorism and transnational terrorism. Fourth, the corresponding negative marginal effects on the interaction between total aid and terrorism display thresholds that are within the range (0.800 to 8.495) of total aid provided by the summary statistics, with respective thresholds of: (i) 5.461 (0.142/0.026) for domestic terrorism, (ii) 5.222 (0.893/0.171) for transnational terrorism and (iii) 5.411 (0.092/0.017) for total terrorism. Fifth, on the control variables, justification of the positive effects from inflation, exchange rate and civil conflicts are consistent with those provided for Tables 4-5.

## Table 5: Trade, Multilateral aid and Terrorism

**Dependent variable: Trade**

| | Without conditioning information set | | | | With conditioning information set | | | |
|---|---|---|---|---|---|---|---|---|
| | Domter | Tranater | Unclter | Totter | Domter | Tranater | Unclter | Totter |
| Constant | 3.564 | 2.092 | 0.452 | 1.957 | -25.449 | 2.501 | 14.905 | -21.091 |
| | (0.307) | (0.616) | (0.882) | (0.633) | (0.263) | (0.915) | (0.532) | (0.359) |
| Trade (-1) | 1.022 | **1.038**\*\* | **0.995**\*\* | **1.032**\*\* | **0.987**\*\* | **1.003**\*\* | **0.993**\*\* | **0.983**\*\* |
| | (0.127) | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** |
| Domestic T. (Domter) | 0.014 | --- | --- | --- | -0.039 | --- | --- | --- |
| | (0.260) | | | | (0.072) | | | |
| Transnational T. (Tranater) | --- | 0.037 | --- | --- | --- | -0.188 | --- | --- |
| | | (0.723) | | | | (0.232) | | |
| Unclear T. (Unclter) | --- | --- | 0.124 | --- | --- | --- | -0.061 | --- |
| | | | (0.347) | | | | (0.817) | |
| Total T. (Totter) | --- | --- | --- | 0.008 | --- | --- | --- | -0.035 |
| | | | | (0.380) | | | | (0.071) |
| Multilateral Aid (LnMulaid) | 0.275 | 0.426 | **1.263**\* | 0.020 | -0.273 | 0.052 | 0.266 | -0.195 |
| | (0.734) | (0.642) | **(0.035)** | (0.980) | (0.744) | (0.948) | (0.710) | (0.815) |
| Domter\* LnMulaid | **-0.007**\* | --- | --- | --- | -0.003 | --- | --- | --- |
| | **(0.047)** | | | | (0.441) | | | |
| Tranater\* LnMulaid | --- | -0.038 | --- | --- | --- | -0.030 | --- | --- |
| | | (0.113) | | | | (0.401) | | |
| Unclter\* LnMulaid | --- | --- | -0.032 | --- | --- | --- | -0.008 | --- |
| | | | (0.137) | | | | (0.841) | |
| Totter\* LnMulaid | --- | --- | --- | **-0.005**\* | --- | --- | --- | -0.001 |
| | | | | **(0.042)** | | | | (0.750) |
| GDPg | --- | --- | --- | --- | 0.022 | -0.021 | 0.245 | 0.017 |
| | | | | | (0.912) | (0.907) | (0.244) | (0.931) |
| LnInflation | --- | --- | --- | --- | **3.058**\*\* | **3.020**\*\* | **2.753**\*\* | **3.064**\*\* |
| | | | | | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** |
| LnInfrastructure | --- | --- | --- | --- | 0.653 | 1.120 | 0.703 | 0.634 |
| | | | | | (0.585) | (0.302) | (0.550) | (0.592) |
| LnXrate (Exchange rate) | --- | --- | --- | --- | 0.759 | 0.713 | 0.676 | 0.839 |
| | | | | | (0.082) | (0.067) | (0.130) | (0.052) |
| Ln (Political globalisation) | --- | --- | --- | --- | 5.597 | -2.485 | -5.797 | 4.356 |
| | | | | | (0.350) | (0.685) | (0.345) | (0.469) |
| Civil Conflicts | --- | --- | --- | --- | **1.355**\* | **1.235**\* | **0.971**\* | **1.332**\* |
| | | | | | **(0.030)** | **(0.023)** | **(0.033)** | **(0.037)** |
| AR(1) | (0.029) | (0.026) | (0.034) | (0.027) | (0.048) | (0.045) | **(0.052)** | (0.049) |
| AR(2) | **(0.249)** | **(0.242)** | **(0.290)** | **(0.233)** | **(0.381)** | **(0.327)** | **(0.312)** | **(0.373)** |
| Sargan OIR | **(0.961)** | **(0.940)** | **(0.965)** | **(0.965)** | (0.000) | (0.000) | (0.000) | (0.000) |
| Hansen OIR | **(0.637)** | **(0.668)** | **(0.420)** | **(0.665)** | **(0.075)** | (0.028) | **(0.175)** | **(0.081)** |
| DHT for instruments | | | | | | | | |
| (a)Instruments in levels | | | | | | | | |
| H excluding group | **(0.508)** | **(0.757)** | **(0.796)** | **(0.530)** | **(0.169)** | **(0.237)** | **(0.270)** | **(0.191)** |
| Dif(null, H=exogenous) | **(0.589)** | **(0.585)** | **(0.238)** | **(0.609)** | **(0.117)** | (0.029) | **(0.206)** | **(0.115)** |
| (b) IV (years, eq(diff)) | | | | | | | | |
| H excluding group | **(0.984)** | **(0.654)** | **(0.328)** | **(0.976)** | **(0.120)** | **(0.150)** | **(0.106)** | **(0.121)** |
| Dif(null, H=exogenous) | **(0.274)** | **(0.524)** | **(0.469)** | **(0.307)** | **(0.152)** | (0.019) | **(0.638)** | **(0.169)** |
| Fisher | **167.11**\*\* | **95.59**\*\* | **182.74**\*\* | **140.84**\*\* | **129.58**\*\* | **207.96**\*\* | **165.35**\*\* | **133.72**\*\* |
| Instruments | 21 | 21 | 21 | 21 | 45 | 45 | 45 | 45 |
| Countries | 78 | 78 | 78 | 78 | 76 | 76 | 76 | 76 |
| Observations | 515 | 515 | 515 | 515 | 478 | 478 | 478 | 478 |

