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The Murder Epidemic: A Global Comparative Study

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Abstract

We build on literature from policy and academic circles to assess if Latin America is leading when it comes to persistence in homicides. The focus is on a global sample of 163 countries for the period 2010 to 2015. The empirical evidence is based on Generalised Method of Moments. The following main finding is established. The region with the highest evidence of persistence in homicides is sub-Saharan Africa (SSA), followed by Latin America, the Middle East and North Africa (MENA) and then by Europe & Central Asia (ECA). In order to increase room for policy implications, the dataset is decomposed into income levels, religious domination, landlockedness and legal origins. From the conditioning information set, the following factors account for persistence in global homicides: crime, political instability and weapons import positively affect homicides whereas the number of "security and police officers" has the opposite effect.

1. Introduction

This inquiry is motivated by two main tendencies in scholarly and policy-making circles, namely: (i) the importance of understanding whether   Latin America is leading when it comes to persistence in homicides and what factors account for persistence in global homicides and (ii) gaps in non-specific Latin America literature. The two points are discussed in chronological order[1].

First, Muggah and de Carvalho (2017) report that a young Latin American is murdered every fifteen minutes. According to the narrative, the most murderous part of the world is Latin America which has registered about 2.5 million homicides since the year 2000, in spite of gains in education, poverty, health and overall improvements in living standards. It is important to note that Latin America is host to 23 of the 25 most murderous cities and 44 of the 50 most homicidal countries. Moreover, as global murder rates fall, Latin America is experiencing rising murder rates. To put the tendency into more perspective, it is projected that if the current trend is not interrupted, by 2035 the present murder rate of approximately 22 per 100,000 people will rise to 35 per 100,000 people. Seven countries feature prominently in consolidating Latin America's position in global homicides, namely: Venezuela, Mexico, Honduras, Guatemala, El Salvador, Colombia and Brazil. These countries account for about 25% of world murders annually. In what follows, we substantiate the highlighted perspective with some country-specific literature.

In spite of the recent public safety improvements, Colombia is still experiencing some of the highest absolute number of murders in the world. With about 60, 000 assassinations annually, Brazil is the country with the highest homicide rate. San Salvador has retained the title of the world's murder capital for the second consecutive year: in 2016, its murder rate of 136.7 per 100,000 residents was about seventeen times the world's average. In a nutshell, Muggah and de Carvalho (2017) maintain that at least 33% of South and Central Americans are aware of somebody who has been murdered in the previous twelve months.

Noticeably, the literature documented by Muggah and de Carvalho (2017) leaves room for improvement in the perspective that, such tendencies should be substantiated with robust empirical studies in order to further inform policy markers of regions that are leading in global homicides. Understanding dominant world regions in homicides is important because it guides in a number of national and international policies, *inter alia*: tourism and

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[1] While this paper is positioned on studying whether Latin America is leading in terms of persistence in global homicides, the gap in the literature it aims of fill is more broad/global literature. This is our motivation for using a global dataset.

investment location decisions (Gibson, 2006; Bandyopadhyay et al., 2014). This study aims to assess whether the underlying literature withstands empirical scrutiny using a global dataset that is decomposed into many fundamental characteristics, notably in terms of regions (consisting of Europe & Central Asia; East Asia & the Pacific; Middle East & North Africa; sub-Saharan Africa; Latin America and North America).

Second, the positioning of this inquiry builds on the extant literature which has failed to assess whether Latin America is leading in the persistence of global homicides. Notably, recent studies include: the impact of homicides and economics on social and human biology (Bourne et al., 2015); a systematic review of the intimate partner homicide (Stöckl et al., 2013); international cross-national perspectives on violence and homicides (Ouimet & Montmagny-Grenier, 2014; Cole & Gramajo, 2009); the nexus between age and homicide (Rogers, 2014); police performance and homicides rates (Pare, 2014); research challenges on the punishment of homicide in Europe (Liem & Campbell, 2014); the impacts of excess infant mortality, income inequality and economic development on homicides (Ouimet, 2012); meta investigations on cross-national predictors of homicides (Nivette, 2011) and the nexus between inequality and homicide in developed countries (Jacobs & Richardson, 2008; Chamlin & Cochran, 2006).

This study complements the extant literature by attempting to answer the following question: is Latin America leading globally in the persistence of homicides? Therefore the hypothesis that Latin America is characterized by the highest degree of homicides in the world is tested. The theoretical basis for persistence in homicides fundamentally builds on the extant literature on convergence in development studies, notably: financial (Stephan & Tsapin, 2008; Goddard et al., 2011) and inclusive (Asongu & Nwachukwu, 2017a) developments. Moreover, the theoretical foundations are consistent with mainstream literature on income levels which has been documented within the remit of neoclassical growth models (see Barro, 1991; Barro & Sala-i-Martin, 1992, 1995; Mankiw et al., 1992; Baumol, 1986). Such underpinnings have been recently extended to other areas of development economics, notably: inclusive development (Mayer-Foulkes, 2010; Asongu, 2014a), terrorism (Asongu & Nwachukwu, 2018; Asongu et al., 2018a) and progress in financial markets (Narayan et al., 2011; Bruno et al., 2012; Asongu, 2013).

Note should be taken of the fact that, in the period of post-Keynesianism, new theories of economic growth gained prominence owing to the rapid development of the neoclassical revolution which enhanced changes in cross-country income levels. Within this theoretical remit, the concepts of market equilibrium have been extended to emphasize the basis of

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theories of economic development which estimated absolute decrease in income levels across countries. As maintained by Mayer-Foulkes (2010), such catch-up was largely traceable to conducive policies of "free market competition". Conversely, seminal studies also concluded on the absence of convergence (or presence of divergence) and justified such conclusions with, *inter alia*: the likelihood of multiple equilibria and differences in initial endowments (see Barro, 1991; Pritchett, 1997). On the contrary, there is another strand of the theoretical literature which maintains that regardless of initial conditions, variations in cross-country income levels are likely to be established within the framework of countries' steady state or long term equilibria (Asongu & Nwachukwu, 2017a).

Noticeably from the above, the contending strands of the literature have a common denominator in the criteria with which convergence is apparent, notably: the interval in which the lagged endogenous variable should be situated for persistence in the dependent variable to be established. It is important to clarify that the aim of this inquiry is neither to take sides in either strands (or schools of thought) on the relevance of the convergence hypothesis. In essence, within the framework of persistence in homicide, contingent on fundamental characteristics and related sub-panels, the results of this paper may validate both schools of thought.

Building on the above theoretical underpinnings, this paper explores persistence in homicides using global data. The concept of persistence or hysteria in homicide is understood in terms of how past observations in homicide influence future observations in homicide. Empirically, this hypothesis of persistence is confirmed with a dynamic model in which estimated coefficients corresponding to the variable denoting non-contemporary observations significantly influence observations of the contemporary variable. An example of a dynamic empirical strategy that can be used to assess the underlying hypothesis is the Generalised Method of Moments. This empirical strategy is consistent with recent literature (Asongu & Nwachukwu, 2018; Asongu et al., 2018a).

