

Asongu, Simplice; Leke, Ivo J.

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## External flows and inclusive human development in Sub-Saharan Africa

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# A G D I Working Paper

WP/17/058

## **External Flows and Inclusive Human Development in Sub-Saharan Africa**

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**Simplice A. Asongu**

African Governance and Development Institute,

P.O. Box 8413, Yaoundé, Cameroon.

E-mails: [asongusimplice@yahoo.com](mailto:asongusimplice@yahoo.com) /

[asongus@afridev.org](mailto:asongus@afridev.org)

**Ivo J. Leke**

University of Saskatchewan

Saskatoon, Canada.

E-mails: [lekeivo@yahoo.com](mailto:lekeivo@yahoo.com) /

[jingwaivo@gmail.com](mailto:jingwaivo@gmail.com)

Research Department

**External Flows and Inclusive Human Development in Sub-Saharan Africa****Simplice A. Asongu & Ivo J. Leke**

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**Abstract**

The study assesses how external flows influence inclusive human development in a panel of 48 countries in Sub-Saharan Africa for the period 2000-2012. The empirical evidence is based on Tobit regressions and Generalised Method of Moments. The findings from both estimation techniques reveal that remittances and FDI increase inclusive development whereas foreign aid has the opposite effect. The results suggest some positive and negative impacts of interest for further analysis. First, remittances are negatively associated with: (i) Middle income countries compared to Low income countries where the effect is not significant; (ii) French Civil law countries compared to English Common law countries where the effect is positive and (iii) Resource-rich countries compared to their Resource-poor counterparts where the effect is positive. Second, foreign aid is more negatively linked to Low income, French Civil law, Islam-dominated, Un-landlocked, Resource-rich and Politically-unstable countries. Third, FDI is positively associated with: (i) Low income, French Civil law and Landlocked countries compared to respectively Middle income, English Common law and Un-landlocked countries where the effect is insignificant and (ii) Politically-stable countries compared to their Politically-unstable counterparts where the effect is negative.

*JEL Classification:* F21; F24; F35; I30; O55

*Keywords:* Foreign investment; Remittances; Foreign aid; Inclusive development; Africa

## 1. Introduction

The positioning of this inquiry is motivated by three main trends, namely: (i) increasing external flows to Africa; (ii) growing non-inclusive development in Sub-Saharan Africa (SSA) and (iii) gaps in the literature. First, since the year 2000, external flows in terms of official development assistance, remittances and foreign direct investment have been increasing in Africa (see Ssozi, & Asongu, 2016; AEO, 2014). Such flows can be leveraged by policy in order to address contemporary policy syndromes like growing non-inclusive development.

Second, a 2015 World Bank report on the achievement of Millennium Development Goal (MDGs) targets of extreme poverty has revealed that from the 1990s, extreme poverty has been decreasing in all regions of the world with the exception of the African continent (World Bank, 2015). Compared to North Africa, the policy syndrome of non-inclusive development is more apparent in SSA where about half of countries in the sub-region were substantially off-course from reaching the MDG extreme poverty target<sup>1</sup>. This evidence substantially contrasts with the fact that the continent has been enjoying over two decades of growth resurgence (see Fosu, 2015a) on the one hand and ‘African rising’ narratives (Leautier, 2012) on the other hand. Some proponents of the ‘Africa rising’ narrative were even of the position that all African countries (with the exception of the Democratic Republic of Congo) attained the MDG extreme poverty target toward the end of 2014 (see Pinkivskiy & Sala-i-Martin, 2014). Some scholars have attributed development contrasts (e.g. between the World Bank report and proponents of the ‘Africa rising’ narrative) to overly emphasis on globalization and neoliberal policies which have articulated the neoliberal ideology and capital accumulation. Such articulation places less emphasis on more fundamental concerns of ethical nature like inequality, climate change and environmental degradation.

Third, recent African inclusive development literature has focused on: poverty growth transformations (Thorbecke, 2013; Fosu, 2011, 2010abc, 2008, 2009)<sup>2</sup>; measurements and

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<sup>1</sup>Moreover, consistent with Guisan and Exposito (2016), the values of Investment per capita and manufacturing GDP per capita are much lower in SSA in comparison with North Africa. Hence, by extension poverty eradication is usually very much linked to economic development and inclusive development is contingent on economic development.

