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Inclusive Human Development in Sub-Saharan Africa[1]

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Abstract

This study assesses the role of income levels (low and middle) in modulating governance (political and economic) to influence inclusive human development. The empirical evidence is based on interactive quantile regressions and forty-nine countries in sub-Saharan Africa for the period 2000-2002.The following main findings are established. First, low income modulates governance (economic and political) to positively affect inclusive human development exclusively in countries with above-median levels of inclusive human development. It follows that countries with averagely higher levels of inclusive human development are more likely to benefit from the relevance of income levels in influencing governance for inclusive development. Second, the importance of middle income in modulating political governance to positively affect inclusive human is apparent exclusively in the median while the relevance of middle income in moderating economic governance to positively influence inclusive human development is significantly apparent in the 10^{th} and 75^{th} quantiles. Third, regardless of panels, income levels modulate economic governance to affect inclusive human development at a higher magnitude, compared to political governance. Policy implications are discussed in the light of the post-2015 agenda of sustainable development goals and contemporary development paradigms. This study complements the extant sparse literature on the inclusive human development in Africa.

JEL Classification: D31; I10; I32; K40; O55

Keywords: Sustainable development; Income levels; Governance; Sub-Saharan Africa

1. Introduction

Four main factors in scholarly and policy-making circles motivate this study on the poverty tragedy in sub-Saharan Africa (SSA), notably, the: (i) growing exclusive development in the sub-region; (ii) evolving literature on the relevance of the middle class in sustainable development outcomes; (iii) paradigms shifts in the conception of governance in the light contemporary dominant models of economic development and (iv) gaps in the literature. These factors which articulate the fact that "*Output may be growing, and yet the mass of the people may be becoming poorer*" (Lewis, 1955), are expanded in chronological order.

First, in the post-2015 development era, one of the most challenging policy syndromes to Africa's development is exclusive development[2]. Accordingly, the reduction of inequality is central to most Sustainable Development Goals (SDGs). This concern about poverty is even more relevant to SSA because approximately half of countries in the sub-region did not achieve the Millennium Development Goal (MDG) extreme poverty target (Tchamyou, 2019, 2020; Tchamyou *et al*., 2019a, 2019b; Asongu & le Roux, 2017, 2019). It is important to emphasise that the number of people living in extreme poverty consistently increased across the sub-region in spite of more than two decades of economic growth resurgence. The poverty tragedy is therefore traceable to exclusive development because the response of poverty to economic growth is a decreasing function of inequality (Fosu, 2015; Asongu & Kodila-Tedika, 2017, 2018).

The importance of promoting shared prosperity in the post-2015 development agenda in SSA is supported by the conclusions of Bicaba *et al.* (2017) who articulate that if poverty is to be reduced to a threshold of below 3% by the year 2030, governments of countries in the sub-region will have to pay particular attention to inclusive development: "*This paper examines its feasibility for Sub-Saharan Africa (SSA), the world's poorest but growing region. It finds that under plausible assumptions extreme poverty will not be eradicated in SSA by 2030, but it can be reduced to low levels through high growth and income redistribution towards the poor segments of the society*" (Bicaba *et al*., 2017, p. 93). In accordance with the evolving narratives, this study focuses on inequality-adjusted or pro-poor human development within

[2] The notion of policy syndrome is understood by Fosu (2013) to represent factors that are unfavorable to economic development, notably: "administered redistribution", "state breakdown", "state controls", and "suboptimal inter temporal resource allocation". According to Asongu (2017), a policy syndrome is a knowledge economy gap between two countries. In this study, a policy syndrome represents exclusive development, in accordance with recent pro-poor development literature (Asongu & Nwachukwu, 2017; Tchamyou *et al*., 2019a).

the context of an evolving stream of literature on the importance of the middle class in Africa's development.

Second, the relevance of middle income status and the middle class in economic development has been articulated in a number of scholarly fronts, notably: (i) historical views establishing that the middle class is crucial for the economic development of technically-advanced countries in Europe and North America (Adelman & Morris, 1997; Landes, 1998). (ii) Contemporary scholarly perspectives have documented the importance of the middle class in, *inter alia*: alleviating poverty (Easterly, 2001); ameliorating social evolutions (Sridharan, 2004); consolidating institutions (Birdsall, 2007a); entrepreneurship and innovation activities (Banerjee & Duflo, 2009); institutional reforms (Loyza *et al*., 2012); promoting democracy (Kodila-Tedika *et al*., 2016) and boosting inclusive development (Birdsall, 2010). This study extends the last stream on pro-poor development by engaging inclusive development within the framework of dominant contemporary development paradigms.

