A G D I Working Paper

WP/19/036

Income Levels, Governance and Inclusive Human Development in Sub-Saharan Africa [1]

Forthcoming: Applied Research in Quality of Life

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1 This working paper also appears in the Development Bank of Nigeria Working Paper Series.

Research Department

Income Levels, Governance and Inclusive Human Development in Sub-Saharan Africa

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January 2019

Abstract

This study examines how income-driven governance affects inclusive human development in Sub-Saharan Africa with data for the period 2000-2012. The empirical evidence is based on the Generalised Method of Moments (GMM) and Tobit regressions. Nine bundled and unbundled concepts of governance are used: political (voice & accountability and political stability/no violence), economic (government effectiveness and regulation quality) and institutional (corruption-control and the rule of law) governances. The main finding is that 'middle income'-driven governance has a higher effect on inclusive human development than 'low income'-driven governance. Policy implications are discussed in the light of: (i) the contemporary relevance of findings; (ii) the pivotal role of a higher income level in the post-2015 sustainable development agenda; and (iii) inconsistent strands in the literature and in foreign aid policies.

JEL Classification: D31; I10; I32; K40; O55
Keywords: Inclusive development; Income levels; Governance; Africa

1. Introduction

There are three main motivations for positioning an inquiry on the linkages between governance, inclusive human development and the importance of income levels in Africa, notably: (i) disturbing extreme poverty trends in sub-Saharan Africa (SSA) and the role of institutions in inclusive development; (ii) documented positive development externalities from rising income levels and (iii) gaps in the literature on the nexus between income levels and inclusive development in Africa.

First, an April 2015 World Bank report on Millennium Development Goals (MDGs) targets has shown that whereas extreme poverty has been decreasing in all regions of the world, it has been increasing in SSA. According to the account, about 45 percent of countries in the sub-region were substantially off-track in reaching the MDG extreme poverty target (World Bank, 2015; Asongu & le Roux, 2019; Tchamyou, 2019, 2019b; Tchamyou et al., 2019; Asongu & Odhiambo, 2019a). This worrisome trend is amid the sub-region enjoying more than two decades of growth resurgence that commenced in the mid-1990s (Fosu, 2015a,). This has led to a recent strand of literature devoted to, *inter alia*: elucidating paradigm shifts needed to understand Africa's poverty tragedy (Kuada, 2015) and assessing the role of institutions in Africa's growth recovery in order to know if the recent growth episode is a myth or reality (Fosu, 2015b, 2015c). Moreover, good governance has been documented to be strongly associated with inclusive development, notably in improving living standards through better resource management (Fosu, 2013a, 2013b; Anyanwu & Erhijakpor, 2014; Fonchingong, 2014) and consolidating the foundations of social change (Efobi, 2015).

Second, rising income levels are important in contemporary African development because it has been shown to be associated with a plethora of positive development externalities, particularly: (i) historical evidence on higher income levels as a driving factor in the development of North America and Europe in the nineteenth century (Adelman & Morris, 1997; Landes, 1998) and (ii) more contemporary evidence of higher income levels in stimulating social progress (Sridharan, 2004), institutional reforms (Loyza et al., 2012), democracy (Kodila-Tedika et al., 2016), good institutions (Birdsall, 2007a), poverty mitigation (Easterly, 2001), entrepreneurship and innovation (Banerjee & Duflo, 2009) and inclusive development (Birdsall, 2010).

Third, contemporary African-specific development literature (which we cover in greater depth in Section 2) on higher income levels can be discussed in four main categories,

namely: measurement concerns of the phenomenon (Resnick, 2015a; Tschirley et al., 2015; Cheeseman, 2015; Mattes, 2015; Resnick, 2015b; Thurlow et al., 2015; Shimeles & Ncube, 2015); linkages between higher income levels and economic growth (Handley, 2015; Tschirley et al., 2015); relationships between income levels and institutions (Cheeseman, 2015; Mattes, 2015; Resnick , 2015b) and the role of higher income levels in contemporary development paradigms (Asongu & Ssozi, 2016; Asongu, 2016).

Noticeably, the above literature leaves room for improvement in three main dimensions, notably, the: (i) need to incorporate inclusive human development in the light of post-2015 sustainable development goals; (ii) articulate the effect of governance on inclusive development; and (iii) examination of the role of income levels in the effect of governance on inclusive human development. This study fills identified gaps by investigating the role of income levels in the relationship between governance and inclusive human development. In an effort to find room for policy implications, nine bundled and unbundled governance indicators are used. They are: political governance (consisting of voice & accountability and political stability/no violence); economic governance (entailing government effectiveness and regulation quality); and institutional governance (encompassing corruption-control and the rule of law).

Two main contemporary paradigm shifts motivate this inquiry. *First,* the imperative for macroeconomic reforms which embody more of the middle-class values and aspirations as opposed to a uniform growth policy (Birdsall, 2007b). Second, the need to transform from 'strong economics' (or structural adjustment policies) to 'soft economics' (or human capability development) in order to understand Africa's extreme poverty tragedy (Kuada, 2015).

The rest of the study is structured as follows. Section 2 discusses the intuition, theoretical underpinnings and the relevant literature pertaining to the relationship between the African wealth and economic development. The data and methodology are covered in Section 3. Section 4 presents the empirical results and corresponding discussion, while Section 5 concludes with suggestions for future research directions.

2. Intuition, theoretical underpinnings and literature

2.1 African wealth in the terms of the middle class and economic development

Contemporary African-specific development literature on African wealth levels can be discussed in four main categories, namely: (i) measurement concerns of the phenomenon; (ii)

linkages between the middle class and economic growth; (iii) connection between the middle class and institutions and (iv) the role of the middle class in contemporary development paradigms.

In the *first* category on the appreciation of the middle class in Africa, consistent with Resnick (2015a), its conception and measurement depend on the line of inquiry under consideration. More specifically (i) whether absolute expenditure and income indicators are worthwhile when examining patterns of consumption (Tschirley et al., 2015) and (ii) if the assessment is on democratic values (e.g. political activism), a combination of asset or income metrics arising from employment and education levels (Cheeseman, 2015; Mattes, 2015; Resnick, 2015b). Thurlow et al. (2015) have made propositions on the conceptualization and measurement of the African middle class. According to the authors, the middle class of the continent need not have reduced, primarily because the region is characterized by a relatively low cost of living. Additionally, they contend that a universal concept of the status of the middle class consists of prospects of social mobility and protection from economic vulnerability. To this end, they suggested three indicators for a minimum threshold of the African middle class. They are: (i) skilled employed; (ii) secondary school completion and (iii) households with basic amenities like electricity, flush toilets and piped water.

Second, some studies have assessed the relationship between Africa's middle class and economic growth. Handley (2015) has argued that the effect of the middle class on economic growth is substantially contingent on the strong association between the middle class and the private sector instead of the public sector. The former sector is important because a plethora of positive factors are associated with the middle class; notably employment, innovation, pressure on the state and demand for commodities. Tschirley et al. (2015) have assessed the effect of the middle class on patterns in food consumption to establish that the middle class and the poor allocate a substantial portion of their food budget to processed food and still considerably depend on locally-processed food in the long-term.