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

2. Data and Methodology

2.1 Data and background information

We investigate a panel of one hundred and sixty three countries with data for the period 2010 to 2015 from a plethora of sources, namely: the Uppsala Conflict Data Program (UCDP)

Battle-Related Deaths Dataset; Institute for Economics and Peace (IEP); a Qualitative assessment by the Economic Intelligence Unit (EIU) analysts' estimates; the United Nations Office on Drugs and Crime (UNODC) Surveys on Crime Trends; the Operations of Criminal Justice Systems (CTS) and the United Nations Committee on Contributions. The analysis is limited to 2010-2015 because of data availability constraints and the need to provided results with updated policy implications (Asongu, 2018).

The main dependent variable is the number of homicides (per 100,000 people). This intuitively reflects the prevalence of violence and deaths. The data on homicide is jointly from the UNODC, the CTS and EIU estimates. Indicators contained in the conditioning information set entail: crime; security officers & police; political instability; weapons import; displaced persons and military expenditure. These indicators in the conditioning information set have been documented as determinants of conflicts, crimes and homicides (see Freytag et al., 2011; Blanco & Grier, 2009; GPI, 2016).

Consistent with the motivation of the study, other regions are used to assess if Latin America is leading, notably: South Asia; Europe & Central Asia; East Asia & the Pacific; Middle East & North Africa (MENA); sub-Saharan Africa (SSA); Latin America and North America. In order to improve room for policy implications, the dataset is further decomposed into fundamental characteristics based on: (i) income levels (High income, Upper middle income, Lower middle income and Low income); (ii) religious domination (Christian with Catholic domination; Christian with Protestant inclination; Christian countries in which another Christian religion apart from Catholicism and Protestantism is dominant; Islam-dominated countries and Buddhist-oriented countries); (iii) openness to sea (Landlocked and Coastal countries) and (iv) legal origins (English Common law, French Civil law, German civil law countries, Scandinavian civil law countries and Socialists countries). In the narrative that follows, the information criteria for the selection of the fundamental features which is consistent with recent literature (D'Amico, 2010; Narayan et al., 2011; Beegle et al., 2016; Asongu & Le Roux, 2017; Mlachila et al., 2016; Asongu et al., 2017) are discussed.

The basis for classifying countries by legal origins is from La Porta et al. (2008, p. 289) while the decomposition according to income levels is from the World Bank's classification of income groups[2]. The classification by religious-domination is from the Central Intelligence Agency (CIA) World Fact Book (CIA, 2011) while landlocked countries are directly apparent on a world map.

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[2] There are four main World Bank income groups: (i) high income, $12,276 or more; (ii) upper middle income, $3,976-$12,275; (iii) lower middle income, $1,006-$3,975 and (iv) low income, $1,005 or less.

While fundamental characteristics such as legal traditions and income levels are common in comparative development literature, it is important to provide the intuition motivating distinctions based on religion and landlockedness. First, consistent with recent literature (see Arvis et al., 2007; Asongu & Le Roux, 2017), economic and institutional costs are related to landlockedness. Such an institutional cost may be a higher propensity to political instability, violence and homicides. Second, the relevance of religious domination is in line with Asongu and Nwachukwu (2017b) who have recently documented that Christian-dominated countries are less (more) conservative (liberal) when compared with their Islam-oriented counterparts. Consistent with the corresponding literature, within the framework of this study, we argue that a religion which is more liberal should be linked with more political instability (and by extension violence and homicides). This is essentially because liberal qualities such democracy and freedom of the press provide enabling conditions for citizens to voice their concerns through peaceful mechanisms that often turn violent compared to "stable autocratic" qualities which do not offer some avenues for the manifestation of grievances on the part of the population. Specific emphasis in put on the stability of autocracies (which is predominantly a feature of Islam-oriented countries) because, compared to their stable autocratic counterparts, violence and socio-economic unrests cannot be effectively controlled by failing and failed democratic states (see Lai 2007; Piazza 2008).

Details on the definitions of variables and corresponding sources as well as sampled countries can be found in Appendix 1. Appendix 2 provides the summary statistics. The correlation matrix is presented in Appendix 3.

2.2 Methodology

The empirical strategy adopted in this study is the Generalised Method of Moments (GMM) which is in accordance with the extant literature on the persistence of economic phenomena (see Asongu & Nwachukwu, 2017a; Doyle, 2017). In what follows, we discuss the five principal fundamentals motivating the choice of this empirical strategy. (i) The number of countries (163) is substantially higher than the number of periods in each cross section (6 years). (ii) The outcome variable is persistent because the correlation between homicides and its first lag is 0.988, which is higher than the rule of thumb threshold of 0.800 required for establishing persistence. (iii) The GMM technique which uses a panel data structure does not eliminate cross-country variations. (iv) The estimation strategy takes endogeneity into account by accounting for simultaneity in the explanatory variables through an instrumentation process on the one hand and controlling for the unobserved heterogeneity

with time-invariant indicators on the other hand. (v) Inherent biases that are characteristic of the *difference* estimator are corrected with the *system* estimator.

Within the framework of this inquiry, the Roodman (2009a, 2009b) empirical strategy is adopted. This is an extension of the Arellano and Bover (1995) model. Consistent with recent literature, when compared to the traditional empirical approach (*systems* and *difference* GMM approaches), this strategy decreases over-identification (or the proliferation of instruments) and accounts for cross-sectional dependence (Love & Zicchino, 2006; Baltagi, 2008; Boateng et al., 2018; Asongu & Nwachukwu, 2016a).

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

$$H_{i,t} = \sigma_0 + \sigma_1 H_{i,t-\tau} + \sum_{h=1}^{6} \delta_h W_{h,i,t-\tau} + \eta_i + \xi_t + \varepsilon_{i,t} \qquad (1)$$

$$H_{i,t} - H_{i,t-\tau} = \sigma_1(H_{i,t-\tau} - H_{i,t-2\tau}) + \sum_{h=1}^{6} \delta_h(W_{h,i,t-\tau} - W_{h,i,t-2\tau}) + (\xi_t - \xi_{t-\tau}) + \varepsilon_{i,t-\tau} \qquad , \qquad (2)$$

where, $H_{i,t}$ is the number of homicides in country i at period t, σ_0 is a constant, W is the vector of control variables (crime; security officers & police; political instability; weapons import; displaced persons and military expenditure), τ represents the coefficient of auto-regression which is one for the specification, ξ_t is the time-specific constant, η_i is the country-specific effect and $\varepsilon_{i,t}$ the error term.

It is important to substantiate the narrative with identification and exclusion restrictions which are indispensible for a good GMM specification. Identification refers to the choice of the dependent, endogenous explaining and strictly exogenous variables whereas exclusion restriction is the process by which the dependent variable is influenced by the strictly exogenous variables exclusively through the endogenous explaining variables. With respect to the exclusion restrictions, all explanatory indicators are defined as suspected endogenous or predetermined and only time invariant variables are considered to be strictly exogenous (see Boateng et al., 2018; Asongu & Nwachukwu, 2016b; Tchamyou, 2018). It is important to note that the selection and definition of time invariant indicators is consistent with Roodman (2009b) who has argued that it is not feasible for time invariant indicators to become endogenous after first difference[3].

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[3] Hence, the procedure for treating *ivstyle* (years) is 'iv (years, eq(diff))' whereas the *gmmstyle* is employed for predetermined variables.