<sup>2</sup> Consistent with Asongu and Kodila-Tedika (2017), the strand maintains that the response of poverty to economic growth is a decreasing function of inequality because, the growth elasticity of poverty is lower than the inequality elasticity of poverty. For more insights: “*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 growth in reducing poverty while growing inequality increases poverty directly for a given level of growth*” (Fosu, 2011, p. 11).

determinants of inclusive growth (Anand et al., 2013; Mlachila et al., 2017)<sup>3</sup>; determinants and consequence of the middle class (Kodila-Tedika et al., 2016; Ncube et al., 2011; Shimeles & Ncube, 2015); the Azzimonti et al. (2014) postulation of globalisation-induced inequality, theorized for developed countries and partially confirmed in African nations (Asongu et al., 2015); correlates of poverty (Anyanwu, 2014a, 2013a); gender inequality (Anyanwu, 2014a, 2013b; Elu & Loubert, 2013; Balamoune-Lutz, 2007; Balamoune-Lutz, & McGillivray, 2009); nexuses among knowledge economy, environmental degradation, business dynamics & inclusive human development (Asongu et al., 2014, 2017, 2018), *inter alia*.

As far as we have reviewed, there is currently no study in the literature that has investigated the nexus between external flows and inclusive development. The present line of inquiry unites the above strands by investigating how the growing external flows (remittances, foreign direct investment and foreign aid) influence inclusive human development. In order to increase room for policy implications, the analysis is further classified by the fundamental characteristics of human development, based on: income levels (low income vs. middle income); legal origins (French civil law versus (vs.) English common law); religious domination (Islam-oriented vs. Christian-dominated); conflicts (political stability vs. political instability); openness to sea (un-landlocked vs. landlocked); and resource-wealth (non-petroleum vs. petroleum exporting) countries.

The rest of the study is structured as follows. The stylized facts and theoretical underpinnings are engaged in Section 2, while the data and methodology are covered in Section 3. Section 4 presents and discusses the findings whereas Section 5 concludes with implications and future research directions.

## **2. Stylized facts and theoretical underpinnings**

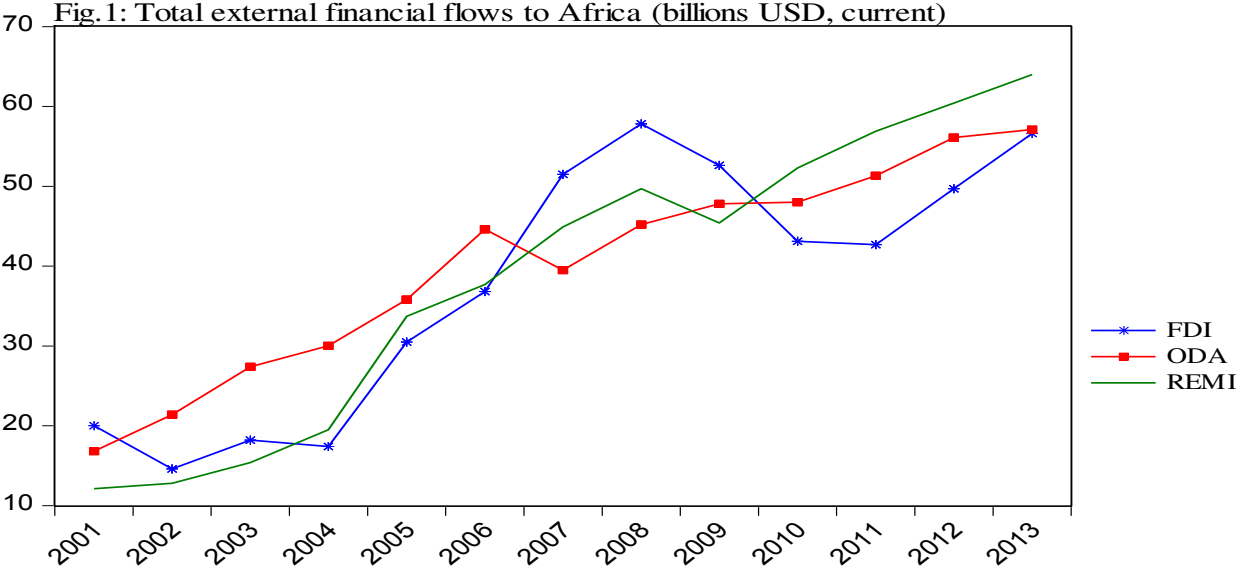
### **2.1 Stylized facts**

External flows into Africa have substantially increased over the past decade. Consistent with Ssozi and Asongu (2016) from the African Economic Outlook (AEO, 2014),