In the *third* category on the relationship between the middle class and institutions, Cheeseman (2015) has investigated the nexus between the Kenyan middle class and democracy in the country to establish that education is the most substantive determinant of democracy with secondary and tertiary educations very strongly favourable. Linkages between the middle class' values, trust in government and political participation were examined by Resnick (2015b) in Zambia using the 2008 Governance Survey to conclude that,

compared to the poor; the middle class of the country is not very likely to vote and are less trustful of government institutions.

The last strand builds on the role of the middle class in contemporary development paradigms. Authors in this category have used a rising middle class to reconcile the two contemporary dominant models of development, namely: the Washington Consensus and the Beijing model. Whereas Asongu and Ssozi (2016) provided strategies and solutions to policy syndromes in Sino-African relations, Asongu (2016) has reviewed and reconciled dominant schools of thought in Sino-African relations. These authors are in agreement on the importance of the middle class in driving political governance in a sustainable manner. According to their narrative, African countries which are at the early stages of industrialisation should pursue policies that prioritise economic governance in accordance with the Beijing model instead of political governance emphasised in the Washington Consensus. The authors further suggest that the Beijing (Washington) model should be pursued as a short- (long-) term development goal because of the requirement that only a burgeoning middle class may be trusted to sustain the demand for improvements in political rights and civil liberties.

2.2 Intuition for the linkage between income levels and inclusive development

Consistent with Boushey and Hersh (2012), the implications of higher income levels have not been clearly incorporated in economic growth theories. Hence, in what follows, we discuss the intuition for investigating the association between income levels and inclusive development. Such intuition is important because applied econometrics should not be exclusively limited to the acceptance and/or rejection of existing economic theories. Hence, we join a recent strand of literature in postulating that, investigating economic phenomena based on sound intuition is a useful scientific activity because it could set the stage for theory-building (Costantini & Lupi, 2005; Narayan et al., 2011; Asongu & Nwachukwu, 2018). The intuition for the connection between a higher income level and inclusive development can be discussed in four main strands, notably, the relationships between a higher income level and education, health and long life, living standards and inequality. Whereas the first three are consistent with the Human Development Index (HDI), the fourth articulates the inclusive dimension of the HDI. The connections are discussed in chronological order.

First, with regard to the relationship between a higher income level and education, a higher income level increases the development of human capital and by extension a well-

educated population (Kharas, 2010; Tsang, 2013). In this light, a child from a moderate-income background is more likely to improve his/her talents compared to a child from low-income strata. It follows that the difference in social class (e.g. low income versus middle income) can influence disparities in the use of and access to education and human capital, which ultimately have some incidence on human development.

Second, on the connection between a higher income level, health and long life, it is logical that the demand for commodities increases with rising income levels. Such commodities include health services which are positively associated with the life expectancy dimension of the HDI. Moreover, increasing domestic demand from higher incomes naturally leads to more employment, higher investment and economic growth. Third, the underlying positive externalities from an increase in aggregate demand from the population with higher income levels on the one hand and improvements in supply by economic sectors (agricultural, industrial and service) on the other hand, ultimately engenders a creation of wealth and increases general living standards which are reflected in the income component of the HDI.

Fourth, income levels have been documented to support inclusive political, economic, and institutional governance (Boushey & Hersh, 2012). Moreover, governance has been established to have an indirect effect on multidimensional poverty through average income (Tebaldi & Mohan, 2010; Asongu & Kodila-Tedika, 2018). Two insights are important here for our study. On the one hand, the foundations of income-driven governance are substantiated by attendant literature. On the other hand, inclusiveness as the outcome of "middle-class"-driven governance entails inequality-adjusted human development. We substantiate the linkages with conceptual clarifications of governance. The definitions of governance are consistent with recent literature (Oluwatobi et al., 2015; Ajide & Raheem, 2016a, 2016b; Amavilah et al., 2017). (i) Political governance which is the election and replacement of political leaders can affect inclusive development because "political stability/no violence" and "voice & accountability" which represent political governance influence the equitable distribution of constituents of the HDI. For instance, in the presence of political instability and violence, some conditions of human development are likely to be negatively affected, *inter alia*: life expectancy, education and the wealth of nations. Moreover, "voice & accountability" is essential to enable the population to choose leaders that can improve general wellbeing. (ii) Economic governance (proxied with regulation quality and government effectiveness) is the formulation and implementation of policies that deliver public commodities. These public commodities include education and health services

that are components of the HDI. (iii) Institutional governance (measured with corruption-control and the rule of law) in respect of the State and citizens of institutions that govern interactions between them. These institutions have as prime objectives the delivery of public commodities and boosting of economic prosperity. The former entails education and health services, whereas the latter reflects the income dimension of the HDI.

Having provided the intuition for income-driven inclusive development, it is worthwhile to assess whether the intuition underpinning the study withstands empirical scrutiny.

3. Data and Methodology

3.1 Data

The study examines a panel of forty-nine SSA countries with data from the African Development Indicators of the World Bank for the period 2000-2012. The starting year 2000 is in accordance with a recent phase of a rising income levels in Africa (Shimeles & Ncube, 2015) whereas the end date 2012 is due to constraints in data availability. In accordance with recent African inclusive development literature, the dependent variable is the inequality-adjusted human development index (IHDI) (Asongu et al., 2015). The IHDI is the national average of achievements in three main areas, namely: (i) knowledge; (ii) health and long life; and (iii) decent standards of living. In addition to accounting for average rewards in terms of health, education and health, the IHDI also accounts for the distribution of underlying achievements among the population by controlling for mean values of each dimension with regards to inequality.

The six governance indicators from Kaufmann et al. (2010) are bundled for three composite governance measurements. They are: (i) voice & accountability and political stability/no violence for political governance; (ii) regulation quality and government effectiveness for economic governance; and (iii) the rule of law and corruption-control for institutional governance. These governance indicators have been used in recent institutional literature (Gani, 2011; Yerrabit & Hawkes, 2015; Andrés et al., 2015; Asongu & Nwachukwu, 2016a).

Classification of countries into income groups is consistent with the World Bank's income thresholds: low income, $1,005 a year or less; lower middle income, $1,006-$3,975; upper middle income, $3,976-$12,275 and high income, $12,276 or more (Asongu, 2014, p. 364). Adopted control indicators are Gross Domestic Product (GDP) per capita growth,

foreign direct investment (FDI), private domestic credit and remittances. In line with recent inclusive development literature, a positive nexus is expected between these conditioning variables and the IHDI (Mishra et al., 2011; Anand et al., 2012; Seneviratne & Sun, 2013; Mlachila et al., 2017). In principle (i) FDI, per capita economic growth and credit facilities have positive effects on inclusive growth (Mlachila et al., 2017); and (ii) remittances which are predominantly used for consumption purposes are very likely to contribute to inclusive growth (Mlachila et al., 2017; Ssozi & Asongu, 2016). It is also important to balance the narrative on expected signs because: (i) per capita GDP growth is expected to increase inclusive development only if the fruits from economic prosperity are equitably distributed; (ii) credit facilities that are not broad-based may not result in the expected inclusive outcome; and (iii) FDI has been recently established to increase inequality in Africa (Asongu & Tchamyou, 2015).

The definition and sources of variables are disclosed in Appendix 1, whereas a summary of the statistics is presented in Appendix 2. The correlation matrix is provided in Appendix 3. In Appendix 2, the means of indicators are comparable and are from corresponding variations (or standard deviations), so we can be confident that reasonably estimated linkages will emerge. The purpose of Appendix 3 is to mitigate issues of multicollinearity. From a preliminary assessment, high degrees of substitution are apparent among governance variables. In order to address the concern, the governance indicators are employed exclusively as independent variables in distinct specifications.