Concerning the exclusion restrictions, consistent with the identification process, the time invariant variables affect homicides exclusively through the suspected endogenous explaining (or predetermined or suspected endogenous) variables. Furthermore, the underlying exclusion restriction assumption is valid if and only if the null hypothesis corresponding to the Difference in Hansen Test (DHT) for instrument exogeneity is not rejected. Put in other words, the instruments (or strictly exogenous variables) need to explain the number of homicides exclusively through the selected channels or suspected endogenous variables.

In the findings that are reported in Section 3, the assumption of exclusion restriction is valid if the null hypothesis of the DHT that is linked to instrumental variables (IV) (year, eq(diff)) is not rejected. It is relevant to note that the underlying process of validating exclusion restrictions is similar to the standard IV procedure in which, failure to reject the null hypothesis corresponding to the Sargan Overidentifying Restrictions (OIR) test implies that the strictly exogenous variables affect homicides exclusively through the suspected endogenous variable channels (see Beck et al., 2003; Asongu & Nwachukwu, 2016c).

3. Empirical results
3.1 Presentation of results

The empirical results are disclosed in Table 1 and Table 2. While Table 1 presents findings on regions and legal origins, Table 2 discloses results corresponding to income levels, religious domination and landlockedness. For either table, the last column presents findings corresponding to the full sample. Four main information criteria are used to examine the validity of the GMM models[4]. In the light of these criteria, most of the models are valid. However, it is relevant to also note that the validity of models is a necessary but not a sufficient for persistence in an outcome variable to be established. In what follows, we discuss these criteria.

In order for persistence to be established, the estimated lagged dependent variable has to be first of all significant and then meet the convergence criterion. The convergence

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[4] "*First, the null hypothesis of the second-order Arellano and Bond autocorrelation test (AR(2)) in difference for the absence of autocorrelation in the residuals should not be rejected. Second the Sargan and Hansen overidentification restrictions (OIR) tests should not be significant because their null hypotheses are the positions that instruments are valid or not correlated with the error terms. In essence, while the Sargan OIR test is not robust but not weakened by instruments, the Hansen OIR is robust but weakened by instruments. In order to restrict identification or limit the proliferation of instruments, we have ensured that instruments are lower than the number of cross-sections in most specifications. Third, the Difference in Hansen Test (DHT) for exogeneity of instruments isalso employed to assess the validity of results from the Hansen OIR test. Fourth, a Fischer test for the joint validity of estimated coefficients is also provided*" (Asongu & De Moor, 2017, p.200). Also see Tchamyou and Asongu (2017).*

criterion is that the absolute value of the lagged estimated homicide variable should be within the interval of zero and one. More insights into this criterion are apparent in recent catch-up literature (see Fung, 2009, p. 58; Asongu, 2013, p. 192). It is important to note that, in standard GMM reporting, the estimated coefficient corresponding to the outcome variable can be reported. Subsequently, one is subtracted from the coefficient to obtain beta (β= a-1), and the information criterion for convergence is that beta should be less than zero. Moreover, the estimated lagged value of the dependent variable can still be directly reported. Within this alternative framework, the convergence criterion is that, the absolute value of the estimated lagged value falls within the interval of zero and one (see Prochniak & Witkowski, 2012a, p. 20; Prochniak & Witkowski, 2012b, p. 23; Asongu & Nwachukwu, 2016d, p. 459).

In the light of the above clarifications, the comparative criterion for establishing persistence is as follows: for two sub-samples, the sub-sample reflecting a higher estimated lagged value in the dependent variable is acknowledged to reflect more persistence. This is essentially because of the importance of magnitude in the estimated lagged value. Accordingly, such a magnitude is relevant in that it translates how past values of homicides are affecting future values of homicides. Therefore, from a comparative perspective, an estimated lagged value with a higher magnitude implies that past values more proportionately affect future values.

The following findings can be established from Table 1. The region with the highest evidence of persistence is SSA, followed by Latin America, the MENA and then by Europe & Central Asia. This finding implies that Latin America is not leading in terms of persistence in homicides. English common law countries experience less persistence in homicides when compared to their French civil law counterparts. Most of the significant control variables have the expected signs. Accordingly, crime, political instability and weapon imports are intuitively expected to be positively correlated with homicides whereas the opposite effect is expected from the number of security and police officers.

The following findings can be established from Table 2. Homicides are more persistent in low income countries (compared to high income countries). Such persistence is also more apparent in upper middle income countries, vis-à-vis their lower middle income counterparts. Murder is more persistent in Catholic-dominated Christian countries, followed by Islam-dominated, Buddhist-oriented and Presbyterian-dominated Christian nations. Homicides are less persistent in countries that are open to the sea when compared to their landlocked counterparts. Most of the significant control variables display the expected signs. Differences in estimated lagged coefficients between the full sample and the fundamental

characteristics justify the need to have disaggregated the dataset into sub-samples, notably: that blanket policies based on persistence from the full sample is unlikely to be effective unless they are contingent on fundamental characteristics and tailored differently across countries which belong to different regions, income groups, legal origins and religious domination.

Table 1: Persistence in homicides with regions and legal origin dynamics

			Regions					Legal origins					Full
	SA	ECA	EAP	MENA	SSA	LA	NA	Eng.	Frch.	Ger.	Scand.	Social.	Sample
Constant	omitted	0.371	-0.722	0.019	**0.219****	-0.245	na	0.120	0.006	-1.309	na	na	-0.061
		(0.271)	(0.454)	(0.877)	(0.019)	(0.353)		(0.177)	(0.948)	(0.350)			(0.605)
Homicides (-1)	**0.821***	**0.674***	**1.048***	**0.896***	**0.961***	**0.917***		**0.934***	**0.969***	**1.001***			**0.999***
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**		**(0.000)**	**(0.000)**	**(0.003)**			**(0.000)**
Crime	0.131	**0.319***	0.010	**0.046****	0.00007	-0.021		0.017	**0.083***	**0.282****			0.030
	(0.427)	**(0.003)**	(0.851)	**(0.038)**	(0.998)	(0.682)		(0.519)	**(0.002)**	**(0.017)**			(0.175)
Security Officers & Police	omitted	-0.062	0.063	0.003	**-0.046***	0.015		-0.030	-0.021	-0.088			-0.011
		(0.459)	(0.201)	(0.923)	**(0.000)**	(0.714)		(0.168)	(0.341)	(0.498)			(0.629)
Political Instability	-0.120	0.069	**0.133****	0.005	0.007	**0.194****		0.020	-0.013	0.016			0.018
	(0.433)	(0.123)	**(0.049)**	(0.891)	(0.513)	**(0.010)**		(0.338)	(0.607)	(0.890)			(0.509)
Weapons import	omitted	-0.004	0.058	**0.049****	-0.008	**0.091***		0.010	0.025	0.158			0.016
		(0.884)	(0.537)	**(0.025)**	(0.611)	**(0.061)**		(0.599)	(0.331)	(0.112)			(0.349)
Displaced persons	0.060	0.024	0.021	**-0.051***	**-0.023***	**0.044****		**-0.037***	-0.029	0.158			-0.028
	(0.373)	(0.665)	(0.904)	**(0.083)**	**(0.054)**	**(0.040)**		**(0.072)**	(0.282)	(0.589)			(0.287)
Military Expenditure	0.084	**-0.269****	0.005	-0.006	**0.032***	-0.002		**0.043****	**-0.047***	0.271			-0.016
	(0.412)	**(0.032)**	(0.955)	(0.843)	**(0.061)**	(0.965)		**(0.032)**	**(0.070)**	(0.258)			(0.556)
AR(1)	**(0.258)**	(0.014)	(0.098)	(0.035)	(0.014)	(0.016)		(0.010)	(0.044)	(0.079)			(0.003)
AR(2)	**(0.715)**	(0.799)	(0.100)	(0.163)	(0.154)	(0.936)		(0.183)	(0.996)	(0.257)			(0.698)
Sargan OIR	(0.002)	(0.003)	**(0.244)**	(0.003)	(0.084)	**(0.142)**		(0.045)	**(0.288)**	(0.021)			(0.003)
Hansen OIR	**(1.000)**	**(0.219)**	**(0.996)**	**(0.975)**	**(0.412)**	**(0.930)**		**(0.806)**	**(0.340)**	**(0.969)**			**(0.136)**
DHT for instruments													
(a)Instruments in levels													
H excluding group	**(1.000)**	**(0.374)**	**(0.735)**	**(0.613)**	**(0.228)**	**(0.566)**		**(0.896)**	**(0.308)**	**(0.397)**			**(0.607)**
Dif(null, H=exogenous)	**(1.000)**	**(0.200)**	**(0.998)**	**(0.986)**	**(0.563)**	**(0.946)**		**(0.576)**	**(0.388)**	**(0.998)**			**(0.081)**
(b) IV (years, eq (diff)) H excluding group	**(1.000)**	**(0.200)**	**(0.958)**	**(0.988)**	**(0.355)**	**(0.662)**		**(0.726)**	**(0.329)**	**(0.969)**			**(0.296)**
Dif(null, H=exogenous)	**(1.000)**	**(0.290)**	**(1.000)**	**(0.477)**	**(0.511)**	**(1.000)**		**(0.691)**	**(0.393)**	**(0.606)**			**(0.102)**
Fisher	5361.60 ***	55.72***	1387.75 ***	555.55 ***	5531.67 ***	1863.33		510.20 ***	209.30 ***	112.81***			128.19 ***
Instruments	31	31	31	31	31	31		31	31	31			31
Countries	8	48	18	20	44	23		50	87	20			163
Observations	40	240	90	100	220	115		250	435	100			815