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<sup>3</sup> The most notable measurements are the inclusive growth index from Anand et al. (2013) and quality of growth index (Mlachila et al., 2016). These indicators have built on *inter alia*: debates between *relative pro-poor* (Dollar & Kraay, 2003) versus *absolute pro-poor* (Ravallion & Chen, 2003) growth. Anand et al. (2013) which is based on the latter documents the need for inclusive growth to reduce poverty sustainably (Kraay, 2004; Berg et al., 2011ab). The indicator provided by Mlachila et al. (2016) builds on Anand et al. (2013), the Commission on Growth and Development (2008), Ianchovichina and Gable (2012) and evidence that the economic prosperity in Africa has not been linked with reductions in poverty, unemployment and income-inequality (Ola-David & Oyelaran-Oyeyinka, 2014; Dollar & Kraay, 2002; Martinez & Mlachila, 2013; Dollar et al., 2013).

these flows were projected to have exceeded 200 billion USD in 2014, which represents a fourfold increase from the year 2000. The narrative is illustrated in Figure 1 below. It is observed that foreign direct investment (FDI), remittances (REMI) and official development assistance (ODA) have been consistently increasing over the past decade. These three financial resources represent the most significant sources of external flows into the continent<sup>4</sup>. The dynamics of these flows have also changed with more coming from non-OECD nations<sup>5</sup>.



Source: African Economic Outlook 2013 - ©OECD 2013

While the surge in external flows has been accompanied by an economic growth resurgence in the continent which began in the mid-1990s (Fosu, 2015a, p. 44), recent evidence reveal that approximately during the same period, the quality of growth in the continent has been lower compared to other regions of the world (Mlachila et al., 2017). This troubling trend is in spite of a recent stream of literature maintaining that Africa is either on time for certain poverty targets (Pinkivskiy & Sala-i-Martin, 2014) or has experienced substantial decline in poverty levels relative to the rest of the world (Fosu, 2015a). Hence, a resulting line of inquiry could be positioned on the role of external flows in quality of growth in Africa. Such an inquiry is further justified by the finding of Piketty (2014) which has debunked the Kuznets (1955, 1971) thesis on the relationship between inequality and industrialization or the interesting analysis of inequality as a challenge to 21<sup>st</sup> century

<sup>4</sup> Moreover, although SSA may be different, external flows are more apparent in developing countries (Guisan et al., 2015).

<sup>5</sup> OECD stands for the Organisation for Economic Cooperation and Development.

capitalism (Brada & Bah, 2014). In essence, the findings of Piketty for developed nations have important lessons for developing countries: external flows should oriented African countries towards industrialization with particular emphasis on the fact that ‘*Output may be growing, and yet the mass of the people may be becoming poorer*’ (Lewis, 1955). According to Amavilah (2016), Lewis led all developing countries to water from a proverbially perspective; unfortunately, some African countries have so far chosen not to drink. A natural inference is the possibility of ‘immiserizing growth’ (Bhagwati, 1958)<sup>6</sup>. In the light of growing external flows, assessing how external flows have influenced such immiserizing development is of policy relevance.

## **2.2 Theoretical underpinnings**

The connection between external flows and inclusive development in less developed countries are founded on theoretical backgrounds that elucidate two main tendencies, notably: the poverty tragedy in Africa and the purpose of external flows in reducing such poverty. The issue about whether external flows can improve development is traceable to the two-gap model by Chenery and Strout (1966) which has been the principal theoretical framework surrounding the need for external flows in developing countries. According to the theoretical narrative, less developed counties are confronted with a substantial lack of saving and exports earning that considerably reduce investment and economic prosperity. This underpinning has even more relevance to Africa in the contemporary era because according to Fofack (2014), Africa’s share in global trade has decreased by more than 50% in the past half century. The importance of external flows is also articulated by the Harrod-Domar model which rests on three main arguments (see Asiedu et al., 2012): (i) Africa has a financing gap because invested capital is less than the capital needed for investment in sustainable development; (ii) long-term growth can be achieved by bridging the financing gap and (iii) in order to fill the financing gap, the continent would need capital in the forms of external debts and development assistance.