3.2 Methodology

3.2.1 Principal Component Analysis (PCA)

We have observed from the correlation matrix that there is a high degree of substitution between governance indicators. We partially deal with this anxiety by bundling governance variables through principal component analysis (PCA). The PCA is a statistical technique that enables the reduction of a highly correlated set of variables into an uncorrelated set of indicators called principal components. These represent a substantial proportion of variability in the initial dataset.

The Kaiser (1974) and Jolliffe (2002) criterion is used to retain principal components (PCs). They have recommended that only PCs with an eigenvalue that is higher than the mean should be retained. For example, in Table 1, it is apparent that political governance (*Polgov*) has an eigenvalue of 1.671 and accounts for 83.50 percent of variation or information in the

constituent indicators (voice & accountability and political stability). The same logic applies to the retention of common factors pertaining to economic governance (*Ecogov*) and institutional governance (*Instgov*). Political governance is the election and replacement of political leaders. Economic governance, which involves government effectiveness and regulation quality denotes the capacity of the government to formulate and implement policies that deliver public commodities. Institutional governance, which consists of the corruption-control and the rule of law represents the respect by citizens and the state of institutions that govern the interactions among them. PC-augmented governance regressors have recently been shown to be consistent, efficient and valid in terms of their empirical inferences (Asongu & Nwachukwu, 2016b; Tchamyou, 2017).

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.

3.2.2 Estimation technique

Two estimation techniques are adopted in order to control for the persistence and limited range in the dependent variable. The Generalised Method of Moments (GMM) is employed to account for persistence in the dependent variable. Accordingly, the correlation between the IHDI and its first lag is 0.999, which is higher than the rule of thumb threshold of 0.800 needed to ascertain persistence. Asongu (2013) reported that there are at least three reasons for adopting the GMM approach. They comprise the fact that it (i) controls for potential endogeneity in all regressors; (ii) reduces potential biases of the difference estimator in small samples and (iii) does not eliminate cross-country differences (Efobi et al., 2018, 2019; Akinyemi et al., 2019; Fosu & Abass, 2019). It is principally for the second reason that Bond et al. (2001) have recommended that the system GMM estimators publicised by Blundell & Bond (1998) and Arellano & Bover, (1995) be preferred to the difference estimator by Arellano & Bond, (1991). Roodman (2009a, 2009b), Love & Zicchino, (2006);

Baltagi, (2008) extended the Arellano and Bover (1995) method by employing forward orthogonal deviations instead of conventional first differences. They recognised that such transformation helps to limit instrument proliferation and to control for cross sectional dependence (Tchamyou & Asongu, 2017; Boateng et al., 2018). The current study adopts this modified GMM estimation approach. Besides, a *two-step* GMM specification is preferred to the *one-step* approach because it accounts for heteroscedasticity.

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

$$IHD_{i,t} = \sigma_0 + \sigma_1 IHD_{i,t-\tau} + \sigma_2 G_{i,t} + \sigma_3 IL_{i,t} + \sigma_4 GIL_{i,t} + \sum_{h=1}^{4} \delta_h W_{h,i,t-\tau} + \eta_i + \xi_t + \varepsilon_{i,t} \quad (1)$$

$$IHD_{i,t} - IHD_{i,t-\tau} = \sigma_1 (IHD_{i,t-\tau} - IHD_{i,t-2\tau}) + \sigma_2 (G_{i,t} - G_{i,t-\tau}) + \sigma_3 (IL_{i,t} - IL_{i,t-\tau}) + \sigma_3 (GIL_{i,t} - GIL_{i,t-\tau}) + \sum_{h=1}^{4} \delta_h (W_{h,i,t-\tau} - W_{h,i,t-2\tau}) + (\xi_t - \xi_{t-\tau}) + (\varepsilon_{i,t} - \varepsilon_{i,t-\tau}) \quad (2)$$

where, $IHD_{i,t}$ is the inclusive human development of country i in period t; τ represents the lagged coefficient; σ_0 is a constant; G, Governance (*Voice & accountability, political stability/ no violence, political governance, government effectiveness, regulation quality, economic governance, corruption-control, rule of law* and *institutional governance*) ; IL, income levels; GIL, interaction between Governance (G) and income levels (IL); W is the vector of control variables (*GDP per capita growth, Private domestic credit, Remittances* and *Foreign direct investment*); η_i is the country-specific effect; ξ_t is the time-specific constant and $\varepsilon_{i,t}$ the error term.

Given that the IHDI falls within the range of 0 and 1, Ordinary Least Squares (OLS) may be inappropriate. A double-censored Tobit model has been employed in the literature to account for a limited range in dependent variables (Kumbhakar & Lovell, 2000; Koetter et al., 2008; Coccorese & Pellecchia, 2010; Ariss, 2010). Consistent with recent literature (see McDonald, 2009; Coccorese & Pellecchia, 2010; Ajide et al., 2019), in situations where there are no observations of 0 or 1 for the IHDI (which is the present case), employing a double-censored Tobit model is similar to estimating a linear regression model because the two likelihood functions coincide. Hence, the logistic regression linked to the Tobit model is as follows:

$$IHD_{it} = \frac{\exp\left(x_{it}^{'}\beta\right)}{1+\exp\left(x_{it}^{'}\beta\right)} + \phi_{it} \quad (3)$$

where x_{it} is the same vector of regressors used in the Tobit model, β is the vector of parameters and ϕ_{it} is independently and identically distributed (iid) with mean zero and σ_{ϕ}^{2} variance.

Given that robustness checks consist of employing an estimation strategy that encompasses interactive regressions, it is important to highlight some pitfalls that are linked to such interactive regressions (Brambor et al., 2006; Asongu & Odhiambo, 2019b). In the specification exercise, all constituent variables are entered into the regressions.

4. Empirical results

4.1 Presentation of results

Tables 2 and 3 present results corresponding to GMM and Tobit regressions, respectively. Each table is presented in three panels: Panel A for the full sample, Panel B on low-income countries and Panel C on middle-income countries. Whereas Tobit regressions are specified with data of annual periodicity, GMM regressions are based on two-year non-overlapping intervals in order to mitigate instrument proliferation.

Four main information criteria are used to assess the validity of the GMM findings. First, the alternative hypothesis of the second-order Arellano and Bond autocorrelation test (AR [2]) in difference for the absence of autocorrelation in the residuals should be rejected. Second, alternative hypotheses of the Sargan and Hansen over-identification restrictions (OIR) tests should also be rejected because they are for the positions that instruments are correlated with the error terms, implying they are invalid. Accordingly, whereas the Hansen OIR test is weakened by instruments but robust, the Sargan OIR test is not weakened by instruments and not robust. Third, the Sargan OIR and Hansen OIR tests are complemented with the Difference in Hansen Test (DHT) for instruments exogeneity. Fourth, a Fisher test is also provided for the joint validity of estimated coefficients.