Third, consistent with Asongu and le Roux (2019), the middle class is crucial in the understanding of the two dominant contemporary models of development, namely: the Washington Consensus and the Beijing Model. The latter is defined as "state capitalism, de-emphasised democracy and priority in economic rights" whereas the former is defined as "private capitalism, liberal democracy and priority in political rights" (Asongu, 2016a). The attendant literature is in accordance with the position that a sustained middle class is crucial for political governance to be sustainably demanded by the population. Hence, in order for political governance (i.e. a priority of the Washington Consensus) to be sustainably achieved, economic governance (i.e. priority of the Beijing Model) should take precedence in policy-making. China has produced a burgeoning middle class within a historically short period of time (Asongu & Ssozi, 2016). In summary, the narrative supports the view that political governance should be a longer term goal for African countries compared to economic governance which should be a short term goal in order to build the middle class necessary for a sustainable the demand for political governance. This study extends the underlying strand of literature within the framework of inclusive human development, by attempting to answer the following research question: how do low income and middle income countries complement political and economic governance in influencing inclusive human development in SSA? This research question is relevant given an apparent gap in the scholarly literature.

Fourth, the positioning of this study departs from two strands of literature on inclusive human development, namely: (i) recent studies on fighting exclusive development in Africa

and (ii) scholarship on nexuses between the middle class and development outcomes. The first strand includes: the relevance of sustaining economic growth levels of 2000 to 2010 if extreme poverty is to be eliminated by 2030 (Chandy *et al*., 2013; Ravallion, 2013; Yoshida *et al*., 2014); nexuses between inequality, economic growth and poverty (Thorbecke, 2013; Ncube *et al*., 2014; Fosu, 2017a, 2017b); linkages between consumption, income and the wealth of the most poor (De Magalhães & Santaeulàlia-Llopis, 2018); connections between corruption and inequality (Sulemana & Kpienbaareh, 2018); relationships between inequality, financial access and education (Tchamyou, 2019, 2020; Meniago & Asongu, 2018; Tchamyou *et al*., 2019a; Mannah-Blankson, 2018); reinventing foreign aid (Jones & Tarp, 2015; Page & Söderbom, 2015; Asongu, 2016b) and development paradigms (Kuada, 2015) for inclusive development and nexuses between foreign investment, the middle class, remittances, external debts and inclusive economic development (Asongu *et al*., 2015; Asongu & Leke, 2019; Kaulihowa & Adjasi, 2018).

The second strand of studies pertaining to the importance of the middle class has focused on four scholarly perspectives, notably, the: measurement of the middle class (Resnick, 2015a, 2015b; Mattes, 2015; Cheeseman, 2015; Shimeles & Ncube, 2015; Thurlow et al., 2015; Tschirley *et al*., 2015); linkages between the middle class and economic development (Handley, 2015; Tschirley *et al*., 2015; Kodila-Tedika et al., 2016); the relationship between the middle class and governance standards (Resnick, 2015b; Cheeseman, 2015; Mattes, 2015) and the importance of the middle class in contemporary development paradigms (i.e. the Washington Consensus and the Beijing Model) in the light of Africa's development challenges (Asongu, 2016a; Asongu & le Roux, 2019).

The study in the literature closest to this research is Asongu and le Roux (2019) which has investigated the role of income levels in facilitating development outcomes by means of governance channels using an estimation technique (i.e. Fixed effects regressions) that articulates mean values of inclusive human development. The shortcoming of the underlying study is that it establishes blanket policy implications. Accordingly, the investigated relationships (from which the conclusions are drawn), could be contingent on initial levels of inclusive human development such that the nexuses have different tendencies in countries with low, intermediate and high levels of inclusive human development. This study accounts for initial levels of the inclusive human development by using an estimation technique that accounts for existing levels of human development, namely: Quantile regressions.

It is worthwhile to clarify that political and economic governance used in this study are closely related to inclusive human development in the perspectives that: (i) favourable

political governance (in terms of political stability/no violence and voice & accountability) enable a conducive environment for economic prosperity that is relevant for socio-economic development and equitable distribution of fruits of economic prosperity and (ii) good economic governance (entailing regulation quality and government effectiveness) is related to the formulation and implementation of policies that deliver public commodities which are largely education, health and social services. The conceptions of political and economic governance dynamics are consistent with the attendant literature: "*The first concept is about the process by which those in authority are selected and replaced (Political Governance): voice and accountability and political stability. The second has to do with the capacity of government to formulate and implement policies, and to deliver services (Economic Governance): regulatory quality and government effectiveness*" (Andres *et al*., 2015, p. 1041; Ajide & Raheem, 2016a, 2016b; Amavilah et al., 2017; Asongu & Odhiambo, 2020a).

