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The role of inclusive development and military expenditure in modulating the effect of terrorism on governance

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Asongu, Simplicie, Nwachukwu, Jacinta Chikaodi ORCID: 0000-0003-2987-9242 and Le Roux, Sara (2019) The role of inclusive development and military expenditure in modulating the effect of terrorism on governance. Journal of Economic Studies, 46 (3). pp. 681-709. ISSN 0144-3585

It is advisable to refer to the publisher's version if you intend to cite from the work.
<http://dx.doi.org/10.1108/JES-11-2017-0343>

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4 **The role of inclusive development and military expenditure in modulating the effect of**
5 **terrorism on governance**
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7 **S. Asongu, J. Nwachukwu, S. Le Roux**
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10
11 **Abstract**
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14 **Purpose-** The study investigates the role of inclusive human development and military
15 expenditure in modulating the effect of terrorism on governance.
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18 **Design/methodology/approach-** It is based on 53 African countries for the period 1998-2012
19 and interactive Generalised Method of Moments is employed. Six governance indicators from
20 the World Bank and two terrorism variables are used, namely: domestic and transnational
21 terrorism dynamics.
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24 **Findings-** The following main findings are established. There is a negative net effect on
25 governance (regulation quality and corruption-control) when inclusive human development is
26 used to reduce terrorism. There is a positive net impact on governance (“voice and
27 accountability” and rule of law) when military expenditure is used to reduce domestic
28 terrorism.
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32 **Originality/value-** We have complemented the sparse literature on the use of policy variables
33 to mitigate the effect of policy syndromes on macroeconomic outcomes.
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38 *JEL Classification:* C52; D74; F42; O38 ; P37
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40 *Keywords:* Terrorism; Inclusive development; Governance; Africa
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42 **Acknowledgements**

43 The authors are indebted to the editor and reviewers for their constructive comments.
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46 **1. Introduction**
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48 There are three fundamental motives for assessing the roles of military expenditure
49 and inclusive development in **modulating** the effect of terrorism on governance in Africa,
50 namely: (i) growing terrorism levels **in** the continent; (ii) gaps in the literature on the
51 governance-terrorism nexus and (iii) debates in the roles of military expenditure and inclusive
52 development in reducing terrorism. In what follows, we engage the points chronologically.
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56 First, terrorism is flourishing **and good governance is deteriorating** in Africa
57 (Clavarino, 2014). According to the narrative, poor governance and the mushrooming of
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1 terrorists' activities in Africa are closely related. Some features of bad governance are also
2 flourishing because of terrorism, notably: vulnerable and corrupt central governments;
3 undertrained and underequipped armies; booming trade in drugs and porous borders. The
4 growth of Islamic fundamentalism in the continent has led to political instability in many
5 regions. Some notable cases include: Ansar Dine, led by a former close ally of Gaddafi, Iyad
6 Ag Ghaly; Ansar Al-Shariya in Tunisia; Al-Qaeda-linked Mulathameen Brigade led by the
7 Algerian Mokhtar Belmokhtar and Al-Qaeda in the Islamic Maghreb (Asongu *et al*, 2018a).

8 While the phenomenon of terrorism is not entirely new in the continent, the
9 rate of increase in this trend represents a substantial policy syndrome (Alfa-Wali *et*
10 *al.*, 2015)¹. Moreover, while global attention is currently oriented towards the Middle East
11 and pockets of terrorism attacks in Europe, Africa is not receiving the scholarly attention it
12 deserves in spite of growing radicalisation and Islamic fundamentalism (Fazel, 2013;
13 Clavarino, 2014).

14 Second, while much of the literature has been oriented towards the role of governance
15 in reducing terrorism, very limited research has been focused on the effect of terrorism on
16 governance. Moreover, the literature on whether governance mitigates or promotes terrorism
17 has been the object of intense debate (see Lee, 2013). On the one hand, a strand of the
18 literature is positioned on the fact that governance can mitigate the probability of terrorism by
19 limiting resentment vis-à-vis that State (Li, 2005; Windsor, 2003). On the other hand, another
20 strand of the literature posits that good governance does not reduce terrorism (Gause, 2005),
21 probably because the interests of terrorists' may not be represented in government institutions
22 of democratic politics. Accordingly, nations with a relatively better degree of democracy
23 could host terrorism due to some characteristics in these nations that are compatible with the
24 growth of terrorism. These encompass *inter alia*: freedom of speech in the expression of
25 disagreement and dissatisfaction by citizens, access and freedom to media and civil liberties
26 (Ross, 1993).

27 Theories of political access postulate that the nexus between terrorism and good governance is
28 weak (Eyerma, 1998), because of characteristics like: more feasible conditions for the
29 management of conflicts (Li, 2005); respect of the rule of law (Choi, 2010) and judicial
30 independence (Findley & Young, 2011). Conversely, another branch of the literature is of the
31 position that terrorism is more likely to be associated with government instability and poor
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¹ According to Fosu (2013), policy syndromes represent conditions that are detrimental to economic prosperity, notably: 'administered redistribution', 'state breakdown', 'state controls', and 'suboptimal inter temporal resource allocation'. Asongu and Nwachukwu (2017a) consider policy syndrome as economic prosperity that is not inclusive whereas with regards to Asongu (2017), understand the concept in terms of knowledge economy gaps. Within the framework of this paper, policy syndromes are terrorism dynamics, notably: domestic terrorism and transnational terrorism.

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2 governance (Piazza, 2008a; Lai, 2007). The latter view is in accordance with a broad stream
3 of studies (Piazza, 2007; Schmid, 1992; Eubank & Weinberg, 1994). The underlying literature
4 hinges on reverse causality in order to articulate how the extant literature on the positioning of
5 this study is sparse.
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9 The sparse literature on causality flowing from terrorism to governance (Section 2.3)
10 has established that terrorism affects political parties (Indridason, 2008), election
11 anticipations (Berrebi & Klor, 2006; Siqueira & Sandler, 2007), “voice and accountability”
12 and political stability/no violence (Indridason, 2008; Williams, 2012), political governance
13 (Jacobson, 2003; Langer & Cohen, 2005), the outcome of political elections (Kibris, 2010),
14 economic governance (Tabor, 2016), the rule of law (Efobi & Asongu (2016) and most
15 dimensions of World Governance Indicators negatively (Asongu & Nwachukwu, 2017b). We
16 complement the underlying literature by introducing policy variables of inclusive
17 development and military expenditure in the assessment of how these policy variables can be
18 used to mitigate the established negative effect of terrorism on governance. Such positioning
19 also contributes to the scholarly debate on the relevance of these policy variables in fighting
20 terrorism.
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28 Third, the literature on the role of policy in reducing terrorism has been mixed at best.
29 Some notable policy tools include military expenditure and inclusive development. While
30 some theoretical and empirical evidence on the linkage between military expenditure and
31 terrorism is inconclusive with negative, positive and insignificant effects (Feridun &
32 Shahbaz, 2010), other theoretical and empirical literature on the linkage between inclusive
33 development and poverty on terrorism is also conflicting. Accordingly, there is no linkage
34 between terrorism and economic development (Krueger & Maleckova, 2003); a negative
35 relationship between terrorism and economic development (Li, 2005); the absence of
36 causality flowing from human development to terrorism (Piazza, 2006); more likelihood of
37 terrorism in poor nations (Abadie, 2006); a positive relationship between terrorism and
38 economic development when victims’ views are accounted-for (Gassenbner & Luechinger,
39 2011); minority discrimination in the economy not positively influencing domestic terrorism
40 (Piazza, 2011) and the positive relationship between economic development and transnational
41 terrorism (Blomberg *et al.*, 2014). Ultimately, there is mild empirical support for the positive
42 nexus between terrorism and poverty, with the exceptions of Li and Schaub (2004) and Piazza
43 (2011).
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54 The present study integrates the three main strands above by: positioning the inquiry
55 on Africa, assessing the effect of terrorism on governance and investigating the role of
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2 inclusive development and military expenditure in modulating the effect of terrorism on
3 governance. For this purpose the study employs six governance indicators representing:
4 political governance (political stability/non violence, voice and accountability), economic
5 governance (government effectiveness and regulation quality) and institutional governance
6 (corruption-control and the rule of law).
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10 The research question the study aims to answer is therefore the following: how do
11 military expenditure and inclusive development modulate the effect of terrorism on
12 governance? In order to address this question, the approach to net effect from interactive
13 regressions is employed because it is consistent with the recent literature on the use of policy
14 variables to modulate the effect of policy syndromes on development outcomes (Asongu,
15 2018).
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20 The rest of the study is organised as follows: The theoretical underpinnings are
21 discussed in Section 2. The data and methodology are engaged in Section 3, while Section 4
22 presents and discusses the results. Section 5 concludes with future research directions.
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26 **2. Theoretical underpinnings**