The following findings can be established for Table 2. (1) Governance dynamics consistently improve inclusive human development. (2) With the exceptions of economic and institutional governances, governance increases inclusive human development with a higher magnitude in middle-income nations compared to low-income countries. (3) GDP per capita growth and private domestic credit possibly do not have the expected signs respectively

because of immiserizing growth and substantial allocation of credit to rich households and companies. In essence, as emphasized in the introduction, extreme poverty has been increasing in SSA because of exclusive growth. Private domestic credit may not benefit a substantial bulk of the population if poor households in the informal sectors of the economy do not have bank accounts. This is consistent with the narrative that only 23 percent of citizens in developing countries living on less the 2US$ a day possess bank accounts (Asongu & Tchamyou, 2015). The negative effect of remittances may be traceable to the portion of remittances that is not invested in inclusive development activities.

In Table 3 (i) governance indicators consistently increase inclusive human development with the magnitude from middle-income countries consistently higher and (ii) the significant control variable has the expected sign.

Table 2: Inclusive development and governance (Non-interactive GMM)

	Dependent Variable: Inequality Adjusted Human Development (IHDI)								
	Panel A: Full Sample								
	Political Governance			**Economic Governance**			**Institutional Governance**		
	Political Stability (PolS)	Voice & Accountability (VA)	Political governance (Polgov)	Government Effectiveness (GE)	Regulation Quality(RQ)	Economic Governance (Ecogov)	Corruption-Control (CC)	Rule of Law (RL)	Institutional Governance (Instgov)
Constant	**1.322*** (0.000)**	**1.299*** (0.000)**	**0.873*** (0.000)**	**1.204*** (0.000)**	**1.238*** (0.000)**	**0.666*** (0.000)**	**1.149*** (0.000)**	**1.245*** (0.000)**	**0.801*** (0.000)**
IHDI(-1)	**-0.027*** (0.000)**	**-0.021*** (0.000)**	**-0.041*** (0.000)**	**-0.011*** (0.000)**	**-0.020*** (0.000)**	**-0.040*** (0.000)**	**-0.024*** (0.000)**	**-0.013*** (0.000)**	**-0.015*** (0.000)**
Political Stability (PolS)	**0.997*** (0.000)**	---	---	---	---	---	---	---	---
Voice & Accountability(VA)	---	**1.002*** (0.000)**	---	---	---	---	---	---	---
Political Governance (Polgov)	---	---	**1.051*** (0.000)**	---	---	---	---	---	---
Government Effectiveness(GE)	---	---	---	**0.971*** (0.000)**	---	---	---	---	---
Regulation Quality (RQ)	---	---	---	---	**0.965*** (0.000)**	---	---	---	---
Economic Governance(Ecogov)	---	---	---	---	---	**1.004*** (0.000)**	---	---	---
Corruption-Control (CC)	---	---	---	---	---	---	**0.953*** (0.000)**	---	---
Regulation Quality (RL)	---	---	---	---	---	---	---	**0.974*** (0.000)**	---
Institutional Governance(Instgov)	---	---	---	---	---	---	---	---	**0.974*** (0.000)**
GDP per capita growth	**-0.020*** (0.000)**	**-0.028*** (0.000)**	**-0.038*** (0.000)**	**-0.007*** (0.001)**	**-0.006** (0.012)**	**-0.010*** (0.008)**	**0.00008 (0.979)**	**-0.011*** (0.000)**	**0.009* (0.078)**
Private Domestic Credit	**-0.014** (0.016)**	**-0.014*** (0.000)**	**-0.027*** (0.003)**	**-0.010*** (0.000)**	**-0.010*** (0.000)**	**-0.023*** (0.000)**	**-0.005*** (0.000)**	**-0.007** (0.015)**	**-0.018*** (0.007)**
Remittances	**-0.024*** (0.006)**	**-0.013*** (0.004)**	**-0.040*** (0.001)**	**-0.010** (0.011)**	**-0.002* (0.095)**	**-0.019** (0.037)**	**-0.0001 (0.964)**	**-0.011** (0.024)**	**-0.023** (0.010)**
Foreign Direct Investment	**0.005* (0.072)**	**-0.003*** (0.001)**	**0.014*** (0.001)**	**0.009*** (0.000)**	**0.006*** (0.000)**	**0.020*** (0.000)**	**0.006*** (0.000)**	**0.007*** (0.000)**	**0.017*** (0.000)**
AR(1)	**(0.521)**	**(0.663)**	**(0.456)**	**(0.900)**	**(0.772)**	**(0.959)**	**(0.932)**	**(0.433)**	**(0.614)**
AR(2)	**(0.663)**	(0.049)	**(0.892)**	**(0.754)**	**(0.409)**	**(0.901)**	**(0.630)**	**(0.545)**	**(0.222)**
Sargan OIR	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Hansen OIR	**(0.154)**	(0.069)	(0.093)	**(0.188)**	**(0.319)**	**(0.383)**	(0.071)	(0.060)	**(0.363)**
DHT for instruments									
(a)Instruments in levels									
H excluding group	(1.000)	**(0.988)**	**(1.000)**	**(0.983)**	**(0.917)**	**(0.989)**	**(0.990)**	**(0.986)**	**(0.999)**
Dif(null, H=exogenous)	(0.028)	(0.011)	(0.014)	(0.044)	**(0.120)**	**(0.125)**	(0.011)	(0.009)	**(0.103)**
(b) IV (years, eq(diff))									
H excluding group	**(0.201)**	**(0.121)**	**(0.182)**	**(0.119)**	**(0.228)**	**(0.296)**	**(0.100)**	(0.095)	**(0.421)**
Dif(null, H=exogenous)	**(0.207)**	**(0.124)**	**(0.106)**	**(0.578)**	**(0.587)**	**(0.564)**	**(0.170)**	**(0.144)**	**(0.283)**
Fisher	**311.45*****	**3977.18*****	**422.20*****	**10306.15*****	**6633.11*****	**429.67*****	**2004.49*****	**5236.8*****	**138.82*****
Instruments	27	27	27	27	27	27	27	27	27
Countries	38	38	38	38	38	38	38	38	38
Observations	153	153	153	153	153	153	153	153	153

Panel B: Low Income Countries

Governance	**0.915*****	**0.961*****	**0.966*****	**0.938*****	**0.950*****	**0.947*****	**0.926*****	**0.955*****	**0.930*****
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
AR(1)	**(0.369)**	**(0.148)**	**(0.125)**	(0.091)	**(0.541)**	**(0.235)**	**(0.440)**	**(0.633)**	**(0.495)**
AR(2)	**(0.354)**	**(0.714)**	**(0.651)**	**(0.489)**	**(0.321)**	**(0.954)**	**(0.960)**	**(0.678)**	**(0.802)**
Sargan OIR	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Hansen OIR	**(0.268)**	**(0.295)**	**(0.212)**	**(0.435)**	**(0.436)**	**(0.354)**	**(0.311)**	**(0.322)**	**(0.340)**
DHT for instruments									
(a)Instruments in levels									
H excluding group	**(1.000)**	**(0.999)**	**(1.000)**	**(0.968)**	**(0.999)**	**(1.000)**	**(0.997)**	**(0.997)**	**(0.999)**
Dif(null, H=exogenous)	(0.062)	(0.074)	(0.043)	**(0.168)**	**(0.140)**	(0.097)	(0.084)	(0.088)	(0.093)
(b) IV (years, eq(diff))									
H excluding group	**(0.493)**	**(0.507)**	**(0.555)**	**(0.418)**	**(0.138)**	**(0.340)**	**(0.100)**	**(0.345)**	**(0.307)**
Dif(null, H=exogenous)	**(0.108)**	**(0.123)**	(0.050)	**(0.419)**	**(1.000)**	**(0.394)**	**(1.000)**	**(0.320)**	**(0.428)**
Fisher	**1349.02*****	**8428.54*****	**2964.20*****	**29768.36*****	**19196.54*****	**2282.64*****	**24694.50*****	**27150*****	**3469.63*****
Instruments	27	27	27	27	27	27	27	27	27
Countries	25	25	25	25	25	25	25	25	25
Observations	95	95	95	95	95	95	95	95	95