\*,\*\*: significance levels of 5% and 1% respectively. Totaid: Total aid. DHT: Difference in Hansen Test for Exogeneity of Instruments' Subsets. Dif: Difference. OIR: Over-identifying Restrictions Test. The significance of bold values is twofold. 1) The significance of estimated coefficients, Hausman test and the Fisher statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR (1) and AR(2) tests and; b) the validity of the instruments in the Sargan OIR test.

## Table 6: Trade, Total aid and Terrorism

| | **Dependent variable: Trade** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Without conditioning information set** | | | | **With conditioning information set** | | | |
| | Domter | Tranater | Unclter | Totter | Domter | Tranater | Unclter | Totter |
| Constant | -4.789 | -6.202 | -11.703 | -3.937 | -3.195 | 21.747 | 30.753 | 1.854 |
| | (0.586) | (0.527) | (0.106) | (0.659) | (0.902) | (0.36) | (0.220) | (0.944) |
| Trade (-1) | **1.026\*\*** | **1.034\*\*** | **1.015\*\*** | **1.033\*\*** | **0.935\*\*** | **0.934\*\*** | **0.916\*\*** | **0.933\*\*** |
| | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** |
| Domestic T. (Domter) | **0.142\*\*** | --- | --- | --- | **0.074\*** | --- | --- | --- |
| | **(0.003)** | | | | **(0.026)** | | | |
| Transnational T. (Tranater) | --- | **0.893\*** | --- | --- | --- | 0.149 | --- | --- |
| | | **(0.034)** | | | | (0.690) | | |
| Unclear T. (Unclter) | --- | --- | 0.212 | --- | --- | --- | -0.186 | --- |
| | | | (0.499) | | | | (0.601) | |
| Total T. (Totter) | --- | --- | --- | **0.092\*** | --- | --- | --- | 0.038 |
| | | | | **(0.011)** | | | | (0.218) |
| Total Aid (LnTotaid) | 1.102 | 1.283 | **2.244\*** | 0.864 | 0.881 | 0.554 | 0.310 | 0.832 |
| | (0.374) | (0.307) | **(0.014)** | (0.490) | (0.295) | (0.508) | (0.704) | (0.326) |
| Domter* LnTotaid | **-0.026\*\*** | --- | --- | --- | **-0.019\*\*** | --- | --- | --- |
| | **(0.001)** | | | | **(0.001)** | | | |
| Tranater* LnTotaid | --- | **-0.171\*** | --- | --- | --- | -0.068 | --- | --- |
| | | **(0.013)** | | | | (0.268) | | |
| Unclter* LnTotaid | --- | --- | -0.041 | --- | --- | --- | 0.010 | --- |
| | | | (0.363) | | | | (0.839) | |
| Totter* LnTotaid | --- | --- | --- | **-0.017\*\*** | --- | --- | --- | **-0.012\*** |
| | | | | **(0.005)** | | | | **(0.026)** |