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<sup>6</sup> This is a type of growth that is accompanied with unappealing externalities like, poverty and income-inequality. The story of the African growth miracle presented by Young (2012) is contingent on periodicity of analysis and dynamics of growth quality. First, according to Fosu (2015a), the continent’s relative poverty decline due to growth resurgence is only apparent from the mid-1990s as opposed to the periodicity from the 1980s. This position is shared by Alan and Carlyn (2015, p. 598) on Africa catching-up with the USA only from the mid-1990s. Second, the relative poverty decline may have been marred by growing inequality (Blas, 2014) which has been found to mitigate poverty and inclusive growth in the North African region (Ncube et al., 2014). Hence, the quality of growth situation of the continent has been met with conflicting literature.

In the light of criticisms of the two-gap model since its inception, notably: on the misplacement of early policies (Easterly, 1999) and in regression misspecifications pertaining to the relationship between aid and economic development (Masud & Yontcheva, 2005); calls have been made for alternative modes of external flows (like remittances and foreign direct investment) that are more market-oriented and less-politically focused (Asiedu, 2004; Ndlovu-Gatsheni, 2013; Obeng-Odoom, 2013; Asiedu et al., 2012). Consistent with Asiedu et al. (2012), the relevance of alternative forms of foreign investment in Africa is fundamentally motivated by insufficiencies/failures in/of the Harrod-Domar model based on development assistance.

The above narrative is consistent with a paradigm shift by Kuada (2015) for understanding exclusive development in Africa. In the light of increasing poverty trends in the continent, Kuada (2015) has suggested that focusing on ‘soft economics’ (or human capability development) instead of ‘strong economics’ (or structural adjustment policies) is essential in steering Africa through the sustainable development agenda. Given that compared to remittances and foreign direct investment, foreign aid is more likely to be an instrument of Western-imposed structural adjustment policies, assessing how all three forms of external flows affect inclusive human development is of policy relevance in the light of partially assessing the underlying paradigm shift<sup>7</sup>.

### **3. Data and Methodology**

#### **3.1 Data**

The paper investigates a panel of forty-eight countries in SSA with data from the African Development Indicators (ADI) of the World Bank and the United Nations Development Program (UNDP) for the period 2000-2012<sup>8</sup>. Whereas the periodicity is consistent with the recent surge in external flows (see Figure 1), the choice of SSA is motivated by growing exclusive development in the light of the April 2015 World Bank report which revealed that extreme poverty has been decreasing in all regions of the world with the exception of Africa. Consistent with recent African inclusive development literature (Asongu et al., 2015), the inequality adjusted human development index (IHDI) is used as a proxy for inclusive human development. The human development index (HDI) represents a

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<sup>7</sup> The narrative on structural adjustment is not fundamental (but supplementary) to the justification of the analysis. This is why it is only cursorily highlighted in the last paragraph before the data section.

<sup>8</sup> Of the 49 countries in SSA, only South Sudan is not included because data for the country is not available before 2011.



national mean in three main dimensions, namely: health and long life; basic living standards and knowledge. Therefore, the IHDI adjusts the HDI to how national achievements in health, education and income are evenly distributed among the population<sup>9</sup>.

The main independent variables are: Net Official Development Assistance (NODA); Net Foreign Direct Investment Inflows (FDI) and Remittances inflows. All the variables are in percentages of Gross Domestic Product (GDP). Four main macroeconomic and institutional control variables are adopted in the light of recent inclusive development literature, namely: regulation quality, GDP per capita growth, private domestic credit and mobile phone penetration. The adopted control variables have been substantially documented to improve inclusive development (see Mishra et al., 2011; Anand et al., 2012; Seneviratne & Sun, 2013; Mlachila et al., 2017; Asongu & Nwachukwu, 2016a, 2017a). (i) GDP per capita growth should naturally improve human development because it is a constituent of the HDI. (ii) Private domestic credit increases inclusive development (Mlachila et al., 2017). (iii) The mobile phone has been established to improve non-exclusive development in Africa (Asongu, 2015). (iv) Regulation quality which is a constituent of economic governance should naturally improve the dependent variable because economic governance is by definition the formulation and implementation of policies that deliver public commodities. The three dimensions of the HDI are associated with such public commodities.

Further details on the definitions of variables and corresponding sources can be found in Appendix 1. Appendix 2 provides the summary statistics. The correlation matrix is presented in Appendix 3.