Panel C: Middle Income Countries

Governance	**0.980*****	**1.021***	**0.991*****	**0.968*****	**0.961*****	**0.928*****	**0.934*****	**0.966*****	**0.915*****
	(0.000)	**(0.074)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
AR(1)	**(0.261)**	**(0.940)**	**(0.484)**	**(0.732)**	**(0.297)**	**(0.386)**	(0.087)	**(0.495)**	**(0.289)**
AR(2)	**(0.917)**	**(0.874)**	**(0.432)**	**(0.895)**	**(0.402)**	**(0.551)**	(0.063)	**(0.998)**	**(0.863)**
Sargan OIR	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Hansen OIR	**(1.000)**	**(0.986)**	**(0.991)**	**(1.000)**	**(1.000)**	**(0.999)**	**(0.984)**	**(0.999)**	**(0.996)**
DHT for instruments									
(a)Instruments in levels									
H excluding group	**(0.999)**	**(0.972)**	**(0.999)**	**(0.927)**	**(0.854)**	**(0.988)**	**(0.967)**	**(0.999)**	**(0.997)**
Dif(null, H=exogenous)	**(0.997)**	**(0.917)**	**(0.899)**	**(1.000)**	**(1.000)**	**(0.992)**	**(0.901)**	**(0.986)**	**(0.953)**
(b) IV (years, eq(diff))									
H excluding group	**(0.998)**	**(0.908)**	**(0.928)**	**(0.999)**	**(1.000)**	**(0.990)**	**(0.896)**	**(0.990)**	**(0.963)**
Dif(null, H=exogenous)	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**	**(1.000)**
Fisher	**392.91*****	**3085.77*****	**631.77*****	**3248.39*****	**2829.07*****	**163.52*****	**2466.31*****	**1276.9*****	**296.52*****
Instruments	27	27	27	27	27	27	27	27	27
Countries	15	15	15	15	15	15	15	15	15
Observations	60	60	60	60	60	60	60	60	60

*, **, ***: significance levels of 10%, 5% and 1% respectively. *DHT*: Difference in Hansen Test for Exogeneity of Instruments' Subsets. Dif: Difference. *OIR*: Over-identifying Restrictions Test. The significance of bold values is twofold. 1) The significance of estimated coefficients, Hausman test and the Fisher statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the *AR(1)* and *AR(2)* tests and; b) the validity of the instruments in the Sargan *OIR* test. na: thresholds and/or net effects cannot be computed because of insignificant marginal effects. Control variables were included in the specifications in Panels B-C.

Table 3: Inclusive development and governance (Non-interactive Tobit)

Dependent Variable: Inequality Adjusted Human Development (IHDI)

Panel A: Full Sample

	Political Governance			**Economic Governance**			**Institutional Governance**		
	Political Stability (PolS)	Voice & Accountability (VA)	Political governance (Polgov)	Government Effectiveness (GE)	Regulation Quality(RQ)	Economic Governance (Ecogov)	Corruption-Control (CC)	Rule of Law (RL)	Institutional Governance (Instgov)
Constant	**0.419*** **	**0.414*** **	**0.401*** **	**0.474*** **	**0.445*** **	**0.402*** **	**0.449*** **	**0.450*** **	**0.405*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
PolS	**0.034*** **	---	---	---	---	---	---	---	---
	(0.000)								
VA	---	**0.023*** **	---	---	---	---	---	---	---
		(0.008)							
Polgov	---	---	**0.022*** **	---	---	---	---	---	---
			(0.000)						
GE	---	---	---	**0.085*** **	---	---	---	---	---
				(0.000)					
RQ	---	---	---	---	**0.070*** **	---	---	---	---
					(0.000)				
Ecogov	---	---	---	---	---	**0.038*** **	---	---	---
						(0.000)			
CC	---	---	---	---	---	---	**0.071*** **	---	---
							(0.000)		
RL	---	---	---	---	---	---	---	**0.060*** **	---
								(0.000)	
Instgov	---	---	---	---	---	---	---	---	**0.031*** **
									(0.000)
GDPpcg	0.001	0.001	0.001	0.0002	0.001	0.0009	0.001	0.001	0.001
	(0.148)	(0.335)	(0.279)	(0.874)	(0.215)	(0.486)	(0.365)	(0.398)	(0.399)
Credit	**0.002*** **	**0.002*** **	**0.002*** **	**0.001*** **	**0.002*** **	**0.001*** **	**0.002*** **	**0.002*** **	**0.002*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Remittances	-0.0001	-0.00008	-0.0001	-0.0003	0.00009	-0.0001	0.0007	-0.0004	0.0001
	(0.791)	(0.887)	(0.764)	(0.478)	(0.862)	(0.792)	(0.207)	(0.397)	(0.850)
FDI	0.00009	0.00009	0.00009	0.0009	0.0008	0.0009	0.0003	0.0004	0.0004
	(0.893)	(0.890)	(0.891)	(0.140)	(0.234)	(0.147)	(0.548)	(0.502)	(0.496)
LR Chi-Square	**140.56*** **	**113.12*** **	**128.88*** **	**165.12*** **	**140.57*** **	**156.80*** **	**150.48*** **	**144.98*** **	**151.22*** **
Log Likelihood	316.723	303.005	310.884	390.003	316.728	324.841	321.683	318.935	322.056
Observations	310	310	310	310	310	310	310	310	310
				Panel B: Low Income Countries					
Governance	**0.012***	0.015	**0.010***	**0.056*** **	**0.058*** **	**0.028*** **	**0.034** **	**0.034*** **	**0.017*** **
	(0.065)	(0.115)	**(0.054)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.037)**	**(0.006)**	**(0.009)**
LR Chi-Square	**11.02***	**10.10***	**11.34** **	**23.91*** **	**27.65*** **	**27.88*** **	**11.98** **	**15.19*** **	**14.51*** **
Log Likelihood	236.821	236.362	236.983	243.268	245.136	245.254	237.304	238.907	238.570
Observations	191	191	191	191	191	191	191	191	191
				Panel C: Middle Income Countries					
Governance	**0.058*** **	**0.065*** **	**0.043*** **	**0.097*** **	**0.085*** **	**0.043*** **	**0.071*** **	**0.082*** **	**0.035*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
LR Chi-Square	**133.59*** **	**89.79*** **	**120.08*** **	**111.37*** **	**90.09*** **	**102.78*** **	**96.85*** **	**119.71*** **	**109.14*** **
Log Likelihood	157.278	135.375	150.520	146.165	135.525	141.874	138.908	150.337	145.052
Observations	119	119	119	119	119	119	119	119	119

*, **, ***: significance levels of 10%, 5% and 1% respectively. FDI: Foreign Direct Investment. GDPpcg: GDP per capita growth. Control variables were included in the specifications in Panels B-C.