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

2. Data and methodology

2.1 Data

The research examines a panel of forty-nine countries in SSA for the period 2000-2012 with data from five mean sources, notably, the: (i) World Governance Indicators of the World Bank for governance indicators; (ii) World Development Indicators of the World Bank for income levels and control variables; (iii) Financial Development and Structure Database (FDSD) of the World Bank for some control variables; (iv) United Nations Development Programme (UNDP) for the inclusive development variable and (v) principal component analysis (PCA) for composite governance indicators. The temporal and geographical scopes of the study are constrained by data availability.

In the light of recent African development literature and the motivation of this study, the inequality-adjusted human development index (IHDI) is used as the outcome variable (Asongu *et al*., 2015). The six governance indicators from Kaufmann *et al.* (2010) are bundled with PCA for composite indicators, notably: (i) political governance (proxied by political stability and "voice & accountability") which is the election and replacement of political leaders; (ii) economic governance (measured with government effectiveness and regulation quality) understood as the formulation and implementation of policies that deliver public commodities and (iii) institutional governance (proxied with corruption-control and the

rule of law) is defined as the formulation and implementation of policies that deliver public commodities.

In line with Asongu (2014, p. 364), the income level classification is consistent with World Bank income groups. These are: high income, $12,276 or more; upper middle income, $3,976-$12,275; lower middle income, $1,006-$3,975 and low income, $1,005 or less. Four control variables are adopted in order to account for variable omission bias, namely: Gross Domestic Product (GDP) per capita growth, private domestic credit, remittances and foreign direct investment (FDI) inflows. These control variables are motivated by recent African inequality and economic development literature (Mishra *et al*., 2011; Mlachila *et al*., 2017; Seneviratne & Sun, 2013; Anand *et al*., 2012; Ssozi & Asongu, 2016; Tchamyou, 2019, 2020; Meniago & Asongu, 2018). With the exception of remittances, the remaining three control variables are expected to negatively affect inclusive human development. As recently argued by Anyanwu (2011), Tchamyou *et al.* (2019a) and Meniago and Asongu (2018), remittances negatively affect inclusive human development because those migrating to developed countries from poor nations are largely from wealthy factions for the population who have the financial resources for the visa processes and administrative procedures. Mlachila *et al.* (2017) have established a positive relationship between the other three variables and pro-poor development. The definitions and sources of variables are provided in Appendix 1 while the summary statistics is disclosed in Appendix 2. The correlation matrix is provided in Appendix 3.

2.2 Methodology

2.2.1 Principal Component Analysis (PCA)

In the light of the correlation matrix, the motivation of the study and recent empirical literature (Tchamyou, 2017; Asongu *et al*., 2018), the PCA is used to reduce the dimensions of variables into composite indicators called principal components (PCs). The PCA is a technique that is employed in empirical literature to reduce highly correlated variable into a set of smaller uncorrelated PCs. The procedure for adopting the main PCs is the Kaiser (1974) criterion which suggests that PCs with an eigenvalue greater than one and reflecting about 70% of the total variation should be selected.

The results presented in Table 1 summarise the results of the PCA. It can be observed that political governance (*Polgov*) has an eigenvalue of 1.671 and reflects a total variability of 83.50%. Hence, 85.50% of information contained in “voice & accountability” and political stability is captured by the composite political governance indicator. In the same vein,

economic governance (*Ecogov*) reflects 93.90% of common information in government effectiveness and regulation quality and has an eigenvalue of 1.878. The institutional governance composite indicator (*Instgov*) is informational and not used in the empirical analysis in the light of the focus of the study on economic governance and political governance. The PC-derived composite indicators can provide robust estimates. The interested reader can refer to the attendant literature for insights into consistency, efficiency and inferential validity of PC-derived regressors (Asongu & Nwachukwu, 2016a, 2016b).