***,**,*: significance levels at 1%, 5% and 10% 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 and the Wald statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(1) & AR(2) tests and; b) the validity of the instruments in the Sargan and Hansen OIR tests. Eng: English Common Law countries. Frch: French Civil Law countries. Ger: German Civil law countries. Scand: Scandinavian Civil law countries. Social: Socialists countries. ECA: Europe & Central Asia. EAP: East Asia & the Pacific. MENA: Middle East & North Africa. SSA: sub-Saharan Africa. LA: Latin America. NA: North America. Eng: English Common Law countries. Frch: French Civil Law countries. Ger: German Civil law countries. Scand: Scandinavian Civil law countries. Social: Socialists countries. na: not applicable because of issues in degrees of freedom.

Table 2: Persistence in homicides with income levels, religious domination and landlockedness

| | Dependent Variable: Homicides | | | | | | | | | | | |
| | Income Levels | | | | Religious Domination | | | | | Openness to sea | | Full |
	HI	UMI	LMI	LI	CC	CP	CO	Islam	Bhu	LL	NLL	Sample
Constant	**0.520***	0.105	**0.355***	0.220*	-0.128	**0.588**	1.191	0.003	0.400	**0.385***	-0.129*	-0.061
	(0.000)	(0.433)	(0.003)	(0.073)	(0.191)	(0.028)	(0.210)	(0.975)	(0.621)	(0.001)	(0.098)	(0.605)
Homicides (-1)	**0.913***	**0.976***	**0.904***	**0.920***	**0.997***	**0.719***	0.495	**0.941***	**0.764***	**0.877***	**0.999***	**0.999***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.201)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Crime	-0.006	0.008	0.008	**0.095***	0.00004	0.098	0.506	0.004	0.610	0.075	0.023	0.030
	(0.818)	(0.715)	(0.588)	(0.005)	(0.999)	(0.157)	(0.404)	(0.789)	(0.216)	(0.290)	(0.175)	(0.175)
Security Officers & Police	**-0.142***	-0.016	0.017	**-0.078***	0.025	**-0.144***	0.067	0.011	-0.096	**-0.162***	0.004	-0.011
	(0.000)	(0.520)	(0.374)	(0.002)	(0.234)	(0.004)	(0.712)	(0.371)	(0.526)	(0.000)	(0.823)	(0.629)
Political Instability	**0.167***	0.002	-0.016	-0.014	**0.049**	**0.130**	-0.421	0.040	-0.400	0.071	0.016	0.018
	(0.000)	(0.895)	(0.426)	(0.287)	(0.041)	(0.027)	(0.111)	(0.113)	(0.358)	(0.250)	(0.505)	(0.509)
Weapons import	-0.002	0.032	**-0.108***	0.003	0.001	-0.055	-0.040	**0.030**	0.016	0.001	0.018	0.016
	(0.820)	(0.289)	(0.001)	(0.947)	(0.933)	(0.238)	(0.810)	(0.020)	(0.902)	(0.969)	(0.180)	(0.349)
Displaced persons	**-0.197***	-0.019	**0.064***	**-0.070***	-0.005	**-0.143***	-0.194	**-0.028***	-0.295	**-0.098***	-0.014	-0.028
	(0.000)	(0.271)	(0.002)	(0.005)	(0.744)	(0.009)	(0.354)	(0.092)	(0.282)	(0.003)	(0.484)	(0.287)
Military Expenditure	-0.009	-0.009	-0.039	0.021	-0.026	**0.195***	-0.037	**-0.023***	0.228	**0.051**	-0.008	-0.016
	(0.781)	(0.492)	(0.131)	(0.328)	(0.153)	(0.009)	(0.877)	(0.064)	(0.623)	(0.044)	(0.691)	(0.556)
AR(1)	(0.083)	(0.000)	(0.082)	(0.155)	(0.001)	(0.103)	(0.250)	(0.112)	(0.147)	(0.041)	(0.008)	(0.003)
AR(2)	(0.446)	(0.709)	(0.351)	(0.161)	(0.093)	(0.732)	(0.225)	(0.540)	(0.327)	(0.482)	(0.180)	(0.698)
Sargan OIR	(0.052)	(0.158)	(0.009)	(0.746)	(0.155)	(0.001)	(0.519)	(0.220)	(0.001)	(0.197)	(0.201)	(0.003)
Hansen OIR	(0.557)	(0.884)	(0.389)	(0.486)	(0.201)	(0.697)	(1.000)	(0.420)	(1.000)	(0.712)	(0.340)	(0.136)
DHT for instruments (a)Instruments in levels												
H excluding group	(0.855)	(0.406)	(0.353)	(0.424)	(0.495)	(0.613)	(0.995)	(0.184)	(0.915)	(0.870)	(0.378)	(0.607)
Dif(null, H=exogenous)	(0.316)	(0.950)	(0.416)	(0.487)	(0.140)	(0.618)	(1.000)	(0.630)	(1.000)	(0.473)	(0.338)	(0.081)
(b) IV (years, eq (diff)) H excluding group	(0.351)	(0.776)	(0.693)	(0.336)	(0.497)	(0.463)	(1.000)	(0.388)	(1.000)	(0.536)	(0.713)	(0.296)
Dif(null, H=exogenous)	(0.911)	(0.848)	(0.082)	(0.777)	(0.050)	(0.969)	(1.000)	(0.452)	(0.956)	(0.861)	(0.052)	(0.102)
Fisher	303.29******	3593.46*	234.70***	154.17***	1895.46***	190.48***	15.46***	381.50***	160.86***	5957.21***	360.96***	128.19***
Instruments	31	31	31	31	31	31	31	31	31	31	31	31
Countries	43	36	46	38	54	26	14	49	13	34	129	163
Observations	215	180	230	190	270	130	70	245	65	170	645	815