| GDP growth | --- | --- | --- | --- | 0.140 | 0.167 | 0.224 | 0.129 |
| | | | | | (0.409) | (0.326) | (0.192) | (0.447) |
| LnInflation | --- | --- | --- | --- | **2.953\*\*** | **2.903\*\*** | **2.757\*\*** | **2.925\*\*** |
| | | | | | **(0.000)** | **(0.000)** | **(0.000)** | **(0.000)** |
| LnInfrastructure | --- | --- | --- | --- | **1.928\*** | 0.799 | 0.540 | 1.782 |
| | | | | | **(0.038)** | (0.365) | (0.592) | (0.058) |
| LnXrate (Exchange rate) | --- | --- | --- | --- | 0.669 | 0.457 | **0.974\*** | 0.713 |
| | | | | | (0.084) | (0.224) | **(0.048)** | (0.067) |
| Ln (Political globalisation) | --- | --- | --- | --- | -1.636 | -7.127 | -8.394 | -2.653 |
| | | | | | (0.783) | (0.217) | (0.132) | (0.655) |
| Civil Conflicts | --- | --- | --- | --- | 0.646 | 0.504 | **0.941\*\*** | 0.780 |
| | --- | --- | --- | --- | (0.240) | (0.413) | **(0.003)** | (0.220) |
| | | | | | | | | |
| AR(1) | (0.028) | (0.026) | (0.031) | (0.028) | **(0.050)** | (0.047) | **(0.056)** | **(0.051)** |
| AR(2) | **(0.094)** | **(0.096)** | **(0.069)** | **(0.090)** | **(0.213)** | **(0.170)** | **(0.129)** | **(0.198)** |
| Sargan OIR | **(0.643)** | **(0.198)** | **(0.817)** | **(0.611)** | (0.000) | (0.000) | (0.000) | (0.000) |
| Hansen OIR | **(0.465)** | **(0.455)** | **(0.450)** | **(0.403)** | **(0.101)** | **(0.064)** | **(0.287)** | **(0.094)** |
| DHT for instruments | | | | | | | | |
| (a)Instruments in levels | | | | | | | | |
| H excluding group | **(0.243)** | **(0.193)** | **(0.326)** | **(0.220)** | **(0.106)** | **(0.114)** | **(0.203)** | **(0.112)** |
| Dif(null, H=exogenous) | **(0.594)** | **(0.647)** | **(0.491)** | **(0.538)** | **(0.222)** | **(0.133)** | **(0.423)** | **(0.198)** |
| (b) IV (years, eq(diff)) | | | | | | | | |
| H excluding group | **(0.190)** | **(0.248)** | **(0.493)** | **(0.129)** | **(0.152)** | **(0.123)** | **(0.180)** | **(0.110)** |
| Dif(null, H=exogenous) | **(0.731)** | **(0.619)** | **(0.371)** | **(0.769)** | **(0.169)** | **(0.110)** | **(0.698)** | **(0.245)** |
| Fisher | 201.50\*\* | 94.37\*\* | 196.84\*\* | 170.56\*\* | 198.63\*\* | 145.16\*\* | 158.60\*\* | 205.56\*\* |
| Instruments | 21 | 21 | 21 | 21 | 45 | 45 | 45 | 45 |
| Countries | 78 | 78 | 78 | 78 | 76 | 76 | 76 | 76 |
| Observations | 520 | 520 | 520 | 520 | 484 | 484 | 484 | 484 |