Table 1: Principal Component Analysis (PCA) for Governance (Gov)

Principal Components	Component Matrix (Loadings)						Proportion	Cumulative Proportion	Eigen Value
	VA	PS	RQ	GE	RL	CC			
First PC (Polgov)	0.707	0.707	---	---	---	---	0.835	0.835	1.671
Second PC	-0.707	0.707	---	---	---	---	0.164	1.000	0.328
First PC (Ecogov)	---	---	0.707	0.707	---	---	0.939	0.939	1.878
Second PC	---	---	-0.707	0.707	---	---	0.060	1.000	0.121
First PC (Instgov)	---	---	---	---	0.707	0.707	0.930	0.930	1.861
Second PC	---	---	---	---	-0.707	0.707	0.069	1.000	0.138

P.C: Principal Component. VA: Voice & Accountability. RL: Rule of Law. R.Q: Regulation Quality. GE: Government Effectiveness. PS: Political Stability. CC: Control of Corruption. Polgov (Political Governance): First PC of VA & PS. Ecogov (Economic Governance): First PC of RQ & GE. Instgov (Institutional Governance): First PC of RL & CC.

2.2.2 Empirical Strategy

The adopted estimation approach is in line with studies on the importance of adapting the estimation technique to data behaviour (Dana & Dana, 2005; Kou et al., 2012, 2014, 2016, 2019a, 2019b; Dana, 2014; Li et al., 2014, 2016; Dana & Dumez, 2015; Zhang et al., 2019). Consistent with the motivation of the study, this research departs from Asongu and le Roux (2019) by adopting an empirical strategy that accounts for initial levels of inclusive human development. Accordingly, the adopted Quantile regressions (QR) estimation approach is tailored to emphasis low, intermediate and high initial levels of inclusive human development.

In accordance with the attendant empirical literature (Koenker & Bassett, 1978; Koenker, 2005; Hao & Naiman, 2007; Okada & Samreth, 2012; Asongu, 2013; Tchamyou & Asongu, 2018; Asongu & Odhiambo, 2019a, 2019b, 2019c), the QR approach is different from the technique used by Asongu and le Roux (2019) because, it: (i) determines conditional quantiles (versus conditional mean); is based on sufficient data (versus an OLS technique which can be used on small data); follows an agnostic distribution (versus the normality assumption); is computationally more intensive (versus a linear technique which is computationally less intensive) and is robust to the control of outliers (versus sensitivity to outliers).

The θ^{th} quantile estimator of inclusive human development is obtained by solving for the following optimization problem which, is presented without subscripts in Eq. (1) for the purpose of simplicity and readability.

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

where $\theta \in (0,1)$. As opposed to OLS which is based on the minimization of the sum of squared residuals, with QR, it is the weighted sum of absolute deviations that is minimized. For example, the 25th or 75th quantiles (with θ=0.25 or 0.75, respectively) are estimated by approximately weighing the residuals. The conditional quantile of inclusive human development or y_i given x_i is:

$$Q_y(\theta / x_i) = x_i'\beta_\theta \ , \quad (2)$$

where unique slope parameters are estimated for each θ^{th} specific quantile. This formulation is analogous to $E(y / x) = x_i'\beta$ in the OLS slope where parameters are examined only at the mean of the conditional distribution of inclusive development. For Eq. (2), the dependent variable y_i is inclusive human development whereas x_i contains: a constant term, governance, income levels, GDP per capita growth; credit access, remittances and FDI inflows.

In the light of the above, separate regression equations for the QR and OLS for the research question being investigated are as follows.

$$IHDI_{i,t} = \sigma_0 + \sigma_1 X_{i,t} + \varepsilon_{i,t} \quad (3)$$

$$IHDI_{i,t} = \sigma_0^{(p)} + \sigma_1^{(p)} \sigma_1 X_{i,t} + \varepsilon_{i,t}^{(p)} \quad (4)$$

The OLS and QR respectively in Eq. (3) and Eq. (4) above focus on the relevance of income levels in modulating governance (political and economic) for inclusive human development, where, $IHDI_{i,t}$ is inclusive human development for country i in period t, σ_0 is a constant, X entails income levels, governance and other control variables (GDP per capita growth; credit access, remittances and FDI inflows), and $\varepsilon_{i,t}$ is the error term.

3. Empirical results

Table 2 presents the empirical results. While Panel A shows how low income levels modulate governance to influence inclusive development, Panel B discloses findings on how middle income levels modulate governance to affect the same outcome variable. The left hand-side

and right hand-side of both panels focus on respectively, political governance and economic governance.