***,**,*: significance levels at 1%, 5% and 10% 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 and the Wald statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(1) & AR(2) tests and; b) the validity of the instruments in the Sargan and Hansen OIR tests. HI: High Income countries. UMI: Upper Middle Income countries. LMI: Lower Middle Income countries. LI: Low Income countries. CC: Christian countries with Catholic domination. CP: Christian countries with Protestant domination. CO: Christian countries in which another Christian religion apart from Catholicism and Protestantism is dominant. Islam: Islam-dominated countries. Bhu: Buddhism dominated countries. LL: Landlocked countries. NLL: Not Landlocked countries.

3.2 Further discussion of results and policy implications

3.2.1 Further discussion of results

In this section, we provide clarifications to the tendencies established in the findings. This discussion is engaged in two main strands, notably: (i) why SSA and not Latin America is leading in homicides in the world and (ii) clarifications to the other comparative results.

First, though literature supports the position that Latin America is the region in the world with the highest rate of homicides, persistence in the phenomenon reflects a relatively different tendency. Accordingly, in the former, a situational picture of homicides is presented at a given point in time whereas the latter reflects how past observations of homicides influence future observations of the phenomena: the hysteria hypothesis. We have established

that such a hypothesis is more apparent in SSA. It is important to note that the more persistent role of SSA is contingent on the variables employed in the conditioning information set. Accordingly, persistence is contingent on variations in factors that affect homicides. Hence, the findings are relative to control variables adopted in the conditioning information set.

Another possible explanation is that SSA is comparatively poorer. Consistent with intuition, regions that are dominated by low income nations should be associated with higher levels of persistence in crimes, probably because of limited financial resources needed to address and prevent conflicts and homicides. The intuition has been used to motivate recent literature on the need for development assistance to reduce the negative impacts of terrorism on poor countries (see Efobi et al., 2015; Asongu & Kodila-Tedika, 2017).

It is also important to substantiate the above narratives with the fact that compared to Latin American countries; SSA has been characterized by more political instability and violence, which are natural determinants of homicides. Hence, some of the variables employed in the conditioning information set that influence that comparative evidence of persistence in homicides may be more apparent in SSA, namely: weapon imports, political instability and military expenditure. The relative importance of SSA in political instability and violence is summarized by Asongu (2014b): "*seven of the nine cases of total chaos and societal breakdowns known in recent history have been registered in Africa (with the exceptions of Afghanistan and Syria): Angola, Burundi, Sierra Leone, Liberia, Zaire/Congo, Somalia, and Sudan*" (p.1569).

A possible reason why "Europe & Central Asia" is the region with the lowest rate of persistence in homicides is because of its relatively high propensity to resolve homicide cases. As substantiated by Muggah and de Carvalho (2017), compared to Latin America where only about 20% of homicides cases are resolved, in European and North American countries, the corresponding rate is approximately 80%. In this light, life is cheaper in one region than in the other. This is essentially because peoples' belief in the justice system determines whether they take laws into their own hands or not. Hence, when peoples' faith in the criminal justice system and policing has plummeted on the one hand and on the other hand, when the cost of murder is low, people may decide to resort to the swift option of murder instead of the protracted option of gaining justice through courts and law enforcement.

Second, in the light of the clarifications provided in the preceding strand, the comparative advantages in the other fundamental characteristics (income levels, legal origins, openness to sea and religious domination) are contingent on the relative importance of the variables in the conditioning information set within the fundamental characteristics. For

instance, the relative importance of persistence in homicides in French civil law countries may be explained by the fact that the English common law system is more flexible in adapting to changing and evolving conditions (see La Porta et al.,1998, 1999; Beck et al., 2003; Agbor, 2015). Hence, the English common law system could more easily provide enabling legal and economic conditions that mitigate the hysteria hypothesis in homicides, notably: past observations in homicides influencing future observations in homicides. Looking at SSA where such persistence is most apparent, we can substantiate this perspective with the fact the variables used in the conditioning information set are more apparent in French civil law countries in the sub-region vis-à-vis their English common law counterparts. For example, in the post-colonial era, as of 2014, former French colonies had registered more than half of all documented political coup d'états in Africa, notably: 45 versus 22 for English common law countries (Koutonin, 2014). Accordingly, such political coup d'états are logically associated with political instability and violence.

3.2.2 Implications for public spending

It is important for governments to manage persistence in homicides because of a plethora of reasons, notably: foreign direct investment and tourism location decisions are very likely to be affected by murder tendencies. In other words, foreign direct investment can be negatively affected and the tourism industry can also decline because of depressing business activity due to risks linked to public travel. Accordingly, the wound culture theory (which builds on risk aversion due to a high perception/probability of murder) may explain typically serial murder tourism activity which entails dining, refreshments, photo-opportunities, refreshments and acquisition of souvenirs. It is to prevent panic and manifestation of such behavior that public responses to homicides is important. Hence, public spending in curbing serial murder is vital. Moreover, there are unappealing and unproductive consequences such as lost productivity and unproductive spending which are related to premature death. Social spending is also undermined since more spending is allocated to the pursuit of criminals involved in murders. The underlying issues can be remedied by managing public spending more efficiently as well as focusing on the right areas.

With respect to areas of investment, governments have often thought that addressing the problem of homicides will entail investing more money in security and police forces, building more prisons and enforcing judicial decisions. For instance, as substantiated by Muggah and de Carvalho (2017), between fifty-five and seventy billion USD is being spent on public security annually in Latin America. This amount is just about a third of the total

amount spent on both education and health across the regions. Moreover, there has also been an increase of 116% in mass incarcerations between 1995 and 2012.

With respect to efficiency in investment, smarter solutions can involve focusing on a few logical strategies. (i) It is relevant for businesses, government and groups in civil society to adopt data-driven interventions and evidence-based strategies which can focus on hot people and hot spots. This recommendation is based on the intuition that violent crime is characterized by hysteria such that it is often concentrated in, *inter alia*: specific neighborhoods, certain periods during the day, the less educated, poor neighborhoods and younger factions of the population. (ii) Efforts towards reducing and preventing murder should also entail joint efforts aimed at repairing strained relations between the community and the police in regions that are most affected by violence. This is essentially because low trust in police officers breeds more homicides. (iii) Law and order can also be enhanced by improving how prosecution and investigation of homicides are carried out. Moreover, policing that is more oriented towards a problem-oriented approach can reduce homicides, especially when it comes to international homicides and gang-oriented crimes. (iv) Prevention can be improved by focusing on some factors that are crucial in motivating crimes and violence, namely: age, level of income and educational attainment.