27 **2.1 Governance and terrorism**

28 While there are several papers on measuring governance (Jong-a-Pin, 2009; Langbein
29 & Knack, 2010; Bang & Mitra, 2011; Kuncic, 2013), the focus of the current study is on the
30 Kaufmann *et al.* (2010) governance indicators from the World Bank because of their wide
31 usage in the literature, especially because they do not map distinctly into single, unique
32 concepts (Langbein & Knack, 2010)². While some overlap may be apparent, especially given
33 their high substitution from the perspective of correlation coefficients and exploratory factor
34 analysis (Bang & Mitra, 2011; Kuncic, 2013), there are conceptual differences in the
35 measurement of the variable that should be articulated. Political governance (voice and
36 accountability and political stability/non violence) is defined as the election and replacement
37 of political leaders. Economic governance (regulation quality and government effectiveness)
38 is the formulation and implementation of policies that deliver public commodities.
39 Institutional governance (corruption-control and the rule of law) is defined as the respect by
40 the State and citizens of institutions that govern interactions between them.
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51 Terrorism, according to Enders and Todd (2006), is the threatened use of force by sub-national
52 actors for the goal of employing intimidation to secure political goals. Therefore, the
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56 ²In the interest of brevity, the interested reader can find more insights into why these governance indicators
57 enjoy wide usage in Asongu (2016).
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3 definition and conception of terrorism is designed to affect political governance, negatively or
4 positively. Within the framework of this study, we dispute that the linkage can be extended to
5 other dimensions of governance, namely: institutional and economic governances. On the one
6 hand, institutional governance can be affected by terrorism when the State and/or citizens fail
7 to respect institutions that govern interactions between them. On the other hand, economic
8 governance can be influenced by terrorism because violent mechanisms can be employed to
9 manifest grievances on the poor formulation and implementation of measures that deliver
10 public goods.
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16 The theoretical foundations connecting governance and terrorism can be engaged in
17 three principal strands: links between governance and domestic terrorism; the relationship
18 between transnational terrorism and governance and debates surrounding the relationship.
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21 First, consistent with Choi (2010), the nexus between domestic terrorism and
22 governance is based on the perspective that ordinary citizens are endowed with incentives to
23 utilise violence against political figures, government institutions and other citizens, under
24 three scenarios, notably, when citizens: have grievances; find no pacific mechanisms by
25 which to quell their sentiments of desperation and hopelessness and; view the use of terror
26 tactics as a viable and legitimate means of communicating their frustration and anger. The
27 foundations of this postulation rest on the intuition that terrorism can be employed by citizens
28 as means towards influencing government policies when no pacific alternatives are available.
29 Hence, within these circumstances, in order to manifest their grievances, citizens are likely to
30 use terrorism mechanisms to influence institutional, economic and political governances.
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37 Second, with respect to the nexus between governance and transnational terrorism,
38 good governance is expected to reinforce institutional, economic and political governances
39 and to also provide nonviolent avenues by which grievances can be attenuated (see Choi,
40 2010).
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43 In addition, domestic governments can be influenced by transnational terrorism in
44 view of improving standards of government in order to further prevent contagion of domestic
45 conflicts and terrorism. The theoretical governance-‘transnational terrorism’ linkage is
46 feasible because foreign policy can be influenced by transnational terrorism. This narrative
47 aligns with the results of Savun and Phillips (2009) who demonstrate that regardless of types
48 of political regimes, transnational terrorism is linked with foreign policy because a foreign
49 policy of a nation affects resentment abroad and transnational terrorism is a mechanism by
50 which domestic governments can be influenced to change their foreign policies.
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4 With the understanding of above narratives, it is logical to postulate that terrorism can
5 influence, *inter alia*: (i) institutional governance or the respect by citizens and the State of
6 institutions that govern interactions between them; (ii) economic governance or the
7 formulation and implementation of policies that provide public goods to citizens and (iii)
8 political governance or free and fair democratic process for the election and replacement of
9 political leaders.
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12 The theoretical foundations on the relationship between governance and terrorism in
13 the third strand are conflicting. Consistent with Hoffman *et al.* (2013), inquiries into the nexus
14 between governance and cross-national terrorism are based on the scholarship that violent
15 mechanisms can be employed to exploit differences in regime-types. Within this scenario, it is
16 more likely that terrorism is used to influence bad governance, compared to good governance.
17 Nonetheless, it is relevant to balance the narrative with the perspective that there are more
18 opportunities available for citizens to air their grievances within the framework of good
19 governance. Conversely, the liberties offered by good governance with democratic institutions
20 can be abused by recalcitrant citizens who might yet employ violence to resolve their
21 grievances.
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28 It is also interesting to note that violence is more likely to be employed as a
29 mechanism of influencing governance in failing and/or failed states relative to autocracies that
30 enjoy relative stability (Piazza 2008a; Lai, 2007; Piazza, 2007; Drakos & Gofas, 2006;
31 Eubank & Weinberg, 1994; Schmid, 1992). Conversely, theories of political access postulate
32 that the nexus between terrorism and good governance is weak (Eyerman, 1998), because of
33 characteristics like: more feasible conditions for the management of conflicts (Li, 2005);
34 respect of the rule of law (Choi, 2010) and judicial independence (Findley & Young, 2011).
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40 The empirical literature has also substantially documented the linkage between
41 governance institutions and transnational terrorism (Lee, 2013; Piazza, 2007, 2008b; Eubank
42 & Weinberg, 1994, 2001; Weinberg & Eubank, 1998). Chenoweth (2010) has argued that
43 good governance that is characterised by democratic competition can avail feasible conditions
44 for violence. Two competing effects on the role of democracy are apparent (see Li, 2005):
45 Government constraints can boost transnational terrorism due to deadlock from checks and
46 balances. Moreover, the likelihood of transnational terrorism is reduced by democratic
47 participation.
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54 **2.2 The relevance of military expenditure and inclusive development in fighting** 55 **terrorism** 56 57

2.2.1 Linkage between military expenditure and terrorism

The literature is tied to the reverse relationship in order to articulate how the extant literature is sparse on the positioning of the study. There are two main theoretical perspectives on the nexus between military spending and terrorism (Feridun & Shahbaz, 2010). According to the first perspective, terrorism boosts military spending because more funds in defense are devoted to respond to increasing threats of terrorism. Hence, when military spending is the dependent variable, a positive relationship is anticipated. The second perspective reasons that increasing military expenditure is also anticipated to mitigate terrorism, considering that measures towards increasing military spending are motivated by the goal of combating terrorism. Therefore, from a theoretical angle, terrorism and defense spending portray a negative nexus when the former is the dependent variable.

From an empirical perspective, the underlying relationship is also very conflicting. There is some consensus in the literature that military expenditure does not necessarily mitigate terrorism (Feridun & Shahbaz, 2010, p.195). In other words, measures of counter-terrorism are counter-productive because they increase terrorism instead of preventing attacks (see Sandler, 2005). Moreover, the absence of comprehensive and common international long-term policies that can be used to fight terrorism renders country-specific counter-terrorism policies ineffective (Omand, 2005). In addition, policies towards combating terrorism that are adopted by the countries such as the United States are not effective because such policies instead increase the probability of terrorism (Lum *et al.*, 2006). Feridun and Shahbaz (2010) have established a uni-directional causality from terrorism to military expenditure. In the light of the above, the relationship between military expenditure and terrorism is still open to debate because of the absence of a consensus in empirical literature.