Table 2: Income and Governance

Dependent variable: Inclusive human development

Panel A: Low Income and governance

	Low Income and Political Governance						Low Income and Economic Governance					
	OLS	Q.10	Q.25	Q.50	Q.75	Q.90	OLS	Q.10	Q.25	Q.50	Q.75	Q.90
Constant	**0.507*** **	**0.404*** **	**0.467*** **	**0.493*** **	**0.509*** **	**0.602*** **	**0.491*** **	**0.406*** **	**0.459*** **	**0.480*** **	**0.484*** **	**0.541*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
LI	**-0.115*** **	**-**	**-**	**-**	**-**	**-**	**-**	**-0.122*** **	**-**	**-**	**-**	**-0.062** *
		0.119* **	**0.139*** **	**0.099*** **	**0.077*** **	**0.113*** **	**0.102*** **		**0.126*** **	**0.090*** **	**0.066*** **	
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.031)**
PG	**0.041*** **	-0.003	**0.021*** **	**0.039*** **	**0.040*** **	**0.060*** **	---	---	---	---	---	---
	(0.000)	(0.525)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**						
EG	---	---	---	---	---	---	**0.042*** **	-0.004	**0.035*** **	**0.042*** **	**0.040*** **	**0.062*** **
							(0.000)	(0.536)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
LI× PG	**-0.031*** **	0.011	-0.005	**-0.022** *	**-**	**-**	---	---	---	---	---	---
					0.037* **	**0.070*** **						
	(0.000)	(0.159)	(0.601)	**(0.025)**	**(0.000)**	**(0.000)**						
LI ×EG	---	---	---	---	---	---	**-0.017** *	**0.018***	-0.004	-0.0002	**-0.017** *	**-0.063** *
							(0.027)	**(0.056)**	(0.734)	(0.980)	**(0.037)**	**(0.015)**
GDPpcg	0.0008	0.0007	0.002	-0.0006	0.0009	0.002	0.0006	0.0006	0.001	-0.0008	0.00006	0.001
	(0.478)	(0.548)	(0.156)	(0.651)	(0.404)	(0.264)	(0.552)	(0.582)	(0.474)	(0.476)	(0.954)	(0.579)
Credit	**0.0009*** **	**0.001*** **	**0.0009** *	**0.001*** **	**0.001*** **	-0.00004	**0.0007** *	**0.001*** **	0.0006	**0.001*** **	**0.001*** **	0.0002
	(0.001)	**(0.000)**	**(0.012)**	**(0.000)**	**(0.000)**	(0.913)	**(0.015)**	**(0.000)**	(0.157)	**(0.000)**	**(0.000)**	(0.816)
Remittances	**-0.002*** **	0.0003	**-0.001** *	**-**	**-**	**-**	**-**	0.0003	-0.001	**-**	**-**	**-0.002** *
				0.001* **	**0.002*** **	**0.003*** **	**0.001*** **			**0.001*** **	**0.001*** **	
	(0.000)	(0.520)	**(0.044)**	**(0.009)**	**(0.000)**	**(0.000)**	**(0.000)**	(0.575)	(0.120)	**(0.003)**	**(0.002)**	**(0.066)**
FDI	0.0004	0.0008	0.0003	-0.001	**0.001***	**0.002** *	**0.001** *	0.001	0.001	0.0007	0.0003	0.002
	(0.387)	(0.159)	(0.655)	(0.130)	**(0.055)**	**(0.029)**	**(0.024)**	(0.103)	(0.146)	(0.197)	(0.554)	(0.206)
Net Effects	0.021	na	na	0.025	0.016	0.015	0.031	na	na	na	0.029	0.022
Fisher	**59.37*** **						**61.34*** **					
Pseudo R²	0.599	0.335	0.316	0.303	0.433	0.537	0.596	0.345	0.343	0.352	0.439	0.488
Observations	310	310	310	310	310	310	310	310	310	310	310	310