4. Conclusion, caveats and future research directions

This study has built on literature from policy and academic circles to assess if Latin America is leading when it comes to persistence in homicides across the world. The focus is on a global sample of 163 countries for the period 2010 to 2015. The empirical evidence is based on Generalised Method of Moments. The following main finding is established. The region with the highest evidence of persistence is sub-Saharan Africa, followed by Latin America, the MENA and then by Europe & Central Asia (ECA). This finding implies that Latin America is not leading in terms of persistence in homicides. In order to increase room for policy implications, the dataset has been decomposed into income levels, religious domination, landlockedness and legal origins. (i) English common law countries experience less persistence in homicides when compared to their French civil law counterparts. (ii) Homicides are more persistent in low income countries (compared to higher income countries). Such persistence is also more apparent in upper middle income countries, vis-à-vis their lower middle income counterparts. (iii) Homicides are more persistent in Catholic-dominated Christian countries, followed by Islam-dominated, Buddhist-oriented and

Presbyterian-dominated Christian nations. (iv) Homicides are less persistent in coastal countries when compared to their landlocked counterparts. (v) From the conditioning information set, crime, political instability and weapons import are positively correlated with homicides whereas the opposite effect is apparent from the number of security and police officers. Justifications for the established tendencies and policy implications have been discussed. It is relevant for policy makers to decrease and improve established factors (in the conditioning information set) that respectively increase and decrease persistence in homicides. The underlying factors are contingent on the engaged comparative fundamental characteristics.

As a caveat, it is important to note that evidence of persistence is contingent on the variables employed in the conditioning information set. Hence, the tendencies depend on the control variables that are selected and involved in the modeling exercise. We have observed that most of the control variables are significant with the expected signs. Moreover, studies in the literature are based on comparatively less control variables. For instance, Bruno et al. (2012) have exclusively used two control variables. Hence the findings are also contingent on some determinants of homicides not included in the study, notably: income inequality, civil wars, youth bulges, urban population and democracy. Given the relevance of sub-Saharan Africa in the analysis, it is important to note that the inclusion of political instability is not a substitute to civil war. In summary, the analysis and corresponding policy implications are contingent on the variables used in the conditioning information set. This is a fundamental shortcoming in conditional (or contingent) convergence (or persistence) modeling by means of the Generalised Method of Moments.

Future research can focus on assessing whether the established findings withstand empirical scrutiny within country-specific frameworks. Such research is necessary for more focused and targeted country-specific policy implications.

Appendices

Appendix 1: Definition of variables

Variables	Definition and sources of variables
Displaced people	Number of refugees and internally displaced people as a percentage of the population Office of the High Commissioner for Refugees (UNHCR) Mid-Year Trends; Internal Displacement Monitoring Centre (IDMC)
Political instability	Political instability Qualitative assessment by EIU analysts
Homicides	Number of homicides per 100,000 people United Nations Office on Drugs and Crime (UNODC) Surveys on Crime Trends and the Operations of Criminal Justice Systems (CTS); EIU estimates
Violent crime	Level of violent crime Qualitative assessment by EIU analysts
Incarceration	Number of jailed population per 100,000 people World Prison Brief, International Centre for Prison Studies, University of Essex
Security Officers & Police	Number of internal security officers and police per 100,000 people UNODC; EIU estimates
Military expenditure	Military expenditure as a percentage of GDP The Military Balance, IISS
Weapon imports	Volume of transfers of major conventional weapons as recipient (imports) per 100,000 people Stockholm International Peace Research Institute (SIPRI) Arms Transfers Database

Uppsala Conflict Data Program (UCDP). The Institute for Economics and Peace (IEP). The Economic Intelligence Unit (EIU). United Nations Peacekeeping Funding (UNPKF). GDP: Gross Domestic Product. The International Institute for Strategic Studies (*IISS*).

Appendix 2: Summary statistics and countries

Panel A: Summary statistics					
Variables	Mean	Standard dev.	Minimum	Maximum	Obsers
Homicides	2.797	1.154	1.103	5.000	978
Incarcerations	2.194	0.889	1.150	5.000	978
Political instability	2.545	1.030	1.000	5.000	978
Displaced people	1.348	0.872	1.000	5.000	978
Violent crime	2.768	1.136	1.000	5.000	978
Security Officers & Police	2.728	0.911	1.081	5.000	978
Military expenditure	1.966	0.824	1.000	5.000	978
Weapon imports	1.489	0.868	1.000	5.000	978

Afghanistan; Albania; Algeria; Angola; Argentina; Armenia; Australia; Austria; Azerbaijan; Bahrain; Bangladesh; Belarus; Belgium; Benin; Bhutan; Bolivia; Bosnia and Herzegovina; Botswana; Brazil; Bulgaria; Burkina Faso; Burundi; Cambodia; Cameroon; Canada; Central African Republic; Chad; Chile; China; Colombia; Costa Rica; Cote d' Ivoire; Croatia; Cuba; Cyprus; Czech Republic; Democratic Republic of the Congo; Denmark; Djibouti; Dominican Republic; Ecuador; Egypt; El Salvador; Equatorial Guinea; Eritrea; Estonia; Ethiopia; Finland; France; Gabon; Georgia; Germany; Ghana; Greece; Guatemala; Guinea; Guinea-Bissau; Guyana; Haiti; Honduras; Hungary; Iceland; India; Indonesia; Iran; Iraq; Ireland; Israel; Italy; Jamaica; Japan; Jordan; Kazakhstan; Kenya; Kosovo; Kuwait; Kyrgyz Republic; Laos; Latvia; Lebanon; Lesotho; Liberia; Libya; Lithuania; Macedonia (FYR); Madagascar; Malawi; Malaysia; Mali; Mauritania; Mauritius; Mexico; Moldova; Mongolia; Montenegro; Morocco; Mozambique; Myanmar; Namibia; Nepal; Netherlands; New Zealand; Nicaragua; Niger; Nigeria; North Korea; Norway; Oman; Pakistan; Palestine; Panama; Papua New Guinea; Paraguay; Peru; Philippines; Poland; Portugal; Qatar; Republic of the Congo; Romania; Russia; Rwanda; Saudi Arabia; Senegal; Serbia; Sierra Leone; Singapore; Slovakia; Slovenia; Somalia; South Africa; South Korea; South Sudan; Spain; Sri Lanka; Sudan; Swaziland; Sweden;Switzerland; Syria; Taiwan; Tajikistan; Tanzania; Thailand; The Gambia; Timor-Leste; Togo; Trinidad and Tobago; Tunisia; Turkey; Turkmenistan; Uganda; Ukraine; United Arab Emirates; United Kingdom; United States of America; Uruguay; Uzbekistan; Venezuela; Vietnam; Yemen; Zambia and Zimbabwe.

Standard dev: Standard deviation. Obsers: Observations.

Appendix 3: Correlation matrix (uniform sample size: 978)

Pol. Insta.	Displ. P.	Crime	S O & P	Military	W. Imports	Homicides	Incarcerations	
1.000	0.336	0.479	0.042	0.336	-0.238	0.236	-0.140	Pol. Insta.
	1.000	0.235	0.036	0.291	-0.058	0.035	-0.105	Displ. P
		1.000	-0.122	-0.027	-0.386	0.585	-0.116	Crime
			1.000	0.215	0.140	-0.022	0.279	S O & P
				1.000	0.236	-0.098	0.093	Military
					1.000	-0.325	0.044	W. Imports
						1.000	0.161	Homicides
							1.000	Incarcerations

Pol. Insta: Political Instability. Displ. P: Displaced Persons. Crime: Violent crime. S O & P: Security Officers & Police. Military: Military Expenditure. W. Imports: Weapons Imports.