2.2.2 Linkage between inclusive development and terrorism

In this section, the literature is also tied to the reverse relationship in order to articulate how the extant literature is sparse on the positioning of the study. The theoretical relationship between terrorism and inclusive development can be engaged in three main strands: First, the relative deprivation theory that is developed by Gurr (1970) provides valuable insights into the nexus between terrorism and inclusive development (Krieger & Meierrieks, 2015; Asongu *et al.*, 2017a). If ‘relative deprivation’ can be defined as “*individuals’ expectations of economic or political goods exceed the actual distribution of those goods*” (Piazza, 2006, p.162), then the theory “*is grounded in the assumption that people who engage in rebellious political behavior are motivated principally by anger resulting from [...] relative deprivation*”

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3 (Muller & Weede, 1994, p. 40). Hence, rent seeking and confiscation of state resources by the
4 elite (which is more pronounced in autocracies) can fuel frustration, anger and discontent over
5 exclusive development. Such resentment could lead to aggression, political violence and
6 terrorism. In situations of relative deprivation, the poor or marginalised can use violent means
7 of making their grievances loud and clear. Moreover, there is some consensus in the
8 microeconomic literature that features typical of exclusive development (e.g. inequality,
9 unemployment and poverty) endow terrorists' entities with the opportunities of enriching their
10 human resources with more qualified/skilled personnel (Buono de Mesquita, 2005;
11 Benmelech *et al.*, 2012).

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17 Second, in accordance with Asongu *et al.* (2017a), while exclusive development is
18 directly linked to terrorism because of deprivation and frustration, the lack of inclusive
19 development could also be indirectly linked to terrorism through dilapidating social
20 conditions. For example, restricted socio-economic and politico-economic progress can
21 further fuel terrorism.

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25 The view of politico-economic participation is centered on the political influence of social
26 segments in framing institutions for access by social groups to resources and distribution
27 within society of these resources (Krieger & Meierrieks, 2015). Under the scenario that power
28 is withheld by a selected few, enough resources can be mobilised by them to create (or
29 consolidate) institutions of politico-economic order that protect and promote their interests.
30 Unhappy citizens at the lower socio-economic echelon then respond by violent means in order
31 to change the institutional order or status quo. The employment of tactics of terror in the
32 demand for more politico-economic participation has been substantially documented
33 (Basuchoudhary & Shughart, 2010; Gassebner & Luechinger, 2011).

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40 A plethora of socio-economic consequences have been documented to originate from
41 inequality. As a case in point, Fosu (2008, 2009, 2010abc) has demonstrated that: inequality
42 mitigates the accumulation of human capital that ultimately affects economic prosperity and
43 that the response of poverty to growth is a decreasing function of socio-economic inequality.
44 It follows that terrorism could result from inequality. The socio-economic oriented narrative is
45 consistent with the literature which maintains that diminishing socio-economic conditions
46 increase the use of violence by citizens to make the grievances known (see Caruso &
47 Schneider, 2011; Gries *et al.*, 2011; Freytag *et al.*, 2011).

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53 Third, on the empirical front, the evidence is still very conflicting on the nexus
54 between exclusive development and terrorism (or political violence) (Asongu *et al.*, 2017a).
55 No consensus has been established yet on the nexus between civil wars and inequality “Over
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3 *the past few years, prominent large-N studies of civil war seem to have reached a consensus*
4 *that inequality does not increase the risk of civil war” (Østby, 2008, p. 143). Yet, some*
5 *studies have established that the likelihood of civil wars increases with income-inequality*
6 *(Cederman et al., 2011; Krieger & Meierrieks, 2015; Baten & Mumme, 2013).*

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9 With regards to the linkage between inequality and terrorism, evidence from empirical
10 literature is also controversial. While some of the existing literature does not provide a clear
11 nexus between terrorism and inequality (see Piazza, 2006; Abadie, 2006; Li, 2005), another
12 strand of the literature has established inequality to be a fundamental cause of terrorism
13 (Piazza, 2011; 2013). With regards to relationships between transnational (versus domestic
14 terrorism) and inequality, it is believed that transnational terrorism is related to grievances in
15 the foreign policy of developed countries (Savun & Phillips, 2009), while domestic terrorism
16 is considerably affected by grievances of an economic nature (Piazza, 2013).
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22 Noticeably, the engaged literature has for the most part focused on the effect of
23 governance on terrorism, the linkage between inclusive development and terrorism and the
24 impact of military expenditure on terrorism. The present inquiry complements the existing
25 literature by investigating the role of inclusive development and military expenditure in the
26 effect of terrorism on governance.
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32 **2.3. Intuition and theoretical underpinnings**

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34 In this section, we discuss the theoretical intuition for the impact of terrorism on governance
35 as well as the inclusion of interactions with inclusive growth and military expenditure. The
36 discussion is articulated as follows: Firstly on the basis of the intuition and theoretical
37 underpinnings as to why a country that is besieged by terrorist attacks could be concerned
38 with the corresponding impact on governance (Laver & Shepsle, 1998; Williams, 2012).
39 Secondly on how the policy variables used in this study can be used to dampen the potentially
40 negative effect of terrorism on governance.
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45 Considering the effect of terrorism on governance in the light of the governance
46 variables used in this study, three perspectives are articulated: (i) Due to changing interests in
47 constituencies, terrorism events can affect policies that are adopted by political parties.
48 Consistent with Indridason (2008), political coalitions can be created in the face of terrorism
49 incidents in view of adopting common strategies and policies against the scourge. Hence,
50 terrorism can influence the political climate as well as the political agenda of political parties.
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3 Accordingly, there is a bulk of literature on the perspective that terrorism influences election
4 anticipation, given that governing parties are likely to be punished by voters if adequate
5 policies are not implemented to protect them against the externalities of terrorism (Berrebi &
6 Klor, 2006; Siqueira & Sandler, 2007). Thus, the fact that terrorism influences political
7 governance within the frameworks of political stability/no violence and “voice &
8 accountability” has been confirmed in the literature (Indridason, 2008; Williams, 2012). Some
9 examples in which terrorism has affected political governance (from the perspectives of
10 political stability/no “voice and accountability) include: Turkey, where terrorism influences
11 the outcome of political elections (Kibris, 2010) and the USA, in the aftermath of the
12 September 11 attacks in 2001 (Langer & Cohen, 2005; Jacobson, 2003).

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19 (ii) Terrorism can affect economic governance (i.e. government effectiveness and regulation
20 quality) because it shapes the ability of a government to formulate and implement policies
21 that are necessary to promote the delivery of public goods and services. For instance,
22 according to Tabor (2016), in the Delta region of Nigeria, the government has been
23 constrained to improve the provision of public goods in the affected region.

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27 (iii) From the perspective of institutional governance, the presence of terrorism decreases
28 opportunities for corruption-control and respect of the rule of law. This is the case of Libya
29 where the respect of the State and citizens of institutions that govern interactions between
30 them is limited because of the prevailing levels of terrorism in the country. Moreover, the
31 growth the Boko Haram of Nigeria is in regions where lawlessness is more apparent. Efobi
32 and Asongu (2016) have recently established that terrorism increases corruption and decreases
33 the rule of law. Asongu and Nwachukwu (2017b) show that terrorism negatively influences
34 both political governance and economic governance.

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40 Moreover, military expenditure and inclusive development have recently been
41 established to mitigate terrorism. Asongu and Amankwah-Amoah (2018) have established
42 that military expenditure can mitigate terrorism for positive development outcomes whereas
43 Asongu et al. (2017a) have empirically demonstrated that military expenditure and inclusive
44 development can effectively be used in the fight against terrorism.
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51 **3. Data and Methodology**