Panel B: Middle Income and Governance

	Middle Income and Political Governance						Middle Income and Economic Governance					
	OLS	Q.10	Q.25	Q.50	Q.75	Q.90	OLS	Q.10	Q.25	Q.50	Q.75	Q.90
Constant	**0.392*** **	**0.284*** **	**0.327*** **	**0.393*** **	**0.432*** **	**0.489*** **	**0.389*** **	**0.284*** **	**0.332*** **	**0.389*** **	**0.417*** **	**0.478*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
MI	**0.115*** **	**0.119*** **	**0.139*** **	**0.099*** **	**0.077*** **	**0.113*** **	**0.102*** **	**0.122*** **	**0.126*** **	**0.090*** **	**0.066*** **	**0.062** *
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.032)**
PG	**0.009** *	0.007	**0.015** *	**0.016** *	0.002	-0.010	---	---	---	---	---	---
	(0.091)	(0.188)	**(0.043)**	**(0.028)**	(0.610)	(0.251)						
EG	---	---	---	---	---	---	**0.024*** **	**0.014***	**0.030** *	**0.042*** **	**0.023*** **	-0.0007
							(0.000)	**(0.051)**	**(0.020)**	**(0.000)**	**(0.000)**	(0.969)
MI× PG	**0.031*** **	-0.011	0.005	**0.022** *	**0.037*** **	**0.070*** **	---	---	---	---	---	---
	(0.000)	(0.159)	(0.601)	**(0.025)**	**(0.000)**	**(0.000)**						
MI ×EG	---	---	---	---	---	---	**0.017** *	**0.018***	0.004	0.0002	**0.017** *	**0.063** *
							(0.027)	**(0.056)**	(0.734)	(0.980)	**(0.037)**	**(0.015)**
GDPpcg	0.0008	0.0007	0.002	-0.0006	0.0009	0.002	0.0006	0.0006	0.001	-0.0008	0.00006	0.001
	(0.478)	(0.548)	(0.156)	(0.651)	(0.404)	(0.264)	(0.552)	(0.582)	(0.474)	(0.476)	(0.954)	(0.579)
Credit	**0.0009*** **	**0.001*** **	**0.0009** *	**0.001*** **	**0.001*** **	-0.00004	**0.0007** *	**0.001*** **	0.0006	**0.001*** **	**0.001*** **	0.0002
	(0.001)	**(0.000)**	**(0.012)**	**(0.000)**	**(0.000)**	(0.913)	**(0.015)**	**(0.000)**	(0.157)	**(0.000)**	**(0.000)**	(0.816)
Remittances	**-0.002*** **	0.0003	**-0.001** *	**-**	**-**	**-**	**-**	**0.0003*** **	-0.001	**-**	**-**	**-0.002** *
				0.001* **	**0.002*** **	**0.003*** **	**0.001*** **			**0.001*** **	**0.001*** **	
	(0.000)	(0.520)	**(0.044)**	**(0.009)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.575)**	(0.120)	**(0.003)**	**(0.002)**	**(0.066)**
FDI	0.0004	0.0008	0.0003	-0.001	**0.001***	**0.002** *	**0.001** *	0.001	0.001	0.0007	0.0003	0.002
	(0.387)	(0.159)	(0.655)	(0.130)	**(0.055)**	**(0.029)**	**(0.024)**	(0.103)	(0.146)	(0.197)	(0.554)	(0.206)
Net Effects	0.020	na	na	0.024	na	na	0.030	0.025	na	na	0.029	na
Fisher	**59.37*** **						**61.34*** **					
Pseudo R²	0.599	0.335	0.316	0.303	0.433	0.537	0.596	0.345	0.343	0.352	0.439	0.488
Observations	310	310	310	310	310	310	310	310	310	310	310	310

*,**,***: significance levels of 10%, 5% and 1% respectively. Bilaid: Bilateral aid. LI: Low Income. MI: Middle Income. PG: Political Governance. EG: Economic Governance. GDPpcg: Gross Domestic Product per capita growth. FDI: Foreign Direct Investment. OLS: Ordinary Least Squares. R² for OLS and Pseudo R² for quantile regression. Lower quantiles (e.g., Q 0.1) signify nations where inclusive human development is least. na: not applicable because at least one estimated coefficient needed for the computation of net effects is not significant. The mean value of Low Income is 0.632 while the mean value of Middle Income 0.367.

In order to assess the overall impact of the relevance of income levels in moderating governance for inclusive development, net effects are computed from the unconditional effect of governance and the conditional impact resulting from the interaction between income levels and the corresponding governance dynamic. For instance, in the first column of Table 2, the net effect of low income levels in modulating political governance for inclusive human development is 0.021 ([-0.031× 0.632] + [0.041]). In the computation, the mean value of low income countries is 0.632, the unconditional effect of political governance is 0.041 while the conditional impact from the interaction between low income and political governance is -0.031. In the same vein, in the last column of Panel A in Table 2, the net impact of low income in modulating economic governance for inclusive development is 0.022 ([-0.063× 0.632] + [0.062]). In the computation, the mean value of low income countries is 0.632, the unconditional effect of economic governance is 0.062 while the conditional impact from the interaction between low income and economic governance is -0.063.