## **3.2 Methodology**

### *3.2.1 Generalised Method of Moments*

Five principal underpinnings motivate the adoption of a Generalised Method of Moments (GMM) estimation technique: two are requirements for the use of the technique whereas three are associated advantages. (i) Persistence which is an essential requirement in the dependent variable is met because the IHDI and its first lag are correlated at the height of 0.9876 which is above the 0.800 threshold required to ascertain persistence in a dependent variable. (ii) The  $N(48) > T(13)$  criterion that is essential for the employment of a GMM technique is fulfilled given that the number of cross sections are higher than the number of

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<sup>9</sup> While there may be some concerns about the associations between rates and per capita variables vis-à-vis ratios and per capita indicators (Guisan, 2008), at the time of the study we did not have better indicators than the IHDI.

time series in each cross section. (iii) Some endogeneity is controlled-for by the estimation approach because it accounts for: the unobserved heterogeneity by employing time invariant variables and simultaneity in the regressors by using instrumented explanatory variables. (iv) Cross-country differences in the regressions are controlled. (v) Consistent with Bond et al. (2001), the *system* GMM estimator (Arellano & Bond, 1995; Blundell & Bond, 1998) corrects for biases associated with the *difference* estimator (Arellano & Bond, 1991).

Within the framework of this empirical exercise, we adopt an extension of Arellano and Bover (1995) by Roodman (2009ab) which employs forward orthogonal deviations instead of first differences because it has been established to limit instrument proliferation and restrict over-identification (see Love & Zicchino, 2006; Baltagi, 2008). The *two-step* process instead of a *one-step* approach is adopted in order to control for heteroscedasticity because the *one-step* process is consistent with homoscedasticity.

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

$$IHD_{i,t} = \sigma_0 + \sigma_1 IHD_{i,t-\tau} + \sigma_2 Re\ mi_{i,t} + \sigma_3 Aid_{i,t} + \sigma_4 FDI_{i,t} + \sum_{h=1}^k \delta_h W_{h,i,t-\tau} + \eta_i + \xi_t + \varepsilon_{i,t} \quad (1)$$

$$IHD_{i,t} - IHD_{i,t-\tau} = \sigma_1 (IHD_{i,t-\tau} - IHD_{i,t-2\tau}) + \sigma_2 (Remi_{i,t} - Remi_{i,t-\tau}) + \sigma_3 (Aid_{i,t} - Aid_{i,t-\tau}) + \sigma_4 (FDI_{i,t} - FDI_{i,t-\tau}) + \sum_{h=1}^k \delta_h (W_{h,i,t-\tau} - W_{h,i,t-2\tau}) + (\xi_t - \xi_{t-\tau}) + \varepsilon_{i,t-\tau} \quad (2)$$

where,  $IHD_{i,t}$  is inclusive human development in country  $i$  at period  $t$ ;  $IHD_{i,t-1}$  is inclusive human development in country  $i$  at period  $t-1$ ;  $Re\ mi_{i,t}$  is Remittances;  $Aid_{i,t}$  is foreign aid;  $FDI_{i,t}$  is foreign direct investment of country  $i$  at period  $t$ ;  $\sigma_0$  is a constant;  $\tau$  represents the coefficient of auto-regression;  $W$  is the vector of control variables,  $\eta_i$  is the country-specific effect,  $\xi_t$  is the time-specific constant and  $\varepsilon_{i,t}$  the error term.

### 3.2.2 Identification, simultaneity and exclusion restrictions

We now discuss identification, simultaneity and exclusion restrictions that are associated with a GMM specification. In accordance with recent literature (see Dewan & Ramaprasad, 2014; Asongu & Nwachukwu, 2016b), all explanatory indicators are assumed to be suspected endogenous or predetermined while the year or time-invariant indicators are considered to exhibit strict exogeneity. Accordingly, it is not very feasible for the time-

invariant variables to be first-differenced endogenous (see Roodman, 2009b). Hence, the procedure for treating time invariant omitted variables is (or *ivstyle*) is ‘iv(years, eq(diff))’ whereas the *gmmstyle* is used for the predetermined or suspected endogenous variables.

The concern about simultaneity is addressed using lagged explanatory variables as instruments as opposed to forward differenced variables. In essence, Helmert transformations are employed to remove fixed effects that are associated with the error terms because such could bias estimated linkages (Arellano & Bover, 1995; Love & Zicchino, 2006). Such transformation encapsulates the use of forward mean-differences of indicators which are quite distinct from the process of subtracting previous observations from contemporary ones (see Roodman, 2009b, p. 104). Accordingly, the average of future observations is subtracted from previous ones. These transformations enable orthogonal or parallel conditions between lagged values and forward-differenced variables. Irrespective of lagged number, the loss of data is avoided by calculating the underlying transformations for all observations with the exception of the last in each country: “*And because lagged observations do not enter the formula, they are valid as instruments*” (Roodman (2009b, p. 104).