4.2 Robustness checks with Interactive regressions

Table 4 and Table 5 present robustness checks findings which are based on interactive GMM and Tobit regressions, respectively. Consistent with the methodology, the GMM (Tobit) specification accounts for the persistence (limited range) of (in) the dependent

variable. The comparison between middle-income and low-income countries is based on net effects. For instance, the net effect: (i) in the second column of Panel A in Table 4 is -0.014 ([-0.003× 0.627] - 0.013) while (ii) in the second-to-the last column of Panel B is -0.050 ([-0.047× 0.372] - 0.033). In other words, the net effect of low income on inclusive development is -0.014, whereas that of middle income is -0.050. 0.627 and 0.372 are respectively mean values of low-income and middle-income countries based on two-year non-overlapping intervals. This procedure for computing net effects from interactive regressions is consistent with recent empirical literature (Agoba et al., 2019; Asongu & Odhiambo, 2019c, 2019d; Kriese et al., 2019). From Table 4, with the exception of the first two specifications of institutional governance regressions, the net effects are not directly comparable. This is not the case with the Tobit model in Table 5.

In Table 5, the net effects of middle-income countries are consistently higher than those of low income countries. The procedure for their computations is still the same with the exception that since annual periodicities are used, the mean values of low-income and middle-income countries on which the net effects are computed are respectively 0.632 and 0.367.

Table 4: Inclusive development and governance (Interactive GMM)

	Dependent Variable: Inequality Adjusted Human Development (IHDI)								
	Political Governance			**Economic Governance**			**Institutional Governance**		
	Political Stability (PolS)	Voice & Accountability (VA)	Political governance (Polgov)	Government Effectiveness (GE)	Regulation Quality(RQ)	Economic Governance (Ecogov)	Corruption-Control (CC)	Rule of Law (RL)	Institutional Governance (Instgov)
	Panel A: Low Income Countries								
Low Income (LI)	**-0.013****	-0.004	-0.013	0.013	0.018	-0.006	**-0.065*****	**0.031****	-0.0004
	(0.037)	(0.607)	(0.183)	(0.288)	(0.357)	(0.411)	**(0.000)**	**(0.016)**	(0.972)
Governance	**0.007*****	**0.012***	**0.006***	-0.0002	-0.012	0.005	**0.026*****	-0.011	0.001
	(0.008)	**(0.075)**	**(0.058)**	(0.978)	(0.402)	(0.383)	**(0.000)**	(0.279)	(0.611)
Governance×LI	**-0.003****	-0.013	-0.008	**0.031***	0.043	0.018	**-0.056*****	**0.047****	0.003
	(0.445)	(0.239)	(0.239)	**(0.086)**	(0.104)	(0.110)	**(0.000)**	**(0.010)**	(0.727)
Net Effect of LI	-0.014	na	na	na	na	na	-0.100	0.060	na
AR(1)	**(0.205)**	**(0.230)**	**(0.206)**	**(0.237)**	**(0.249)**	**(0.24)**	**(0.215)**	**(0.227)**	**(0.239)**
AR(2)	**(0.994)**	**(0.489)**	**(0.695)**	**(0.583)**	**(0.602)**	**(0.924)**	**(0.177)**	**(0.311)**	**(0.639)**
Sargan OIR	(0.001)	(0.001)	(0.000)	(0.002)	(0.005)	(0.003)	(0.001)	(0.001)	(0.000)
Hansen OIR	**(0.700)**	**(0.461)**	**(0.630)**	**(0.567)**	**(0.649)**	**(0.698)**	**(0.754)**	**(0.498)**	**(0.620)**
DHT for instruments									
(a)Instruments in levels									
H excluding group	**(0.213)**	**(0.210)**	**(0.277)**	**(0.132)**	**(0.158)**	**(0.288)**	**(0.287)**	**(0.163)**	**(0.254)**
Dif(null, H=exogenous)	**(0.902)**	**(0.650)**	**(0.779)**	**(0.874)**	**(0.911)**	**(0.843)**	**(0.897)**	**(0.761)**	**(0.790)**
(b) IV (years, eq(diff))									
H excluding group	**(0.521)**	**(0.587)**	**(0.852)**	**(0.558)**	**(0.682)**	**(0.578)**	**(0.822)**	**(0.389)**	**(0.499)**
Dif(null, H=exogenous)	**(0.863)**	**(0.220)**	**(0.139)**	**(0.440)**	**(0.385)**	**(0.725)**	**(0.339)**	**(0.651)**	**(0.698)**
Fisher	**974.32*****	**5656.26*****	**4623.12*****	**827.53 *****	**424.75*****	**439.36*****	**1098.48*****	**431.48*****	**2926.46*****
Instruments	32	32	32	32	32	32	32	32	32
Countries	37	37	37	37	37	37	37	37	37
Observations	150	150	150	150	150	150	150	150	150

Panel B: Middle Income Countries									
Middle Income (MI)	0.014	**0.023*** **	**0.010***	-0.018	-0.013	0.009	**0.055*** **	**-0.033*** **	-0.006
	(0.248)	**(0.001)**	**(0.061)**	(0.283)	(0.447)	(0.287)	**(0.002)**	**(0.003)**	(0.545)
Governance	**0.007***	0.005	-0.0003	**0.039*** **	**0.033** **	**0.016*** **	**-0.022**	**0.037*** **	-0.011
	(0.062)	(0.827)	(0.932)	**(0.005)**	**(0.018)**	**(0.008)**	**(0.107)**	**(0.001)**	(0.129)
Governance×MI	-0.001	0.005	0.002	**-0.038** **	**-0.041***	**-0.020** **	**0.048*** **	**-0.047*** **	-0.014
	(0.850)	(0.616)	(0.681)	**(0.039)**	**(0.054)**	**(0.044)**	**(0.006)**	**(0.000)**	(0.168)
Net Effect of MI	na	na	na	na	na	na	0.072	-0.050	na
AR(1)	**(0.197)**	**(0.226)**	**(0.219)**	**(0.245)**	**(0.244)**	**(0.246)**	**(0.226)**	**(0.226)**	**(0.245)**
AR(2)	**(0.686)**	**(0.511)**	**(0.651)**	**(0.485)**	**(0.591)**	**(0.860)**	**(0.213)**	**(0.266)**	**(0.869)**
Sargan OIR	(0.001)	(0.001)	(0.000)	(0.001)	(0.003)	(0.001)	(0.000)	(0.001)	(0.000)
Hansen OIR	**(0.856)**	**(0.910)**	**(0.912)**	**(0.532)**	**(0.736)**	**(0.701)**	**(0.712)**	**(0.581)**	**(0.610)**
DHT for instruments									
(a)Instruments in levels									
H excluding group	**(0.229)**	**(0.264)**	**(0.325)**	**(0.213)**	**(0.232)**	**(0.336)**	**(0.384)**	**(0.206)**	**(0.206)**
Dif(null, H=exogenous)	**(0.990)**	**(0.996)**	**(0.991)**	**(0.754)**	**(0.932)**	**(0.824)**	**(0.800)**	**(0.817)**	**(0.846)**
(b) IV (years, eq(diff))									
H excluding group	**(0.787)**	**(0.795)**	**(0.876)**	**(0.579)**	**(0.740)**	**(0.648)**	**(0.850)**	**(0.401)**	**(0.585)**
Dif(null, H=exogenous)	**(0.714)**	**(0.919)**	**(0.680)**	**(0.334)**	**(0.461)**	**(0.573)**	**(0.218)**	**(0.855)**	**(0.482)**
Fisher	**1676.85*** **	**7976.08*** **	**827.53*** **	**426.09*** **	**842.89*** **	**514.94*** **	**1085.68*** **	**13960.42*** **	**1590.72*** **
Instruments	33	33	33	33	33	33	33	33	33
Countries	37	37	37	37	37	37	37	37	37
Observations	150	150	150	150	150	150	150	150	150