It is important to note that the findings of OLS and QR are distinct in terms of significance and magnitude of significance because the OLS findings vary throughout the conditional distribution of inclusive human development. This heterogeneity confirms the relevance of assessing the investigated linkages throughout the conditional distributions of inclusive human development. The following findings can be established. First, low income modulates governance (economic and political) to positively affect inclusive human development exclusively in countries with above-median levels of inclusive human development. It follows that countries with averagely higher levels of inclusive human development are more likely to benefit from the relevance of income levels in influencing governance for inclusive development.

Second, in Panel B, the importance of middle income in modulating political governance to positively affect inclusive human is apparent exclusively in the median while the relevance of middle income in moderating economic governance to positively influence inclusive human development apparent in the 10^{th} and 75^{th} quantiles.

Third, from the OLS results, regardless of panels, income levels modulate economic governance to affect inclusive human development at a higher magnitude, compared to political governance. This finding is logical in the light of the definition of economic governance which is conceptually more associated with inclusive development compared to political governance. Accordingly, economic governance is the formulation and implementation of policies that deliver public commodities, which include education and health amenities captured by inequality-adjusted human development.

Fourth, the significant control variables have the expected signs. Accordingly, with the exception of remittances, the other variables involved in the conditioning information set positively affect inclusive human development.

In order to connect the findings with the relevant literature, it is important to note that, results established in this study broadly confirm two strands of research, though within the framework of inclusive development being assessed throughout the conditional distribution of inclusive human development. These two strands of the literature are: (i) studies on the importance of governance in improving human development conditions (Fosu, 2013; Anyanwu & Erhijakpor, 2014; Fonchingong, 2014; Efobi, 2015; Asongu & Odhiambo,2020b) and (ii) research on the importance of income levels in socio-economic and human development outcomes (Adelman & Morris, 1967; Landes, 1998; Easterly, 2001; Birdsall, 2007a, 2007b; 2010; Sridharan, 2004; Banerjee & Duflo, 2009; Loyza et al., 2012; Kodila-Tedika et al., 2016).

4. Concluding implications and future research directions

The literature is consistent on the view that close to half of countries in sub-Saharan Africa (SSA) did not achieve the Millennium Development Goal (MDG) extreme poverty target. Moreover, the number people living in extreme poverty have been increasing in the sub-region since the mid 1990s. This study complements existing literature on dominant development paradigms (i.e. the Washington Consensus versus the Beijing Model) by assessing the role of income levels (low and middle) in modulating governance (political and economic) to influence inclusive human development. The empirical evidence is based on interactive quantile regressions and forty-nine countries in SSA for the period 2000-2002.

The following main findings are established. First, low income modulates governance (economic and political) to positively affect inclusive human development exclusively in countries with above-median levels of inclusive human development. It follows that countries with averagely higher levels of inclusive human development are more likely to benefit from the relevance of income levels in influencing governance for inclusive development.

Second, the relevance of middle income in modulating political governance to positively affect inclusive human is apparent exclusively in the median while the importance of middle income in moderating economic governance to positive influence inclusive human development is apparent in the 10^{th} and 75^{th} quantiles. Third, from the OLS results, regardless of panels, income levels modulate economic governance to affect inclusive human development at a higher magnitude, compared to political governance. Policy implications are

discussed in the light of the post-2015 agenda of sustainable development goals and contemporary development paradigms.

The benefit of low income levels in modulating governance (political and economic) to positively affect inclusive human development is a positive function of inclusive human development. It confirms the hypothesis that the response of poverty to development is a decreasing function of inequality in the perspective that countries with comparatively higher levels of inclusive development will benefit more from the ability of low income countries to leverage on governance to affect inclusive human development in the post-2015 development agenda. This conclusion is in line with Bicaba *et al.* (2017) on the importance of reducing inequality for shared economic development if SSA is to eradicate extreme poverty by 2030.

The fact that irrespective of income levels, income modulates economic governance to affect inclusive human development at a higher magnitude than political governance is evidence of the fact that focusing on economic governance will engender more inclusive development benefits compared to political governance. Hence, prioritising economic governance will be more beneficial for inclusive development compared to the corresponding benefits from prioritising political governance. It is relevant to note that in the light of the motivation of the study, political governance is a priority of the Washington Consensus while economic governance is a priority of the Beijing Model. Future studies can use relevant estimation approaches to assess country-specific cases in order to provide more targeted policy implications.