In the light of the above, the outcome variable or inclusive development is affected by years or time invariant variables exclusively via the suspected endogenous or predetermined variables. Moreover, the statistical validity of the exclusion restriction is examined with the Difference in Hansen Test (DHT) for the validity of instruments. In essence, in order for time invariant indicators to explain the dependent variable exclusively through the endogenous explaining variables, the null hypothesis of the test should not be rejected. It is relevant to note that when an instrumental variable (IV) estimation procedure is employed, rejecting the null hypothesis of the Sargan Overidentifying Restrictions (OIR) test implies that the instruments do not explain the dependent variable exclusively through the predetermined or suspected endogenous variables (see Beck et al., 2013). However, with the GMM approach that is founded on forward orthogonal deviations, the information criterion that is essential for investigating if time invariant variables exhibit strict exogeneity is the DHT. Therefore, in the light of this clarification, the exclusion restriction assumption is validated if the alternative hypothesis of the DHT connected with IV(year, eq(diff)) is rejected.

### 3.2.3 Tobit regressions

In order to account for the limited range in the outcome variable, we adopt a Tobit model. In essence, given that the IHDI is theoretically between the interval of zero and one, estimating

by Ordinary Least Squares (OLS) is not appropriate. Hence, the study implements a double-censored Tobit estimation model in order to account for this limited range in the outcome variable (see Kumbhakar & Lovell, 2000; Koetter et al., 2008; Ariss, 2010; Coccorese & Pellecchia, 2010; Asongu & Nwachukwu, 2016a). As argued in the underlying literature, in cases when there are no observations with the values of zero or one, estimating with a double-censored Tobit model is similar to estimate with a linear model because the likelihood functions coincide (McDonald, 2009; Coccorese & Pellecchia, 2010). This method of estimation is also consistent with the behaviour of our data, because the IHDI for SSA ranges from 0.129 to 0.768.

The standard Tobit model (Tobin, 1958; Carsun & Sun, 2007) is as follows in Eq. (3):

$$y_{i,t}^* = \alpha_0 + \beta X_{i,t} + \varepsilon_{i,t}, \quad (3)$$

where,  $y_{i,t}^*$  is a latent response variable,  $\alpha_0$  is a constant,  $X_{i,t}$  is an observed ( $1 \times k$ ) vector of explanatory variables and  $\varepsilon_{i,t} \approx \text{i.i.d. } N(0, \sigma^2)$  and is independent variables in  $X_{i,t}$ .

Instead of observing  $y_{i,t}^*$ , we observe  $y_{i,t}$  in Eq. (4):

$$y_{i,t} = \begin{cases} y_{i,t}^*, & \text{if } y_{i,t}^* > \gamma \\ 0, & \text{if } y_{i,t}^* \leq \gamma, \end{cases} \quad (4)$$

where,  $\gamma$  is a non-stochastic constant. In other words, the value of  $y_{i,t}^*$  is missing when it is less than or equal to  $\gamma$ .

We address the concern of endogeneity by controlling for the unobserved heterogeneity, notably by accounting for fundamental characteristics of human development in Africa, notably: income levels, legal origins, religious dominations, political stability, resource-wealth and access to sea.

#### 4. Empirical results

Table 1 presents the empirical results. Whereas the left-hand-side (LHS) shows GMM results, the right-hand-side (RHS) presents Tobit regression estimates. Four principal information criteria are employed to investigate the validity of the GMM model with forward orthogonal deviations<sup>10</sup>. Based on these criteria all estimated coefficients in the models are valid. From

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<sup>10</sup> “First, the null hypothesis of the second-order Arellano and Bond autocorrelation test (AR(2)) in difference for the absence of autocorrelation in the residuals should not be rejected. Second the Sargan and Hansen overidentification restrictions (OIR) tests should not be significant because their null hypotheses are the positions that instruments are valid or not

the findings, it can be established that remittances and FDI increase inclusive development whereas foreign aid has the opposite effect. The control variables are significant with the expected positive signs.