*, **, ***: significance levels of 10%, 5% and 1% respectively. *DHT*: Difference in Hansen Test for Exogeneity of Instruments' Subsets. Dif: Difference. *OIR*: Over-identifying Restrictions Test. The significance of bold values is twofold. 1) The significance of estimated coefficients, Hausman test and the Fisher statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the *AR(1)*and*AR(2)* tests and; b) the validity of the instruments in the Sargan *OIR* test. na: thresholds and/or net effects cannot be computed because of insignificant marginal effects. na: net effects cannot be computed because of insignificant marginal effects and/or unconditional Income effects. Control variables were included in the specifications in Panels A-B.

Table 5: Inclusive development and governance (Interactive Tobit)

	Dependent Variable: Inequality Adjusted Human Development (IHDI)								
	Political Governance			**Economic Governance**			**Institutional Governance**		
	Political Stability (PolS)	Voice & Accountability (VA)	Political governance (Polgov)	Government Effectiveness (GE)	Regulation Quality(RQ)	Economic Governance (Ecogov)	Corruption-Control (CC)	Rule of Law (RL)	Institutional Governance (Instgov)
Panel A: Low Income Countries									
Low Income (LI)	**-0.137*** **	**-0.148*** **	**-0.115*** **	**-0.138*** **	**-0.128*** **	**-0.102*** **	**-0.135*** **	**-0.145*** **	**-0.106*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Governance	**0.057*** **	**0.060*** **	**0.041*** **	**0.094*** **	**0.084*** **	**0.042*** **	**0.072*** **	**0.078*** **	**0.034*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Governance×LI	**-0.044*** **	**-0.050*** **	**-0.031*** **	**-0.052*** **	-0.028	**-0.017** **	**-0.050*** **	**-0.046*** **	**-0.020** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.003)**	(0.106)	**(0.031)**	**(0.008)**	**(0.003)**	**(0.010)**
Net Effects	-0.164	-0.179	-0.134	-0.170	na	-0.112	-0.166	-0.174	-0.118
LR Chi-Square	**295.75*** **	**250.24*** **	**281.52*** **	**281.17*** **	**268.67*** **	**278.98*** **	**263.88*** **	**284.35*** **	**276.27*** **
Log Likelihood	394.321	371.563	387.204	387.028	380.780	385.934	378.382	388.619	384.578
Observations	310	310	310	310	310	310	310	310	310
Panel B: Middle Income Countries									
Middle Income (MI)	**0.137*** **	**0.148*** **	**0.115*** **	**0.138*** **	**0.128*** **	**0.102*** **	**0.135*** **	**0.145*** **	**0.106*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Governance	**0.013** **	0.010	**0.009***	**0.041*** **	**0.056*** **	**0.024*** **	0.022	**0.032** **	**0.014** **
	(0.044)	(0.310)	**(0.082)**	**(0.002)**	**(0.000)**	**(0.000)**	(0.163)	**(0.011)**	**(0.034)**
Governance×MI	**0.044*** **	**0.050*** **	**0.031*** **	**0.052*** **	0.028	**0.017** **	**0.050*** **	**0.046*** **	**0.020** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.003)**	(0.106)	**(0.031)**	**(0.008)**	**(0.003)**	**(0.010)**
Net Effects of MI	0.153	0.166	0.126	0.157	na	0.108	0.153	0.161	0.113
LR Chi-Square	**295.75*** **	**250.24*** **	**281.52*** **	**281.17*** **	**268.67*** **	**278.98*** **	**263.88*** **	**284.35*** **	**276.27*** **
Log Likelihood	394.321	371.563	387.204	387.028	380.780	385.934	378.382	388.619	384.578
Observations	310	310	310	310	310	310	310	310	310

*, **, ***: significance levels of 10%, 5% and 1% respectively. na: net effects cannot be computed because of insignificant marginal effects and/or unconditional Income effects. Control variables were included in the specifications in Panels A-B.

4.3 Further discussion and policy implications

We have consistently established for the most part that, middle income compared to low income has a higher effect on how governance affects inclusive human development. In other words, 'middle income-driven governance has a higher effect on inclusive development compared with the impact of 'low income-driven governance. This is broadly in accordance with postulations in previous literature documenting positive outcomes from rising income levels. These include improved governance standards for a broader social good (Birdsall, 2007a; Easterly, 2001; Resnick, 2015a). Middle income is more effective at driving governance for inclusive development, notably, the election and replacement of political leaders (or political governance); formulation and implementation of policies that deliver public commodities (economic governance) and respect by state and citizens of institutions that govern interactions between them (institutional governance).

The rest of the discourse is covered in four main strands. They are: (i) the contemporary relevance of the findings; (ii) pivotal role of higher income levels in the post-2015 sustainable development agenda; (iii) inconsistency of the findings with a strand of the literature documenting (iv) the negative influence of higher incomes levels on governance and implications for aid policies.

First, from a contemporary perspective, the findings are inconsistent with Rodrik (2015) who is pessimistic in his stance that the service sector's expansion and industrialisation in Africa could stifle pro-democratic pressures and provoke greater political instability. Hence, contrary to Rodrik (2015), rising income levels in Africa and service sector may not only have an important role in consolidating governance structures, but could also play a major role in strengthening government structures for inclusive human development. Hence, whereas van de Walle (2012) argued that the labour unions that demanded the improvement of government structures in Europe and North America do not prevail in modern African institutional structures (especially at the advent of multiparty politics in the 1990s), the dynamics of 'citizenry protests and demands' in contemporary Africa and historical Europe and North America are not parallel. Accordingly, with the events of the 2011 Arab Spring, the advent of information and communication technology (ICT) has shown that mobilizing an organised common conscience to demand better governance can be spectacularly successful without labour unions and political parties.

Second, the role of a higher income level for inclusive human development in the post-2015 development agenda may be parallel to a similar critical role played by the nascent

higher income levels that contributed to independence across Africa in the 1960s (Sklar, 1963). The big difference, however, is that whereas after independence, one-party politics became the order of the day across the continent and stifled the democratic process, the contemporary African middle income category is now less likely to accept a reversal of the ongoing democratic processes in Africa. Recent examples involving the leading role of the African middle income strata in the demand for better governance for inclusive development include protests on: Zambia's Black Friday and Benin's Red Wednesday in 2013 respectively for less restrictive laws on civil society groups and no change in the constitution for an extension of the presidential mandate. The Burkina Faso revolution that also prevented the president from changing the Constitution for another term in office in 2014 is another eloquent testimony.