52 **3.1 Data**

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54 This study assesses a panel of 53 African countries with data for the period 1998-2012
55 from the Global Terrorism Database, African Development indicators (ADI) and World
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3 Governance Indicators of the World Bank and the terrorism incidents from Enders *et al.*
4 (2011) and Gailbulloev *et al.* (2012). The investigated periodicity ends in 2012 due to data
5 availability constraints, notably: terrorism variables from Enders *et al.* (2011) and Gailbulloev
6 *et al.* (2012) and macroeconomic and institutional indicators from the ADI of the World
7 Bank.
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10 The periodicity begins from 1998 because governance variables from the World Governance
11 Indicators are only available from the year 1996. The motivation for beginning in 1998 is to
12 have a symmetric computation of three-year non-overlapping intervals (NOI). The interest of
13 employing NOI is to restrict over-identification that could substantially bias estimated
14 coefficients (see estimation technique section) and mitigate short-term disturbances that can
15 substantially loom (Islam, 1995, p. 323). Therefore, we have five three-year NOI: 1998-2000;
16 2001-2003; 2004-2006; 2007-2009 and 2010-2012. It is important to note that the first-two
17 data points consist of only two observations because there are missing observations for 1997,
18 1999 and 2001 in World Governance Indicators of the World Bank.
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21 The dependent variables are six governance indicators from Kaufmann *et al.* (2010)
22 that have been employed in recent governance and development literature (Gani, 2011;
23 Asongu, 2015, 2016; Ajide & Raheem, 2016; Andrés *et al.*, 2015; Yerrabit & Hawkes, 2015;
24 Tchamyu, 2017). Full definitions have been provided in Section 2.1.
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27 Two main terrorism variables are employed, namely: domestic and transnational
28 terrorism. The definition of terrorism has also been provided in Section 2.1. Terrorism-
29 specific definitions are from Efobi *et al.* (2015, p. 6). Domestic terrorism “*includes all*
30 *incidences of terrorist activities that involves the nationals of the venue country: implying that*
31 *the perpetrators, the victims, the targets and supporters are all from the venue country*” (p.6).
32 Transnational terrorism is “*terrorism including those acts of terrorism that concerns at least*
33 *two countries. This implies that the perpetrator, supporters and incidence may be from/in one*
34 *country, but the victim and target is from another*”. The terrorism variables capture the
35 number of yearly terrorism incidents registered in a country within a year. In order to mitigate
36 mathematical issues linked to log-transforming zeros and to correct the positive data skew, the
37 study takes natural logarithms of terrorism incidents by adding one to the base. A similar
38 approach to transformation has been recently used by Choi and Salehyan (2013),
39 Bandyopadhyay *et al.* (2014) and Asongu *et al.* (2018b).
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53 Two policy variables are employed, namely: inclusive development and military
54 expenditure. The choice of military expenditure is consistent with Feridun and Shahbaz
55 (2010), while the inclusive development indicator which is the inequality adjusted human
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3 development index (IHDI) is justified by a recent stream of literature maintaining that
4 adherence to and sympathy for terrorists' organisations are fundamentally motivated by
5 exclusive human development (Bass, 2014). Contemporary examples include Western-born
6 and -educated youths joining the Islamic State of Iraq and Levant (ISIL) principally because
7 they feel excluded in Western nations (Foster, 2014).
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10 The choice of the IHDI as a proxy for inclusive development is consistent with recent African
11 literature on inclusive development (Asongu *et al.*, 2015). The IHDI represents the national
12 average of achievements in three key areas, namely: knowledge; health and long life and
13 decent standards of living. Beside, accounting for average rewards in terms of wealth,
14 education and health, the IHDI also controls for the distribution of underlying achievements
15 among the population by accounting for mean values of each dimension with regards to
16 inequality.
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19 In order to ensure that the estimated results are not biased by omitted variables, the
20 study includes seven control variables: lagged governance indicator, inflation, education,
21 Gross Domestic Product (GDP) growth, internet penetration, government expenditure and
22 foreign direct investment (FDI). The quality of government has been documented to be
23 positively related to information and communication technologies because they improve
24 transparency and accountability (Snow, 2009; Boulianne, 2009; Diamond, 2010; Grossman *et*
25 *al.*, 2014). High income nations have been documented to be linked to better quality of
26 government in Africa (Asongu, 2012, p. 191). From intuition, increasing prices is very likely
27 to positively influence governance standards because authorities are prompted to device and
28 implement policies that control for inflation. Financial globalisation within the framework of
29 FDI positively affects political governance both in developing (Lalountas *et al.*, 2011) and
30 African (Asongu, 2014) countries. Cheung and Chan (2008) and Lederman *et al.* (2005) have
31 established that increased schooling boosts governance standards. Governance is also strongly
32 associated with government expenditure (Asongu & Nwachukwu, 2016a). Definitions of
33 variables are provided in Appendix 1, the summary statistics in Appendix 2 and the
34 correlation matrix in Appendix 3.
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50 **3.2 Methodology**

51 *3.2.1 Estimation specification*

52 Five principal reasons motivate the choice of a Generalized Method of Moments
53 (GMM) (Asongu & De Moor, 2017; Tchamyoun *et al.*, 2018). First, the governance variables
54 should be persistent. This is the case because, as apparent in Appendix 4, the correlation
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between governance variables and their first lags are higher than the rule of thumb threshold of 0.800 that is needed to establish persistence in dependent variables. Second, the number of countries (N) is higher than the number of years per country (T). Hence, the sample of the study is consistent with the N(53)>T(5) criterion. Third, the estimation strategy accounts for endogeneity in the all regressors. Fourth, cross-country differences are taken into account in the estimation technique. Fifth, small sample biases that are typical of the ‘difference estimator’ are controlled-for in the system GMM technique. It is essentially for this fifth reason that the system GMM estimator from Arellano and Bover (1995) and Blundell and Bond (1998) has been established to be better than the difference GMM estimator from Arellano and Bond (1991) (see Bond *et al.*, 2001).

Within the framework of this inquiry, the Roodman (2009ab) extension of Arellano and Bover (1995) is adopted. In essence, instead of employing first differences, the estimation approach uses forward orthogonal deviations because the latter limits instrument proliferation (or restricts over-identification) and controls for cross-sectional dependence (see Baltagi, 2008; Love & Zicchino, 2006; Boateng *et al.*, 2018). A *two-step* estimation approach is adopted in place of the *one-step* strategy because it accounts for heteroscedasticity. It is interesting to note that the *one-step* approach is homoscedasticity-consistent.

The following equations in levels (1) and first difference (2) summarise the standard system GMM estimation procedure.

$$G_{i,t} = \sigma_0 + \sigma_1 G_{i,t-\tau} + \sigma_2 T_{i,t} + \sigma_3 P_{i,t} + \sigma_4 TP_{i,t} + \sum_{h=1}^6 \delta_h W_{h,i,t-\tau} + \eta_i + \xi_t + \varepsilon_{i,t} \quad (1)$$

$$G_{i,t} - G_{i,t-\tau} = \sigma_1 (G_{i,t-\tau} - G_{i,t-2\tau}) + \sigma_2 (T_{i,t} - T_{i,t-\tau}) + \sigma_3 (P_{i,t} - P_{i,t-\tau}) + \sigma_4 (TP_{i,t} - TP_{i,t-\tau}) + \sum_{h=1}^6 \delta_h (W_{h,i,t-\tau} - W_{h,i,t-2\tau}) + (\xi_t - \xi_{t-\tau}) + (\varepsilon_{i,t} - \varepsilon_{i,t-\tau}) \quad (2)$$

where: $G_{i,t}$ is a governance indicator (political, economic or institutional governance) of country i at period t ; $T_{i,t}$, is a terrorism variable (domestic and transnational); $P_{i,t}$, is a policy variable (inclusive development or military expenditure); $TP_{i,t}$, is the interaction between terrorism and a policy variable; σ_0 is a constant; τ represents the coefficient of autoregression; W is the vector of control variables (*internet penetration, GDP growth, inflation, foreign direct investment, education and government expenditure*); η_i is the country-specific effect; ξ_t is the time-specific constant and $\varepsilon_{i,t}$ the error term.

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4 3.2.2 Identification, simultaneity and exclusion restriction
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6 A robust GMM specification requires a discussion on issues pertaining to
7 identification, simultaneity and exclusive restrictions. All independent indicators are
8 suspected endogenous or predetermined variables (see Dewan & Ramaprasad, 2014; Asongu
9 & De Moor, 2017; Tchamyoun, 2018). Hence, the *gmmstyle* is adopted for these variables and
10 only years are treated as exogenous. The technique for treating the *ivstyle* (years) is ‘iv(years,
11 eq(diff))’ because it is not likely for years to become endogenous in first-difference (see
12 Roodman, 2009b).
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17 In order to address the concern of simultaneity, lagged regressors are employed as
18 instruments for forward-differenced variables. Accordingly, Helmet transformations are
19 performed in order to eliminate fixed effects that could affect the examined relationships. This
20 strategy which is consistent with Love and Zicchino (2006) and Tchamyoun and Asongu
21 (2017) consists of obtaining forward mean-differences of variables. Thus, instead of
22 subtracting the previous observation for the contemporaneous one (see Roodman, 2009b, p.
23 104), the mean of all future observations are deducted from the variables.
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28 The transformation enables orthogonal or parallel conditions between lagged values
29 and forward-differenced values. Irrespective of the number of lags, in order to reduce data
30 loss, with the exception of the last observation for each cross-section, the transformations are
31 computed for all observations “*And because lagged observations do not enter the formula,*
32 *they are valid as instruments*” (Roodman (2009b, p. 104). Hence, the System GMM
33 specification is also designed to address the endogeneity problem associated with control
34 variables.
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40 In the light of the above, among instrumental variables, years are considered
41 exclusively exogenous and hence, affect governance only through the endogenous explaining
42 indicators. The statistical relevance of the exclusive restriction is investigated with the
43 Difference in Hansen Test (DHT) for the exogeneity of instruments. In essence, the
44 alternative hypothesis of the test should be rejected for the instruments to explain governance
45 exclusively through the endogenous variables.
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49 Accordingly, while in the standard instrumental variable (IV) approach, failure to reject the
50 null hypothesis of the Sargan Overidentifying Restrictions (OIR) test means that the
51 instruments do not elucidate the dependent variable beyond the endogenous explaining
52 variables (see Beck et al., 2003; Asongu & Nwachukwu, 2016b), in the GMM approach with
53 forward orthogonal deviations, the DHT is the information criterion used to assess if years
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3 exhibit strict exogeneity by explaining the dependent variables exclusively via the proposed
4 channels. Hence, the exclusion restriction is confirmed if the null hypothesis of the DHT
5 corresponding to IV (year, eq(diff)) is not rejected.
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8 9 **4. Empirical results**