**Table 1: Inclusive development and external flows**

	Dependent Variable: Inequality Adjusted Human Development (IHDI)					
	Generalised Method of Moments (GMM)			Tobit regressions		
Constant	<b>0.037***</b> (0.000)	<b>0.034***</b> (0.000)	<b>0.065***</b> (0.000)	<b>0.518***</b> (0.000)	<b>0.512***</b> (0.000)	<b>0.426***</b> (0.000)
IHDI(-1)	<b>0.909***</b> (0.000)	<b>0.917***</b> (0.000)	<b>0.847***</b> (0.000)	---	---	---
Remittances	0.00008 (0.834)	<b>0.0003*</b> (0.069)	<b>0.0004**</b> (0.048)	-0.0004 (0.405)	-0.0004 (0.397)	-0.00005 (0.904)
Official Development Assistance	<b>-0.00005***</b> (0.004)	0.00003 (0.124)	-0.00001 (0.421)	<b>-0.002***</b> (0.000)	<b>-0.002***</b> (0.000)	<b>-0.001***</b> (0.000)
Foreign Direct Investment	0.0001 (0.109)	<b>0.0001***</b> (0.007)	<b>0.0002***</b> (0.000)	<b>0.003***</b> (0.000)	<b>0.002***</b> (0.000)	<b>0.001**</b> (0.029)
Regulation Quality	-0.006 (0.218)	0.003 (0.214)	<b>0.008**</b> (0.032)	<b>0.093***</b> (0.000)	<b>0.092***</b> (0.000)	<b>0.042***</b> (0.000)
GDP per capita growth	---	<b>0.0008***</b> (0.000)	<b>0.0006***</b> (0.000)	---	<b>0.002**</b> (0.038)	<b>0.002*</b> (0.053)
Private Domestic Credit	---	---	0.00008 (0.633)	---	---	<b>0.0009***</b> (0.000)
Mobile Phones	---	---	<b>0.0004***</b> (0.000)	---	---	<b>0.001***</b> (0.000)
AR(1)	<b>(0.122)</b>	(0.028)	(0.052)			
AR(2)	<b>(0.250)</b>	<b>(0.509)</b>	<b>(0.626)</b>			
Sargan OIR	(0.002)	(0.000)	(0.000)			
Hansen OIR	<b>(0.373)</b>	<b>(0.436)</b>	<b>(0.699)</b>			
DHT for instruments						
(a) Instruments in levels						
H excluding group	<b>(0.649)</b>	<b>(0.761)</b>	<b>(0.396)</b>			
Dif(null, H=exogenous)	<b>(0.241)</b>	<b>(0.254)</b>	<b>(0.767)</b>			
(b) IV (years, eq(diff))						
H excluding group	<b>(0.380)</b>	<b>(0.277)</b>	<b>(0.419)</b>			
Dif(null, H=exogenous)	<b>(0.366)</b>	<b>(0.578)</b>	<b>(0.857)</b>			
Fisher	<b>1714.94***</b>	<b>3699.14***</b>	<b>15367.55***</b>			
Instruments	28	32	40			
Countries	38	38	38			
LR Chi-Square				<b>146.72***</b>	<b>151.01***</b>	<b>256.80***</b>
Log Likelihood				331.843	333.990	372.238
Observations	272	272	259	322	322	308

\*, \*\*, \*\*\*: significance levels of 10%, 5% and 1% respectively. GDP: Gross Domestic Product. FDI: Foreign Direct Investment. DHT: Difference in Hansen Test for Exogeneity of Instruments Subsets. Dif: Difference. OIR: Over-identifying Restrictions Test. The significance of bold values is twofold. 1) The significance of estimated coefficients and the Wald statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(1) & AR(2) tests and; b) the validity of the instruments in the Sargan OIR and DHT tests.

*correlated with the error terms. In essence, while the Sargan OIR test is not robust but not weakened by instruments, the Hansen OIR is robust but weakened by instruments. In order to restrict identification or limit the proliferation of instruments, we have ensured that instruments are lower than the number of cross-sections in most specifications. Third, the Difference in Hansen Test (DHT) for exogeneity of instruments is also employed to assess the validity of results from the Hansen OIR test. Fourth, a Fischer test for the joint validity of estimated coefficients is also provided" (Asongu & De Moor, 2017, p.200). Also see Tchamyou and Asongu (2017).*

In order to further control for the unobserved heterogeneity and provide space for more policy implications, the Tobit regressions are decomposed into fundamental characteristics, based on: legal origins, income levels, resource-wealth, 'access to the sea', religious domination and political stability. These fundamental features which have recently been documented to account for cross country differences in development outcomes (Asongu, 2017) have also been recently used in comparative inclusive human development literature (Asongu & Le Roux, 2017; Asongu & Nwachukwu, 2017b). Moreover, Mlachila et al. (2017) have justified the relevance of linking inclusive development with the following fundamental features: income levels, regional proximity, state fragility and resource-wealth. In what follows, we justify that relevance of such fundamental characteristics.