Appendices

Appendix 1: Definitions and sources of variables

Variables	Signs	Definitions	Sources
Inclusive development	IHDI	Inequality-Adjusted Human Development Index	UNDP
Political Stability	PolS	"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".	WGI
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"	WGI
Political Governance	Polgov	First Principal Component of Political Stability and Voice & Accountability. The process by which those in authority are selected and replaced.	PCA
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".	WGI
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".	WGI
Economic Governance	Ecogov	"First Principal Component of Government Effectiveness and Regulation Quality. The capacity of government to formulate & implement policies, and to deliver services".	PCA
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"	WGI
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"	WGI
Institutional Governance	Instgov	First Principal Component of Rule of Law and Corruption-Control. The respect for citizens and the state of institutions that govern the interactions among them	PCA
GDP per capita	GDPpcg	GDP per Capita growth rate	
Private Credit	Credit	Private credit by deposit banks and other financial institutions (% of GDP)	WDI
Remittance	Remit	Remittance inflows (% of GDP)	WDI
Foreign investment	FDI	Foreign Direct Investment net inflows (% of GDP)	WDI

UNDP: United Nations Development Programme. WDI: World Development Indicators. WGI: World Governance Indicators. GDP: Gross Domestic Product.

Appendix 2: Summary statistics

	Mean	SD	Min	Max	Obs
Inequality Adj. Human Development	0.721	3.505	0.129	0.768	485
Political Stability	-0.543	0.956	-3.323	1.192	578
Voice & Accountability	-0.646	0.737	-2.233	0.990	578
Political Governance	0.000	1.292	-3.440	2.583	578
Government Effectiveness	-0.771	0.620	-2.450	0.934	577
Economic Governance	0.002	1.367	-4.049	3.807	577
Regulation Quality	-0.715	0.644	-2.665	0.983	578
Corruption-Control	-0.642	0.591	-1.924	1.249	579
Rule of Law	-0.741	0.662	-2.668	1.056	578
Institutional Governance	0.0002	1.364	-3.588	3.766	578
GDP per Capita growth	2.198	5.987	-49.761	58.363	608
Private Domestic Credit	18.551	22.472	0.550	149.78	507
Remittances	3.977	8.031	0.000	64.100	434
Net Foreign Direct Investment Inflows	5.332	8.737	-6.043	91.007	603
Low Income Countries	0.632	0.482	0.000	1.000	637
Middle Income Countries	0.367	0.482	0.000	1.000	637

SD: Standard deviation. Min: Minimum. Max: Maximum. Obs: Observations. Adj: Adjusted.

Appendix 3: Correlation Matrix (Uniform sample size: 310)

Governance Variables									Control Variables				Dep. Vble	
PolS	VA	Polgov	GE	RQ	Ecogov	CC	RL	Instgov	GDPpcg	Credit	Remit	FDI	IHDI	
1.000	0.688	0.923	0.653	0.625	0.674	0.692	0.777	0.763	-0.011	0.279	0.032	-0.018	0.411	PolS
	1.000	0.914	0.774	0.734	0.779	0.683	0.810	0.775	0.113	0.452	0.042	-0.010	0.361	VA
		1.000	0.775	0.753	0.789	0.748	0.863	0.837	0.053	0.396	0.041	-0.015	0.421	Polgov
			1.000	0.877	0.972	0.836	0.897	0.900	0.118	0.543	0.020	-0.152	0.584	GE
				1.000	0.965	0.799	0.856	0.860	-0.0001	0.532	-0.076	-0.192	0.512	RQ
					1.000	0.845	0.906	0.909	0.064	0.555	-0.036	-0.177	0.568	Ecogov
						1.000	0.851	0.962	0.053	0.469	-0.196	-0.104	0.519	CC
							1.000	0.961	0.070	0.471	0.079	-0.084	0.507	RL
								1.000	0.064	0.489	-0.062	-0.098	0.534	Instgov
									1.000	0.029	0.026	0.172	0.077	GDPpcg
										1.000	-0.095	-0.082	0.536	Credit
											1.000	0.122	-0.043	Remit
												1.000	-0.026	FDI
													1.000	IHDI

PolS: Political Stability. VA: Voice & Accountability. Polgov: Political Governance. GE: Government Effectiveness. RQ: Regulation Quality. Ecogov: Economic Governance. CC: Corruption-Control. RL: Rule of Law. Instgov: Institutional Governance. GDPpcg : GDP per capita growth rate. Credit: Private domestic credit. Remit: Remittances. FDI: Foreign Direct Investment. IHDI: Inequality Adjusted Human Development Index. Dep. Vble: Dependent Variable.

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