10 **4.1 Presentation of results**

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12 Table 1, Table 2 and Table 3 respectively present findings corresponding to political
13 governance, economic governance and institutional governance. For all three tables, four
14 principal information criteria are employed to assess the validity of the GMM model with
15 forward orthogonal deviations. First, the alternative hypothesis of the second-order Arellano
16 and Bond autocorrelation test (AR(2)) in difference which argues for the absence of
17 autocorrelation in the residuals should be rejected. Second, the null hypotheses of the Sargan
18 and Hansen over-identification restrictions (OIR) tests should not be rejected because they are
19 positions that instruments are valid or not correlated with the error terms. Accordingly,
20 whereas the Sargan OIR test is not robust but not weakened by instruments, the Hansen OIR
21 is robust but weakened by instruments. For the purpose of restricting identification or limiting
22 the proliferation of instruments, we have ensured that for most specifications, instruments are
23 lower than the number of cross-sections. Third, the Difference in Hansen Test (DHT) for
24 exogeneity of instruments is also employed to assess the validity of results from the Hansen
25 OIR test. Fourth, a Fisher test for the joint validity of estimated coefficients is also disclosed.
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35 The findings are discussed in terms of marginal impacts and net effects and the latter
36 effects are computed with the unconditional effect of terrorism and the conditional impact
37 which is based on the interaction between the terrorism and policy variables. For instance in
38 Table 1 on ‘linkages between governance, terrorism and policy variables’, in the second
39 column, the unconditional impact of domestic terrorism is -0.072, the conditional impact from
40 the interaction between domestic terrorism and military expenditure is 0.034, while the net
41 effect of the role of ‘military expenditure in domestic terrorism for political governance’ is
42 0.0043 ($[2.245 \times 0.034] + -0.072$)³. This approach to net effect from interactive regressions is
43 consistent with recent literature on the use of policy variables to modulate the effect of policy
44 syndromes on development outcomes, notably: the role of information and communication
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52 ³2.245 is the mean value of military expenditure. It is important to note that, in the interpretation of findings
53 from interactive regressions, we overlook the signs of constituents and focus on net effects because the concern
54 of multicollinearity is overlooked in the specifications. Brambor *et al.* (2006) aptly discuss this concern of
55 multicollinearity. It is also relevant to note that when variables with a high degree of substitution are entered into
56 the same specification, there is a conflict and not all variables emerge from the regression output with the
57 expected sign (see Beck *et al.*, 2003). This is why net effects must be computed for an overall effect.
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technology (ICT) in mitigating the effect of environmental degradation on inclusive development (Asongu *et al.*, 2017b) and the relevance of ICT in dampening the potentially negative effect of globalisation on environmental outcomes (Asongu, 2018).

The following main findings can be established for Table 1 on political governance and terrorism. The negative effect of domestic terrorism on voice and accountability is significantly mitigated by military expenditure because the marginal (or conditional) and net effects are positive. Most of the control variables are significant with expected signs.

Table 1: Political governance and terrorism

		Dependent variable: Political Governance							
		Voice and Accountability (VA)				Political Stability (PS)			
		Role of Military Expend.		Role of Inclusive Dev.		Role of Military Expend.		Role of Inclusive Dev.	
		Domestic	Trans.	Domestic	Trans.	Domestic	Trans.	Domestic	Trans.
		Terror	Terror	Terror	Terror	Terror	Terror	Terror	Terror
Constant		0.100** (0.022)	0.133* (0.051)	-0.078* (0.082)	-0.097** (0.017)	-0.418*** (0.007)	-0.170* (0.078)	-0.175** (0.027)	-0.197*** (0.003)
VA(-1)		0.971*** (0.000)	0.916*** (0.000)	0.977*** (0.000)	0.955*** (0.000)	---	---	---	---
PS(-1)		---	---	---	---	0.851*** (0.000)	0.828*** (0.000)	0.843*** (0.000)	0.823*** (0.000)
Domestic Terrorism (DT)		-0.072*** (0.000)	---	-0.061 (0.231)	---	-0.111*** (0.002)	---	-0.175 (0.179)	---
Transnational Terrorism (TT)		---	-0.085*** (0.004)	---	-0.013 (0.901)	---	-0.354*** (0.000)	---	-0.350** (0.016)
Military Expenditure		-0.018 (0.437)	-0.017 (0.494)	---	---	0.070 (0.124)	0.074** (0.013)	---	---
Inclusive development		---	---	-0.045 (0.272)	-0.003*** (0.000)	---	---	-0.032 (0.703)	-0.0001 (0.804)
Military Expenditure×DT		0.034*** (0.000)	---	---	---	0.002 (0.895)	---	---	---
Inclusive development×DT		---	---	0.113 (0.312)	---	---	---	0.084 (0.715)	---
Military Expenditure×TT		---	-0.010 (0.601)	---	---	---	-0.035 (0.253)	---	---
Inclusive development×TT		---	---	---	-0.097 (0.664)	---	---	---	-0.157 (0.580)
Internet		0.008*** (0.000)	0.009*** (0.000)	0.002** (0.021)	0.003*** (0.000)	0.001 (0.297)	0.010*** (0.000)	-0.002** (0.017)	0.005*** (0.000)
GDP growth		0.006* (0.085)	0.001 (0.814)	0.005 (0.322)	0.007 (0.207)	0.017*** (0.008)	0.010 (0.130)	-0.002 (0.524)	-0.001 (0.754)
Inflation		0.015*** (0.000)	0.013*** (0.001)	0.002 (0.322)	0.004 (0.107)	0.013*** (0.000)	0.015*** (0.002)	0.004 (0.178)	0.016*** (0.000)
Foreign investment		-0.004** (0.027)	-0.001 (0.586)	-0.0007 (0.656)	-0.003*** (0.005)	-0.001 (0.517)	0.0008 (0.822)	-0.0002 (0.922)	-0.0007 (0.880)
Education		-0.003*** (0.001)	-0.004*** (0.000)	-0.0002 (0.581)	-0.0006 (0.146)	0.002* (0.069)	-0.003*** (0.001)	0.003*** (0.000)	-0.0001 (0.537)
Government Expenditure		-0.0001 (0.885)	0.0006** (0.029)	0.0003 (0.647)	-0.0002 (0.750)	-0.002*** (0.000)	-0.001*** (0.002)	-0.002*** (0.000)	-0.0008*** (0.001)
Net effects		0.0043	na	na	na	na	na	na	na
AR(1)		(0.016)	(0.043)	(0.002)	(0.028)	(0.104)	(0.104)	(0.082)	(0.139)
AR(2)		(0.370)	(0.772)	(0.851)	(0.967)	(0.461)	(0.858)	(0.407)	(0.977)
Sargan OIR		(0.531)	(0.527)	(0.124)	(0.373)	(0.054)	(0.064)	(0.031)	(0.114)
Hansen OIR		(0.194)	(0.289)	(0.365)	(0.369)	(0.600)	(0.523)	(0.330)	(0.325)
DHT for instruments									
(a) Instruments in levels									
H excluding group		(0.582)	(0.593)	(0.345)	(0.708)	(0.629)	(0.395)	(0.815)	(0.727)
Diff(null, H=exogenous)		(0.112)	(0.187)	(0.401)	(0.213)	(0.493)	(0.560)	(0.145)	(0.171)
(b) IV (years, eq(diff))									
H excluding group		(0.363)	(0.540)	(0.448)	(0.507)	(0.495)	(0.647)	(0.557)	(0.292)
Diff(null, H=exogenous)		(0.061)	(0.046)	(0.195)	(0.129)	(0.780)	(0.164)	(0.061)	(0.479)
Fisher		10814.02***	14877.3***	122063***	256325***	14527.81***	2751.02***	36204.3***	1.37e+7***
Instruments		42	42	42	42	42	42	42	42

Countries	44	44	43	43	44	44	43	43
Observations	124	124	121	121	124	124	121	121

***, **, * significance levels of 10%, 5% and 1% respectively. 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. na: not applicable because at least one coefficient needed for the computation of net effect is not significant. Expend: Expenditure. Dev: Development.