References

Agbor, J. A. (2015). "How does colonial origin matter for economic performance in sub-Saharan Africa?", In Augustin K. Fosu (Ed.), *Growth and Institutions in African Development,* Chapter 13, pp. 309-327, Routledge Studies in Development Economics: New York.

Asongu, S. A., & Kodila-Tedika, O., (2016). "Fighting African Conflicts and Crime: Which Governance Tools Matter?", *International Journal of Social Economics*, 43(5), pp. 466-485.

Asongu, S. A. (2013). "African Stock Market Performance Dynamics: A Multidimensional Convergence Assessment", *Journal of African Business*, 40(3), pp. 186-201.

Asongu, S. A., (2014a). "African Development: Beyond Income Convergence", *South African Journal of Economics*, 82(3), pp. 334-353.

Asongu, S. A., (2014b). "On the substitution of institutions and finance in investment", *Economics Bulletin*, 34(3), pp. 1557-1574.

Asongu, S. A., (2018). "Persistence in Incarcerations: Global Comparative Evidence", *Journal of Criminological Research, Policy and Practice*: Forthcoming.

Asongu, S. A, & De Moor, L., (2017). "Financial Globalisation Dynamic Thresholds for Financial Development: Evidence from Africa", *European Journal of Development Research*, 29(1), pp. 192-212.

Asongu, S. A., & Le Roux S., (2017). "Enhancing ICT for inclusive human development in Sub-Saharan Africa", *Technological Forecasting and Social Change*, 118(May), pp. 44–54.

Asongu, S. A, & Nwachukwu, J. C., (2016a). "The Mobile Phone in the Diffusion of Knowledge for Institutional Quality in Sub Saharan Africa", *World Development*, 86(October), pp. 133-147.

Asongu, S. A., & Nwachukwu, J. C., (2016b). "The Role of Governance in Mobile Phones for Inclusive Human Development in Sub-Saharan Africa", *Technovation*, 55-56 (September- October), pp. 1-13.

Asongu, S. A, & Nwachukwu, J. C., (2016c). "Foreign aid and governance in Africa", *International Review of Applied Economics*, 30(1), pp. 69-88.

Asongu, S. A., & Nwachukwu, J. C., (2016d). "Revolution empirics: predicting the Arab Spring", *Empirical Economics*, 51(2), pp. 439-482.

Asongu, S. A., & Nwachukwu, J. C., (2017a). "Mobile phones in the diffusion of knowledge and persistence in inclusive human development in Sub-Saharan Africa", *Information Development,* 33(3), 289–302.

Asongu, S. A., & Nwachukwu, J. C., (2017b). "The Comparative Inclusive Human Development of Globalisation in Africa", *Social Indicators Research*. 134(3), pp. 1027–1050.

Asongu, S. A., & Nwachukwu, J. C., (2018). "Fighting Terrorism: Empirics on Policy Harmonisation", *German Economic Review*, DOI: 10.1111/geer.12126.

Asongu, S. A., Tchamyou, V. S., Asongu, N., & Tchamyou, N. P., (2017). "The Comparative African Economics of Inclusive Development and Military Expenditure in Fighting Terrorism". *Journal of African Development*, 19(2), pp. 77-91.

Asongu, S. A., Tchamyou, V. S., Minkoua, N, J. R., Asongu, N., & Tchamyou, N. P., (2018a). "Fighting terrorism in Africa: Benchmarking policy harmonization", *Physica A: Statistical Mechanics and its Applications*, 492(February), pp. 1931-1957.

Asongu, S. A., Tchamyou, V. S., Asongu, N., & Tchamyou, N. P., (2018b). "Fighting terrorism in Africa: evidence from bundling and unbundling institutions", *Empirical Economics*. DOI: 10.1007/s00181-017-1378-3.

Arvis, J-F., Marteau, J-F., & Raballand, G. (2007). The cost of being landlocked: logistics costs and supply chain reliability", *Word Bank Working Paper Series* No. 4258, Washington.

Baltagi, B. H., (2008). "Forecasting with panel data", *Journal of Forecasting*, 27(2), pp. 153-173.

Bandyopadhyay, S., Sandler, T., & Younas, J., (2014). "Foreign direct investment, aid, and terrorism", *Oxford Economic Papers*, 66(1), pp. 25-50.

Barro, R., (1991). "Economic Growth in a Cross Section of Countries". *Quarterly Journal of Economics*, 196 (2/May), pp. 407-443.

Barro, R. J., & Sala-i-Martin, X., (1992). "Convergence", *Journal of Political Economy*, 100(2), pp. 223-251.

Barro, R. J., & Sala-i-Martin, X., (1995). Economic Growth. The MIT Press, Cambridge, MA.

Baumol, W. J., (1986). "Productivity, growth, convergence and welfare: what the long run data show", *American Economic Review*, 76(5), pp. 1072-1085.

Beck, T., Demirgüç-Kunt, A., & Levine, R., (2003), "Law and finance: why does legal origin matter?", *Journal of Comparative Economics*, 31(4), pp. 653-675.

Beegle, K., Christiaensen, L., Dabalen, A., & Gaddis, I., (2016). "Poverty in a Rising Africa", Africa Poverty Report, the World Bank, Washington.
http://www.worldbank.org/en/region/afr/publication/poverty-rising-africa-poverty-report
(Accessed: 23/07/2016).

Blanco, R., & Grier, B., (2009). "Long Live Democracy: The Determinants of Political Instability in Latin America", *The Journal of Development Studies*, 45(1), pp. 76-95.

Blundell, R., & Bond, S., (1998). "Initial conditions and moment restrictions in dynamic panel data models" *Journal of Econometrics*, 87(1), pp. 115-143.

Boateng, A., Asongu, S. A., Akamavi, R., & Tchamyou, V. S., (2018). "Information Asymmetry and Market Power in the African Banking Industry", *Journal of Multinational Financial Management*: DOI: 10.1016/j.mulfin.2017.11.002.

Bond, S., Hoeffler, A., & Tample, J. (2001) "GMM Estimation of Empirical Growth Models", University of Oxford.

Bourne, P. A., Hudson-Davis, A., Sharpe-Pryce, C., Francis, C., Solan, I., Lewis, D., Quarrie, V. L., Pabarue, M., Nelson, S., Irving, S., & Anderson, H., (2015). "The Effects of Homicides and Economics on Human and Social Biology: A Mental Health Challenge for a Society?", *International Journal of Emergency Mental Health and Human Resilience*, 17(2), pp. 495-501.

Bruno, G., De Bonis, R., & Silvestrini, A., (2012). "Do financial systems converge? New evidence from financial assets in OECD countries". *Journal of Comparative Economics*; 40(1), pp. 141-155.

Chamlin M. B., & Cochran J. K. (2006). "Economic inequality, legitimacy, and cross-national homicide rates". *Homicide Studies*, 10, pp. 231–252.