\*,\*\*: significance levels of 5% and 1% respectively. Totaid: Total aid. DHT: Difference in Hansen Test for Exogeneity of Instruments' Subsets. Dif: Difference. OIR: Over-identifying Restrictions Test. The significance of bold values is twofold. 1) The significance of estimated coefficients, Hausman test and the Fisher statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR (1) and AR(2) tests and; b) the validity of the instruments in the Sargan OIR test.

**3.2 Further discussion of results and policy implications**

Consistent with the intuition motivating this line of inquiry, while we expected development assistance to exert a positive effect on trade, the positive impact of terrorism on trade was nonetheless unexpected. Evidence of the latter has been found in: (i) domestic and total terrorisms for bilateral aid regressions and (ii) total, domestic and transnational terrorisms for total aid estimations, with increasing positive magnitude. First, these findings are contrary to the engaged literature, notably: Nitsch and Schumacher (2004) on the evidence that terrorism reduces trade; Richardson (2004) on security measures in the post-9/11 terrorists attacks in the United States and underpinnings of De Sousa et al. (2009ab). Second, a possible elucidation of these unexpected results could be based on the fact that some incidences of terrorism might not significantly impact trade negatively during the sampled periodicity (1984-2008). It is interesting to note that while we have motivated the choice of our sample periodicity, the recent 2014 Global Terrorism Index (GTI, 2014, p. 13) has revealed that activities of terrorism have been significantly on the rise since the wake of 2011 Arab Spring.

Third, another possible explanation for the positive effect of terrorism on trade may be that more advanced-developing countries (with the capacity of absorbing terrorist activities without significant negative externalities) weigh greatly on the outcome of the underlying effect. This interpretation is consistent with the narrative of Gaibulloev and Sandler (2009) that has been lately confirmed in a growing stream of literature, notably: Öcal and Yildirim (2010) and Meierrieks and Gries (2013). Fourth, in spite of the potential for mild terrorism in some countries, investors may be willing to take more risks with the hope of a more proportionate return to investment. For instance, in spite of threats from the Movement for the Emancipation of the Niger Delta (MEND), China has continued to invest in the Niger Delta region of Nigeria (Obi, 2008). Moreover, China has a long-term strategy of doing business even in countries with political strife and outlook of political instability (Asongu & Aminkeng, 2013; Elu & Price, 2010). As a policy implication, blanket policies targeting the use of foreign aid to mitigate the potentially negative effects of terrorism on trade should be treated with caution, especially in the pre-2011 Arab Spring era.

Another bone of contention established is the unexpected negative interaction between development assistance and terrorism on trade. A likely explanation to this finding may be traceable to the political economy of foreign aid because some aid types used to dampenthe potentially negative effects of terrorism may end-up running counter to the prescribed

objectives, especially if baseline impacts of terrorism dynamics on trade are not understood by foreign policy. This narrative is consistent with the stream of literature sustaining that overly reliance on development assistance might increase political instability and violence due to low political accountability and representation (Eubank, 2012; Asongu, 2015b). As a policy implication, it is recommendable to first of all establish empirically, what degree of terrorism is negative for trade before engaging the policy direction of employing foreign aid to dampen the corresponding underlying negative nexus.