Table 2: Economic governance and terrorism

	Dependent variable: Economic Governance							
	Regulation Quality (RQ)				Government Effectiveness (GE)			
	Role of Military Expend.		Role of Inclusive Dev.		Role of Military Expend.		Role of Inclusive Dev.	
	Domestic	Trans.	Domestic	Trans.	Domestic	Trans.	Domestic	Trans.
	Terror	Terror	Terror	Terror	Terror	Terror	Terror	Terror
Constant	-0.313*** (0.000)	-0.228*** (0.000)	-0.260*** (0.000)	-0.034 (0.394)	-0.221*** (0.000)	-0.243*** (0.000)	-0.163*** (0.002)	-0.159*** (0.002)
RQ(-1)	0.823*** (0.000)	0.904*** (0.000)	0.839*** (0.000)	0.888*** (0.000)	---	---	---	---
GE(-1)	---	---	---	---	0.938*** (0.000)	0.922*** (0.000)	0.873*** (0.000)	0.884*** (0.000)
Domestic Terrorism (DT)	0.031** (0.038)	---	-0.018*** (0.005)	---	-0.025 (0.140)	---	-0.145*** (0.000)	---
Transnational Terrorism (TT)	---	0.044 (0.342)	---	0.204*** (0.000)	---	0.044 (0.140)	---	0.032 (0.628)
Military Expenditure	-0.016 (0.334)	0.049*** (0.002)	---	---	0.022 (0.184)	0.087*** (0.000)	---	---
Inclusive development	---	---	-0.004*** (0.000)	0.010*** (0.000)	---	---	-0.082*** (0.000)	0.001*** (0.000)
Military Expenditure×DT	0.006 (0.493)	---	---	---	0.011 (0.265)	---	---	---
Inclusive development×DT	---	---	(omitted)	---	---	---	0.229*** (0.000)	---
Military Expenditure×TT	---	-0.074*** (0.001)	---	---	---	-0.109*** (0.000)	---	---
Inclusive development×TT	---	---	---	-0.621*** (0.000)	---	---	---	-0.321** (0.024)
Internet	-0.006** (0.023)	0.0005 (0.450)	-0.001*** (0.000)	0.005*** (0.000)	-0.003*** (0.003)	0.0002 (0.819)	-0.0008 (0.172)	0.001** (0.030)
GDP growth	-0.008** (0.011)	-0.005** (0.042)	0.003 (0.271)	-0.005 (0.155)	0.008** (0.021)	0.0007 (0.795)	0.008 (0.121)	0.008 (0.117)
Inflation	0.0009 (0.772)	-0.001 (0.612)	0.0006 (0.647)	-0.003*** (0.002)	0.004 (0.199)	0.0003 (0.880)	-0.002 (0.185)	-0.0003 (0.723)
Foreign investment	0.001 (0.187)	0.004*** (0.006)	0.002*** (0.002)	0.001** (0.034)	-0.003*** (0.000)	-0.0008 (0.397)	-0.002** (0.029)	-0.001 (0.161)
Education	0.007*** (0.000)	0.003*** (0.000)	0.003*** (0.000)	-0.0001 (0.800)	0.002*** (0.001)	0.001** (0.018)	0.002*** (0.000)	0.001* (0.050)
Government Expenditure	0.001*** (0.000)	0.001*** (0.000)	0.0007*** (0.001)	0.001*** (0.000)	0.0005 (0.127)	0.001*** (0.000)	-0.000005 (0.986)	0.0004 (0.105)
Net effects	na	na	na	-0.337	na	na	0.054	na
AR(1)	(0.395)	(0.172)	(0.519)	(0.112)	(0.396)	(0.197)	(0.604)	(0.625)
AR(2)	(0.038)	(0.137)	(0.639)	(0.257)	(0.133)	(0.109)	(0.146)	(0.077)
Sargan OIR	(0.451)	(0.411)	(0.011)	(0.298)	(0.006)	(0.022)	(0.001)	(0.001)
Hansen OIR	(0.384)	(0.438)	(0.018)	(0.700)	(0.300)	(0.289)	(0.276)	(0.337)
DHT for instruments								
(a) Instruments in levels								
H excluding group	(0.685)	(0.410)	(0.648)	(0.151)	(0.686)	(0.724)	(0.584)	(0.365)
Dif(null, H=exogenous)	(0.236)	(0.443)	(0.005)	(0.943)	(0.165)	(0.145)	(0.180)	(0.352)
(b) IV (years, eq(diff))								
H excluding group	(0.483)	(0.315)	(0.131)	(0.587)	(0.301)	(0.342)	(0.210)	(0.276)
Dif(null, H=exogenous)	(0.177)	(0.883)	(0.005)	(0.847)	(0.355)	(0.224)	(0.667)	(0.606)
Fisher	1140.16***	3220.94***	2.07e+6***	6.15e+6***	2167.52***	9778.05***	135594***	290830***
Instruments	42	42	42	42	42	42	42	42
Countries	44	44	43	43	44	44	43	43
Observations	124	124	121	121	124	124	121	121

***, **, * significance levels of 10%, 5% and 1% respectively. 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. na: not applicable because at least one coefficient needed for the computation of net effect is not significant. Omitted: omitted due to multicollinearity. Expend: Expenditure. Dev: Development.

Table 3: Institutional governance and terrorism

		Dependent variable: Institutional Governance							
		Rule of Law (RL)				Corruption Control (CC)			
		Role of Military Expend.		Role of Inclusive Dev.		Role of Military Expend.		Role of Inclusive Dev.	
		Domestic	Trans.	Domestic	Trans.	Domestic	Trans.	Domestic	Trans.
		Terror	Terror	Terror	Terror	Terror	Terror	Terror	Terror
8	Constant	-0.077 (0.103)	-0.076** (0.043)	-0.260*** (0.000)	-0.133** (0.011)	0.008 (0.884)	-0.032 (0.415)	-0.102** (0.018)	-0.007 (0.863)
9	RL(-1)	0.890*** (0.000)	0.851*** (0.000)	0.839*** (0.000)	0.870*** (0.000)	---	---	---	---
10	CC(-1)	---	---	---	---	0.885*** (0.000)	0.950*** (0.000)	0.832*** (0.000)	0.866*** (0.000)
12	Domestic Terrorism (DT)	-0.071*** (0.000)	---	-0.018*** (0.005)	---	-0.001 (0.927)	---	0.013 (0.176)	---
14	Transnational Terrorism (TT)	---	-0.054** (0.019)	---	-0.141*** (0.009)	---	0.087*** (0.002)	---	0.253*** (0.005)
15	Military Expenditure	-0.034*** (0.002)	0.003 (0.793)	---	---	-0.079*** (0.001)	0.024*** (0.008)	---	---
17	Inclusive development	---	---	-0.004*** (0.000)	-0.002*** (0.000)	---	---	-0.003*** (0.000)	-0.003*** (0.000)
18	Military Expenditure× DT	0.049*** (0.000)	---	---	---	0.019** (0.015)	---	---	---
19	Inclusive development×DT	---	---	(omitted)	---	---	---	(omitted)	---
21	Military Expenditure×TT	---	-0.018 (0.139)	---	---	---	-0.074*** (0.000)	---	---
22	Inclusive development×TT	---	---	---	0.137 (0.121)	---	---	---	-0.688*** (0.000)
24	Internet	-0.001 (0.358)	0.003*** (0.000)	-0.001*** (0.000)	0.001*** (0.000)	-0.003 (0.137)	0.001 (0.396)	-0.0007 (0.505)	0.002*** (0.008)
25	GDP growth	-0.003 (0.275)	0.002 (0.653)	0.003 (0.271)	-0.0004 (0.924)	-0.006 (0.116)	-0.003 (0.353)	-0.013*** (0.001)	-0.010*** (0.008)
27	Inflation	0.0005 (0.784)	0.0003 (0.805)	0.0006 (0.647)	0.002 (0.147)	-0.007* (0.051)	-0.010*** (0.004)	-0.010*** (0.000)	-0.010*** (0.000)
28	Foreign investment	0.001 (0.140)	0.0008 (0.317)	0.002*** (0.002)	0.001** (0.046)	0.001 (0.310)	0.002* (0.082)	0.002*** (0.000)	0.0006 (0.437)
29	Education	0.003*** (0.004)	0.00007 (0.928)	0.003*** (0.000)	0.0007* (0.099)	0.003** (0.018)	0.0006 (0.424)	0.002*** (0.000)	0.0005 (0.181)
31	Government Expenditure	0.0007*** (0.001)	0.001*** (0.000)	0.0007*** (0.001)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
33	Net effects	0.039	na	na	na	na	-0.079	na	-0.346
34	AR(1)	(0.333)	(0.104)	(0.519)	(0.453)	(0.061)	(0.070)	(0.089)	(0.099)
35	AR(2)	(0.767)	(0.454)	(0.639)	(0.503)	(0.680)	(0.551)	(0.480)	(0.331)
36	Sargan OIR	(0.206)	(0.009)	(0.011)	(0.077)	(0.867)	(0.751)	(0.546)	(0.273)
36	Hansen OIR	(0.326)	(0.313)	(0.018)	(0.298)	(0.331)	(0.712)	(0.135)	(0.207)
37	DHT for instruments								
38	(a) Instruments in levels								
39	H excluding group	(0.464)	(0.405)	(0.648)	(0.329)	(0.536)	(0.577)	(0.404)	(0.200)
39	Diff(null, H=exogenous)	(0.280)	(0.297)	(0.005)	(0.328)	(0.251)	(0.668)	(0.106)	(0.306)
40	(b) IV (years, eq(diff))								
41	H excluding group	(0.261)	(0.413)	(0.131)	(0.320)	(0.321)	(0.745)	(0.444)	(0.490)
42	Diff(null, H=exogenous)	(0.627)	(0.157)	(0.005)	(0.297)	(0.399)	(0.336)	(0.012)	(0.026)
43	Fisher	33838.9***	4334.01***	2.07e+6***	51724.9***	1329.78***	1904.75***	949900***	108926***
43	Instruments	42	42	42	42	42	42	42	42
44	Countries	44	44	43	43	44	44	43	43
45	Observations	124	124	121	121	124	124	121	121