Third, the findings of this study run counter to the stream of opinions sympathetic to the perspective that not all middle income segments may demand better governance for inclusive development because of, *inter alia*; their dependence on the resources of the state and preference for specific markets (Poulton, 2014). Accordingly, while we concur with the reality that there is a middle income category in Africa prepared to stifle good governance in order to promote its vested interests, a majority of the African middle income strata has embraced Western values and is conscious of the fact that poor governance is very likely to contribute in the long-term to reducing their living standards. We, therefore, argue that frustrations from circles of the middle income category on improvements in governance standards are substantially traceable to a middle income fraction with political connections, as opposed to another middle income fraction that is genuinely earning more from innovation, free enterprise and the market economy. Hence, while we may partially agree with the narrative of Rodrik (2015) on the African middle income category's relevance in stalled political transformations and the position of Poulton (2014) on the skillful use of external threats by African dictatorships to retain a tight grip on power, governance is a concept that should not be skewed towards political transformations. In essence, stable African dictatorships and quasi-democracies could still enjoy significant economic and institutional governances while displaying political stability.

The following is relevant to the counter factual explanations. There are several ways in which the middle income category can drive inclusive governance. Some include demand for quality education, better health services and social protection amenities that contribute to learning outcomes and life expectancy. The underpinning logic here is that once these

services are demanded by the middle income group, those in the lower income strata would automatically benefit given that these are services provided by the government and/or private sector that are improved by institutional governance reforms. For instance, government policies affect public and private schools as well as public and private clinics. Such education- and health-related demands directly affect inclusive human development. The middle income strata is also more likely to demand better employment conditions and decent avenues for private entrepreneurs and innovations in dominant sectors that indirectly affect inclusive human development. The middle income segment also indirectly contributes to inclusive governance by driving some of the fundamental aspects of human development such as respect for the environment, human rights and civil liberties.

Ultimately, because the government needs to finance demands for better public commodities, a rising middle income category can directly contribute to financial needs through increasing taxation. This inference is consistent with Ferreira et al. (2013) on a World Bank study. According to the World Bank report, the Latin American experience can apply to Africa such that the middle income fraction becomes a driving force for progress by contributing to tax-financed inclusive social programmes and policies of redistribution that reduce inequality. Overall, middle income would contribute to inclusive governance by driving policies that encourage wealth creation in the tertiary, secondary and primary sectors of the economy.

Fourth, it is very likely that the middle-income status of African countries plays a role in international funding policies because they may be less eligible for International Development Assistance (IDA). Therefore, foreign aid would need to be tailored more towards low income-countries for the post-2015 sustainable development goals of inclusive human development. Given ongoing debates on the role of aid on governance in Africa, development assistance policies would have to be oriented towards stimulating private enterprise promotion and socially-inclusive projects.

5. Conclusion and further directions

This study has examined how income-driven governance affects inclusive development in sub-Saharan Africa with data for the period 2000-2012. The empirical evidence is based on the Generalised Method of Moments (GMM) and Tobit regressions in order to respectively control for the persistence in, and limited range of the dependent inclusive human development variable. Bundled and unbundled concepts of governance are

used: political (voice & accountability and political stability/no violence), economic (government effectiveness and regulation quality) and institutional (corruption-control and the rule of law) governances. The main finding is that 'middle income"-driven governance has a higher effect on inclusive development compared with the impact of "low income"-driven governance. It follows that compared to low income, middle income is more effective at driving governance for inclusive development, notably the: election and replacement of political leaders (or political governance); formulation and implementation of policies that deliver public commodities (economic governance) and respect by state and citizens of institutions that govern interactions between them (institutional governance). Policy implications have been discussed in the light of the contemporary relevance of the findings. They are the pivotal role of the middle income category in the post-2015 sustainable development agenda and inconsistent strands in the literature and foreign aid policies.

In the light of the above, rising income levels in Africa will contribute to inclusive development in the post-2015 agenda because the conception, definition and measurement of "inequality-adjusted human development" employed as the outcome indicator in this study is in line with at least six of the seventeen SDGs, namely: Goal 1('end poverty in all its forms everywhere'), Goal 2 ('end hunger, achieve food security and improved nutrition and promote sustainable agriculture'); Goal 3 ('ensure healthy lives and promote well-being for all ages'); Goal 4 ('ensure inclusive and equitable quality education and promote lifelong learning opportunities for all'); Goal 8 ('promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all') and Goal 10 (reduce inequality within and among countries)[2] (Asongu & le Roux, 2017).

For the above middle income category to be built, policies should be designed to reduce inequality ex-ante in order for growth to benefit a burgeoning middle income strata that would ultimately result in inclusive human development. The ex-ante recommendation is based on the premise that the response of poverty to growth is a decreasing function of inequality (Fosu, 2010a; Fosu, 2015a). More specifically: "*The study finds that the responsiveness of poverty to income is a decreasing function of inequality*" (Fosu, 2010b, p. 818); "*The responsiveness of poverty to income is a decreasing function of inequality, and the inequality elasticity of poverty is actually larger than the income elasticity of poverty*" (Fosu, 2010c, p. 1432); and "*In general, high initial levels of inequality limit the effectiveness of*

[2] The interested reader can refer to Michel (2016), for a full list of SDGs.

growth in reducing poverty while growing inequality increases poverty directly for a given level of growth" (Fosu, 2011, p. 11).

By extension, as maintained by Boushey and Hersh (2012), decreasing inequality is necessary for the middle income fraction to exert a substantial positive effect on human development.

Future inquiries devoted to enriching the extant literature can focus on investigating the established linkages with alternative measurements of the middle income category. The inquiry can also be extended to other continents with other measurements of income levels. Moreover, it will also be worthwhile for future research to use alternative statistical approaches to assess if the established findings withstand empirical scrutiny. When considering such alternative estimation techniques, while the adopted GMM technique in this study accounts for simultaneity by controlling for potential reverse causality, considering appropriate external instruments is essential in articulating a key issue of the paper which is that, the middle income category is a cause as much as it is a consequence of development, good governance, and inclusive development.

Declaration

Availability of supporting data: The data for this paper is available upon request.

Competing interest: The authors have neither financial nor non-financial competing interests.

Funding: This is an unfunded paper. Authors' contribution: SAA participated in the writing of the manuscript and data analysis. NMO participated in the revision of the manuscript. All authors read and approved the final manuscript.

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".	WDI
Voice & Accountability	VA	"Voice and accountability (estimate): measures the extent to which a country's citizens are able to participate in selecting their government and to enjoy freedom of expression, freedom of association and a free media"	WDI
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".	WDI
Regulation Quality	RQ	"Regulation quality (estimate): measured as the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development".	WDI
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"	WDI
Rule of Law	RL	"Rule of law (estimate): captures perceptions of the extent to which agents have confidence in and abide by the rules of society and in particular the quality of contract enforcement, property rights, the police, the courts, as well as the likelihood of crime and violence"	WDI
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
Middle Income	MiddleI	Lower and Upper Middle Income Countries ($1,006 or more)	Asongu (2014, p. 364)
Low Income	Low I	Low Income Countries ($1,005 or less)	

UNDP: United Nations Development Program. WDI: World Development 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 (Without NOI)	0.632	0.482	0.000	1.000	637
Middle Income (Without NOI)	0.367	0.482	0.000	1.000	637
Low Income (With NOI)	0.627	0.484	0.000	1.000	287
Middle Income (With NOI)	0.372	0.484	0.000	1.000	287

SD: Standard deviation. Min: Minimum. Max: Maximum. Obs: Observations. Adj: Adjusted. NOI : Non Overlapping Intervals.

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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