The expected positive effect of foreign aid on trade is broadly consistent with the literature documenting the positive role of development assistance in economic development (Kargbo & Sen, 2014; Asiedu, 2014; Gyimah-Brempong & Racine, 2014). However it is interesting to clarify why the effect of bilateral aid is insignificant relative to the impact of multilateral and total aids. The insignificant effects of the former may be traceable to the 'political economic' strings related to development assistance, where-by relative to bilateral aid, multilateral aid has less strings attached with its allocation. This is essentially because 'consensus building' among donors with varying strategic interests is relatively difficult to be established. Hence, aid allocation decisions may eventually be based on the primary interest of recipient countries. Conversely with bilateral aid, by definition, evidence of conflicting interests among donors is not at play. Whereas Biscaye et al. (2015) have recently shown from a survey of the literature that no significant difference exists between the development outcomes of bilateral aid vis-à-vis multilateral aid, the intuition for our interpretation is embedded in the common knowledge that former colonial powers provide aid to former colonies in view of preserving strategic interests that vary across donors. This interpretation can be summarised with the conclusions of 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). As a policy implication, multilateral aid is more positively predisposed to stimulating trade openness in developing countries, relative to bilateral aid.

In line with the motivation provided for the choice of sample periodicity, we devote some space to engaging how the findings have contributed to prior exposition that has: (i)

used the same sample and periodicity and (ii) been motivated by the role of foreign aid in potentially dampening the negative effect of terrorism on macroeconomic variables. It should be noted that Bandyopadhyay et al. (2014),  Efobi et al. (2015) and Asongu et al. (2015) have used FDI as the outcome variable. Efobi et al. (2015) which is conditioned on existing levels of corruption-control levels in recipient countries have partially confirmed the conclusions of Bandyopadhyay et al., after: (i) conditioning the investigation on domestic corruption-control and (ii) employing a more robust GMM strategy.

Asongu et al. (2015) is an extension on Efobi et al. (2015) with the assumption that underlying linkages could vary throughout the conditional distributions of FDI. The intuition for this extension using quantile regressions has been that blanket policies cannot be effective unless they are contingent on initial levels of FDI and tailored differently across high-FDI and low-FDI countries. The findings of the present study contribute to the extant of knowledge on the underlying relations in a plethora of ways, inter alia: (i) use of a trade openness as outcome variable; (ii) confirmation of the findings of  Bandyopadhyay et al. (2014) only with respect the effect of foreign aid on the dependent variable and not with regards to the impact of terrorism and interactive effects of 'terrorism and foreign aid' and (iii) partial validation of Efobi et al. (2015) and Asongu et al. (2015) on the rejection of the expected signs (from terrorism and interactions)  postulated in Bandyopadhyay et al. (2014).

As a policy implication, Applied econometrics should be granted a broader scope and not be exclusively restricted to verification of whether existing theories are valid or not. This is essentially because the extension of previous studies with the same periodicity and sample could add more perspectives to conventional narratives of economic phenomena.

## 4. Conclusion and further research

This study has assessed the role of foreign aid in reducing the hypothetically negative impact of terrorism on trade using a panel of 78 developing countries with data for the period 1984-2008. The empirical evidence is based on interactive GMM estimations with forward orthogonal deviations. Bilateral, multilateral and total aid dynamics are employed whereas terrorism entails: domestic, transnational, unclear and total terrorism dynamics.  The following findings have been established. First, while bilateral aid has no significant effect on trade, multilateral and total aids have positive effects. Second total terrorism, domestic terrorism and transnational terrorism increase trade with an order of increasing magnitude from the first to the third. Third, the corresponding negative marginal effects on the

interaction between foreign aid (bilateral and total) and terrorism display thresholds that are within range. We have clarified the established linkages in light of existing literature and discussed resulting policy implications.

The above findings and policy implications obviously leave room for future research in the following areas, inter alia: (i) improving scholarly understanding of channels through which terrorism positively influences trade openness and clarifying the negative marginal effect from the interaction between terrorism and foreign aid on trade; (ii) employing post-Arab Spring data for different perspectives on the underlying nexuses; (iii) distinguishing initial levels of trade and terrorisms in the underlying relationships and (iv) elucidating why multilateral aid relative to bilateral aid more positively stimulates trade openness.

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