***, **, *: significance levels of 10%, 5% and 1% respectively. 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. na: not applicable because at least one coefficient needed for the computation of net effect is not significant. Omitted: omitted due to multicollinearity. Expend: Expenditure. Dev: Development.

In Table 2 on the linkage between economic governance and terrorism, two specifications are invalid because either the instruments are invalid and/or autocorrelation is still apparent in the residuals. First, the net effect of inclusive development in reducing transnational (domestic) terrorism for better regulation quality (government effectiveness) is negative (positive).

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3 Second, there is some evidence of a negative threshold in the interaction between: (i) military
4 expenditure and transnational terrorism for regulation quality on the one hand and
5 government effectiveness on the other hand and; (ii) inclusive development and transnational
6 terrorism for government effectiveness. A negative threshold effect is established when the
7 unconditional effect of terrorism is not significant while the conditional effect from the
8 interaction between a policy and terrorism is negative. In other words, a certain level of the
9 policy variable is required for the underlying terrorism indicator to have an adverse effect on
10 governance.
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15 Most of the significant control variables display expected signs. Contingency of
16 control variables on specifications is not uncommon as these also depend on the unobserved
17 heterogeneity and specifications. The relevance of growth, education and internet penetration
18 are contingent on the underlying. All these variables can both increase and decrease
19 governance. There is no consensus on the effect of education on governance. Evidence on the
20 absence of this consensus and corresponding studies arguing for both positive and negative
21 effects is documented by Asongu and Nwachukwu (2016a). Moreover, the internet can be
22 used to improve governance standards (e.g. through freedom of expression) or employed to
23 decrease governance standards (e.g. via censorship). Finally, exclusive growth naturally
24 decreases governance standards whereas inclusive growth has the opposite effect.
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31 The following conclusions can be drawn from Table 3 on the linkage between
32 institutional governance and terrorism: (i) the net effect of military expenditure in reducing
33 domestic (resp. transnational) terrorism for enhanced rule of law (control of corruption) is
34 positive (resp. negative); while the net impact of inclusive development in reducing
35 transnational terrorism for better corruption-control is negative and; (ii) there is some
36 evidence of a positive threshold in the interaction between military expenditure and domestic
37 terrorism for more control of corruption. A positive threshold effect is established when the
38 unconditional effect of terrorism is not significant, while the conditional effect from the
39 interaction between a policy variable and terrorism is positive. In other words, a certain level
40 of the policy variable is required for the underlying terrorism indicator to have a positive
41 effect on governance.
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51 **4.2 Further discussion of results and policy implications**

52 After comparing and contrasting the findings of Tables 1-3, two tendencies are worth
53 elucidating further, notably: (i) the negative net effect on governance (regulation quality and
54 corruption-control) when inclusive human development is used to reduce terrorism and (ii)
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3 the positive net impact on governance (“voice and accountability” and rule of law) when
4 military expenditure is used to reduce domestic terrorism.
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6 First, negative net effects from interactions with inclusive development show that
7 there is a direct implication from exclusive development and an indirect implication from the
8 role of the elite in policies of exclusive development. Inclusive development in the sampled
9 countries may not be enough to mitigate the potentially negative effect of terrorism on
10 governance. This is not surprising given that a recent World Bank report on the attainment of
11 Millennium Development Goals (MDGs) extreme poverty target has revealed that extreme
12 poverty has been decreasing in regions of the world with the exception of Africa where about
13 45% of the countries in the Sub-Saharan African region were still substantially off-track from
14 the MDG extreme poverty target (World Bank, 2015). This is in sharp contrast to the
15 appealing statistics of the continent enjoying more than two decades of growth resurgence that
16 began in the mid 1990s (see Fosu, 2015; Kuada, 2015).
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24 Further, the role of inclusive development in the overall negative effect could imply
25 that in spite of sampled countries’ efforts towards enhancing the equitable distribution of the
26 fruits of economic growth, the impacts may be counter-productive owing to frustrations from
27 some spheres of influence that are unsympathetic with the equitable distribution policies. The
28 underlying influence is more likely among the elite who could be concerned that such
29 redistributive policies negatively affect their interests. Within this framework, grievances and
30 discontent over the inequitable distribution of the fruits of economic development is not from
31 poor factions of the population. On the contrary, such resentment is from the elite that for the
32 most part are situated in the upper- and middle-income strata. In essence, such elite could be
33 concerned and infuriated over the more equitable distribution of economic resources and
34 gains. The elite can also fund violent activities in view of creating instability so that
35 eventually a terror-panic environment creates the necessary conditions for them to tailor and
36 reinvent existing institutions to the protection of their rents and interests.
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45 The above practical implication relating to inclusive development is broadly in
46 accordance with narratives on the African middle class which is not sympathetic to concerns
47 about inclusiveness because of her dependence on state resources and preference for specific
48 markets (see Poulton, 2014). Moreover, the corresponding stand of literature is consistent
49 with the perspective that the African middle class is very likely to employ skillful internal
50 (e.g. civil unrest/war) and external tactics (e.g. terrorism) in view of hampering socio-
51 economic transformations, with the ultimate ambition of maintaining a tight grip on politico-
52 economic power (see Poulton, 2014; Resnick, 2015). Hence, in the light of the narrative, the
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3 elite and middle class could coordinate activities that result in temporal chaos and unrest with
4 the goal of reinventing and tailoring institutions that work towards protecting their interests.
5 The inference is in accordance with the perspective that such frustrations for middle and upper
6 classes are substantially associated with political connections by the elite, as opposed to the
7 middle class and elite who are consolidating their income using level-playing field activities
8 like politically-free entreprising and innovation. The discourse is also in accordance with the
9 skeptical narrative on the influence of the middle class in governance transformations in
10 Africa (see Rodrik, 2015).
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16 Second, the appealing role of the military spending in reducing the potentially
17 negative effect of domestic terrorism challenges the existing literature which maintains that
18 military expenditure is insufficient in fighting terrorism because the effect might be
19 counterproductive (see Sandler, 2005; Lum *et al.*, 2006; Feridun & Shahbaz, 2010).
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22 The established evidence of terrorism significantly influencing governance is broadly
23 consistent with studies which have shown that terror events affect political outcomes (Berrebi
24 & Klor 2006; Siqueira & Sandler 2007), notably: terrorism affects the constitution of
25 governments and voters' perspectives (Jacobson, 2003; Langer & Cohen, 2005) and terrorism
26 has some leverage on government survival (Indridason *et al.*, 2008; Williams, 2012).
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32 **5. Conclusion and further research directions**