CIA (2011). Central Intelligence Agency, The World Factbook 2011.

Cole J. H., & Gramajo A. M. (2009). "Homicide rates in a cross-section of countries: Evidence and interpretations". *Population and Development Review*, 35, pp. 749–776.

D'Amico, D. J., (2010). "The prison in economics: private and public incarceration in Ancient Greece", *Public Choice*, 145(3-4), pp. 461-482.

Doyle, J. M., (2017). "Persistence in the long-run expected rate of return for corporate pension plans", *The Quarterly Review of Economics and Finance*, 63(February), pp. 271–277.

Efobi, U., Asongu, S., & Beecroft, I., (2015). "Foreign Direct Investment, Aid and Terrorism: Empirical Insight Conditioned on Corruption Control", *African Governance and Development Institute Working Paper* No. 15/007, Yaoundé.

Freytag, A., Kruger, J. J., Meierrieks, D., & Schneider, F., (2011). "The origins of terrorism: Cross-country estimates of socio-economic determinants of terrorism", *The European Journal of Political Economy*, 27(Supplement 1), pp. S5-S16.

Fung, M. K., (2009). "Financial development and economic growth: Convergence or divergence?", *Journal of International Money and Finance*, 28(1), pp. 56–67.

Gibon, D. C., (2006). "The Relationship Between Serial Murder and the American Tourism Industry", *Journal of Travel & Tourism Marketing*, 20(1), pp. 45-60.

Goddard, J., Liu, H., Molyneux, P., & Wilson, J. O. S. (2011). "The persistence of bank Profit". *Journal of Banking & Finance*, 35(11), pp. 2881-2890.

GPI (2016). Global Peace Index 2016. Institute for Economics & Peace.

Jacobs D., & Richardson A. M. (2008). "Economic inequality and homicide in the developed nations from 1975 to 1995". *Homicide Studies*, 12, pp. 28–45.

Koutonin, M. R., (2014). "14 African Countries Forced by France to Pay Colonial Tax For the Benefits of Slavery and Colonization", Silicon Africa, http://www.siliconafrica.com/francecolonial-tax/ (Accessed: 12/03/2016).

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1998). "Law and finance", *Journal of Political Economy*, 106(6), 1113-1155.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1999). "The quality of government", *Journal of Law, Economics and Organization*, 15(1), pp. 222-279.

La Porta, R., Lopez-de-Silanes, F., & Shleifer, A., (2008), "The Economic Consequences of Legal Origin," *Journal of Economic Literature*, 46(2), pp. 285-332.

Lai, B., (2007). "'Draining the Swamp': An Empirical Examination of the Production of International Terrorism, 1968–1998." *Conflict Management and Peace Science,* 24(4), pp. 297–310.

Liem, M., & Campbell, M., (2014). "Punishment for Homicide in Europe: Research Challenges and a Roadmap for Progress", *International Criminal Justice Review*, 24(3), pp. 285-297.

Love, I., & Zicchino, L., (2006). "Financial Development and Dynamic Investment Behaviour: Evidence from Panel VAR" .*The Quarterly Review of Economics and Finance*, 46(2), pp. 190-210.

Mankiw, N. G., Romer, D., & Weil, D. N., (1992). "A contribution to the empirics of economic growth", *Quarterly Journal of Economics*, 107 (May, 1992), pp. 407-437.

Mayer-Foulkes, D., (2010). "Divergences and Convergences in Human Development". UNDP Human Development Research Paper 2010/20.

Mlachila, M., Tapsoba, R., & Tapsoba, S. J. A., (2016). "A Quality of Growth Index for Developing Countries: A Proposal", *Social Indicators Research*. DOI: 10.1007/s11205-016-1439-6

Muggah, R., & de Carvalho, I. S., (2017). "There's a cure for Latin America's murder epidemic – and it doesn't involve more police or prisons", *World Economic Forum*, https://www.weforum.org/agenda/2017/04/there-s-a-cure-for-latin-america-s-murder-epidemic-and-it-doesn-t-involve-more-police-or-prisons/?utm_content=buffer369bb&utm_medium=social&utm_source=plus.google.com&utm_campaign=buffer (Accessed: 28/07/2017).

Narayan, P.K., Mishra, S., & Narayan, S., (2011). "Do market capitalization and stocks traded converge? New global evidence". *Journal of Banking and Finance*, 35(10), pp. 2771-2781.

Nivette A. E. (2011). "Cross-national predictors of homicide: A meta-analysis". *Homicide Studies*, 15, pp. 103–131.

Ouimet M., (2012). "A world of homicides: The effect of economic development, income inequality, and excess infant mortality on the homicide rate for 165 countries in 2010". *Homicide Studies*, 16, pp. 238–258.

Ouimet, M., & Montmagny-Grenier, C., (2014). "Homicide and Violence—International and Cross-National Research", *International Criminal Justice Review*, 24(3), pp. 222–234.

Pare, P-P., (2014). "Indicators of Police Performance and Their Relationships With Homicide Rates Across 77 Nations", *International Criminal Justice Review*, 24(3), pp. 254–270.

Piazza, J., (2007). "Draining the Swamp: Democracy Promotion, State Failure, and Terrorism in 19 Middle Eastern States." *Studies in Conflict and Terrorism,* 30(6), pp. 521-539.

Piazza, J., (2008). "Incubators of Terror: Do Failed and Failing States Promote Transnational Terrorism?" *International Studies Quarterly,* 52(3), pp.468-488.

Pritchett, L., (1997). "Divergence, Big Time". *Journal of Economic Perspectives*, 11(3), pp. 3-17.

Prochniak, M., & Witkowski, B., (2012a). "Beta convergence stability among "Old" and "New" EU countries: The Bayesian Model Averaging Perspective", Warsaw School of Economics.

Prochniak, M., & Witkowski, B., (2012b). "Real economic convergence and the impact of monetary policy on economic growth of the EU countries: The analysis of time stability and the identification of major turning points based on the Bayesian methods", Warsaw School of Economics.

Rogers, M., (2014). "A Descriptive and Graphical Analysis of the (Lack of) Association Between Age and Homicide Cross-Nationally", *International Criminal Justice Review*, 24(3), pp. 235–253.

Roodman, D., (2009a). "A Note on the Theme of Too Many Instruments", *Oxford Bulletin of Economics and Statistics*, 71(1), pp. 135-158.

Roodman, D., (2009b). "How to do xtabond2: An introduction to difference and system GMM in Stata", *Stata Journal*, 9(1), pp. 86-136.

Stephan, A., & Tsapin, A. (2008). "Persistence and determinants of firm profit in emerging Markets". *Applied Economics Quarterly*, 54(4), pp. 231-253.

Stöckl, H., Devries, K., Rotstein, A. Abrahams, N., Campbell, J., Watts, C., & Moreno, C. G., (2013). "The global prevalence of intimate partner homicide: a systematic review", *The Lancet*, 382(9895), pp. 859-865.

Tchamyou, V. S., (2018). "Education, Lifelong learning, Inequality and Financial access: Evidence from African countries", *Contemporary Social Sciences*. DOI: 10.1080/21582041.2018.1433314.

Tchamyou, V. S., & Asongu, S. A., (2017). "Information Sharing and Financial Sector Development in Africa", *Journal of African Business*, 18(1), pp. 24-49.