33 The study has investigated the role of inclusive human development and military
34 expenditure in the effect of terrorism on governance. It is based on 53 African countries for
35 the period 1998-2012 and interactive Generalised Method of Moments is employed. Six
36 governance indicators from the World Bank and two terrorism variables are used, namely:
37 domestic and transnational terrorism dynamics. The following findings are established. First,
38 on political governance, the negative effect of domestic terrorism on voice and accountability
39 is significantly mitigated by military expenditure because the marginal (or conditional) and
40 net effects are positive. Second, on economic governance, the net effect of inclusive
41 development in reducing transnational (resp. domestic) terrorism for better regulation quality
42 (government effectiveness) is negative (resp. positive). Third, with regards to institutional
43 governance, the net effect of military expenditure in reducing domestic (resp. transnational)
44 terrorism for enhanced rule of law (control of corruption) is positive (resp. negative) while the
45 net impact of inclusive development in reducing transnational terrorism for better corruption-
46 control is negative.
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A caveat to this study is that governance variables are inherently subjective since they are based on perceptions. Another criticism put forward can be that the short periodicities do not capture changes for most countries, with the exception of countries which experience substantial governance crises and reforms. Unfortunately, the current data is limiting in that governance indicators are only available from the year 1996. As more data become available, the highlighted issues can be addressed in greater detail. This recommendation also extends to the issue of missing observations apparent in the study.

Given the diversity of signs and significance levels, the inference of causality may be questionable which could require the substitution of terms like “cause” or “effect” with terms like “association” or “link”. The overall effect is based on net effects which may be positive and negative for certain government dynamics. Hence we do not expect the net effects to be uniform in sign. However, important tendencies (such as variations in the signs of net effects) emerge that raise important questions for future research.

Appendices

Appendix 1: Definitions of variables

Variables	Signs	Definitions of variables (Measurement)	Sources
Political Stability	PS	“Political stability/no violence (estimate): measured as the perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional and violent means, including domestic violence and terrorism”	World Bank (WDI)
Voice & Accountability	VA	“Voice and accountability (estimate): measures the extent to which a country’s citizens are able to participate in selecting their government and to enjoy freedom of expression, freedom of association and a free media”.	World Bank (WDI)
Government Effectiveness	GE	“Government effectiveness (estimate): measures the quality of public services, the quality and degree of independence from political pressures of the civil service, the quality of policy formulation and implementation, and the credibility of governments’ commitments to such policies”.	World Bank (WDI)
Regulation Quality	RQ	“Regulation quality (estimate): measured as the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development”.	World Bank (WDI)
Rule of Law	RL	“Rule of law (estimate): captures perceptions of the extent to which agents have confidence in and abide by the rules of society and in particular the quality of contract enforcement, property rights, the police, the courts, as well as the likelihood of crime and violence”.	World Bank (WDI)
Corruption-Control	CC	“Control of corruption (estimate): captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as ‘capture’ of the state by elites and private interests”.	World Bank (WDI)
Domestic	Domter	Number of Domestic terrorism incidents (in Ln)	Ender et al. (2011)

terrorism				and Gailbulloev et al. (2012)
Transnational terrorism	Tranter	Number of Transnational terrorism incidents (in Ln)		
Inclusive development	IHDI	Inequality Adjusted Human Development Index		UNDP
Military Expense	Milit	Military Expenditure (% of GDP)		World Bank (WDI)
Internet	Internet	Internet penetration (per 100 people)		World Bank (WDI)
Growth	GDPg	Gross Domestic Product (GDP) growth rates (annual %)		World Bank (WDI)
Inflation	Inflation	Consumer Price Index (annual %)		World Bank (WDI)
Foreign investment	FDI	Foreign direct investment net inflows (% of GDP)		World Bank (WDI)
Education	Educ	Secondary school enrolment (% of Gross)		World Bank (WDI)
Government Expenditure	G.Exp.	Government's Final Consumption Expenditure (% of GDP)		World Bank (WDI)

WDI: World Bank Development Indicators. UNDP: United Nations Development Program. Ln: Natural logarithm.

Appendix 2: Summary statistics

	Mean	SD	Minimum	Maximum	Observations
Political Stability	-0.551	0.929	-3.297	1.087	265
Voice & Accountability	-0.679	0.723	-2.155	1.009	265
Government Effectiveness	-0.723	0.620	-2.354	0.823	265
Regulation Quality	-0.695	0.638	-2.630	0.906	265
Rule of Law	-0.706	0.660	-2.595	1.032	265
Control of Corruption	-0.602	0.577	-1.848	0.971	265
Domestic terrorism	0.401	0.805	0.000	4.781	265
Transnational terrorism	0.203	0.451	0.000	2.802	265
Inclusive development	0.872	4.210	0.161	45.231	220
Military Expenditure	2.245	2.899	0.151	35.846	231
Internet penetration	4.766	8.022	0.002	51.174	264
GDP growth	4.706	4.230	-8.149	32.265	259
Inflation	10.012	25.435	-6.934	275.983	242
Foreign direct investment	5.125	7.175	-4.265	52.398	259
Education (secondary)	42.416	25.022	5.608	111.454	201
Government Expenditure	8.715	22.623	-62.668	206.7	206

S.D: Standard Deviation.

Appendix 3: Correlation matrix

Governance variables						Control variables						Terrorism variables		Policy variables		
PS	VA	GE	RQ	CC	RL	Internet	FDI	GDPg	Inflation	Educ	G.Exp.	Domter	Tranter	IHDI	Military	
1.000	0.658	0.643	0.608	0.771	0.758	0.084	0.033	-0.074	-0.234	0.368	-0.188	-0.605	-0.584	0.029	-0.530	PS
	1.000	0.719	0.730	0.715	0.773	0.187	-0.092	-0.184	-0.049	0.390	-0.126	-0.263	-0.276	0.204	-0.266	VA
		1.000	0.890	0.872	0.892	0.303	-0.178	-0.184	-0.112	0.570	-0.143	-0.225	-0.271	0.237	-0.245	GE
			1.000	0.799	0.852	0.285	-0.226	-0.263	-0.130	0.481	-0.218	-0.186	-0.246	0.210	-0.216	RQ
				1.000	0.888	0.224	-0.099	-0.269	-0.166	0.523	-0.172	-0.294	-0.335	0.207	-0.312	CC
					1.000	0.302	-0.129	-0.241	-0.161	0.583	-0.194	-0.304	-0.308	0.134	-0.299	RL
						1.000	-0.103	-0.023	-0.062	0.535	-0.021	0.146	0.164	0.018	0.052	Internet
							1.000	0.482	0.105	-0.066	0.106	-0.133	-0.082	-0.056	-0.088	FDI
								1.000	0.124	-0.220	0.249	-0.006	0.007	-0.078	0.157	GDPg
									1.000	-0.003	0.195	0.181	0.247	0.0002	0.030	Inflation
										1.000	-0.061	0.036	-0.071	0.240	-0.082	Educ
											1.000	0.095	0.221	-0.038	-0.042	G.Exp.
												1.000	0.699	0.090	0.661	Domter
													1.000	0.052	0.107	Tranter
														1.000	0.052	IHDI
															1.000	Military

PS: Political Stability/Non violence. VA: Voice & Accountability. GE: Government Effectiveness. RQ: Regulation Quality. CC: Corruption-Control. RL: Rule of Law. Internet: Internet Penetration. Educ: Secondary School enrolment.. FDI: Foreign Direct Investment. GDPg: Gross Domestic Product Growth. G.Exp: Government Expenditure. Domter: Domestic Terrorism. Tranter: Transnational Terrorism. IHDI: Inequality Adjusted Human Development Index. Military: Military Expenditure.

Appendix 4: Persistence of governance

	PS	VA	GE	RQ	CC	RL
PS(-1)	0.925					
VA(-1)		0.953				
GE(-1)			0.965			
RQ(-1)				0.966		
CC(-1)					0.936	
RL(-1)						0.966

PS: Political Stability/Non violence. PS(-1): Lagged value of Political Stability/Non violence.VA: Voice & Accountability.
GE: Government Effectiveness. RQ: Regulation Quality. CC: Corruption-Control. RL: Rule of Law.

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