First, on the basis of income levels, from intuition, countries that are associated with higher income levels are more likely to be connected with more robust institutions which provide conditions for a more equitable distribution of wealth accruing from economic prosperity. There are two main justifications for this argument. On the one hand, wealthy nations are linked with more opportunities for employment and social mobility. On the other hand, recent literature on African institutions is supportive of the view that countries with higher incomes turn to distribute the wealth resulting from economic growth more evenly (Fosu, 2015bc). Second, countries that are enjoying relatively better stability in politics are more likely to be rewarded with better conditions for the equitable distribution of wealth accruing from national economic prosperity. Third, consistent with the above narrative pertaining to income levels, employment avenues and opportunities for social mobility should be more apparent in resource-rich countries. However this potential relationship should be taken with caution because some countries that have acknowledged scarcity in natural resources have fundamentally focused more on knowledge economy and human capability development as paths toward human and economic development (see America, 2013; Fosu, 2013; Amavilah, 2015). The perspective on human development capabilities is in line with the Kuada (2015) paradigm shift from 'strong economics' to 'soft economics'.

Fourth, the relevance for legal origins in comparative development has been considerably documented in the economic development literature (see La Porta et al., 1998, 1999). Accordingly, the importance of legal origins in the contemporary economic growth of Africa has been confirmed by Agbor (2015). Moreover, Beck et al. (2003) have provided theoretical and empirical evidence for the edge that English Common law countries have vis-à-vis their French Civil law counterparts, notably: the political and adaptability mechanisms.

On the one hand, with regard to the political view, English Common law places more emphasis on private property rights whereas French Civil law focuses more on the power of the State. On the other hand, from the perspective of the adaptability mechanism, compared to French Civil law, English Common law adapts more to evolving and changing socio-economic conditions which offer an enabling environment for social mobility and unemployment reduction. In summary, the institutional web of formal rules, informal norms and enforcement characteristics that are associated with legal origins, affect cross-country variables in economic vulnerability and social mobility which ultimately have some effect on inclusive development.

Fifth, the motivation for religious-domination is consolidated with the view that solidarity affects inclusive development. Moreover, Christianity and Islam are the two dominant religious cultures in Africa. Sixth, landlockedness has an institutional cost (see Arvis et al., 2007), that could affect economic governance which is the formulation and implementation of policies that deliver public commodities for inclusive human development. It is relevant to note that education and health (which are components of the IHDI), depend on the effectiveness of economic governance.

The classification of countries by legal origins is provided by La Porta et al. (2008, p. 339) whereas income-level categorisation is consistent with Asongu (2014a, p. 364)<sup>11</sup> from the World Bank classification. Resource-wealth is exclusively based on petroleum exports. A sampled nation is considered as a petroleum exporter if for a substantial part of the sampled periodicity, its oil-dominant exports represent a considerable part of its GDP. Whereas landlocked nations are directly apparent from an African map, the categorisation of religious domination is from the Central Intelligence Agency (CIA) World Fact Book (CIA, 2011). Politically-unstable countries represent those that have experienced political instability/violence for at least half of the sampled periodicity.

Table 2 presents findings on the fundamental characteristics. The findings are exclusively based on Tobit regressions in order to avoid concerns of instrument proliferation associated with the GMM results. In essence, within a comparative GMM framework the N>T condition is not met for some fundamental characteristics. The following findings are established. First, remittances are negatively associated with: (i) Middle income countries

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<sup>11</sup> There are four main World Bank income groups: (i) high income, \$12,276 or more; (ii) upper middle income, \$3,976-\$12,275; (iii) lower middle income, \$1,006-\$3,975 and (iv) low income, \$1,005 or less.

compared to Low income countries where the effect is not significant; (ii) French Civil law countries compared to English Common law countries where the effect is positive and (iii) Resource-rich countries compared to their Resource-poor counterparts where the effect is positive. Second, foreign aid is more negatively associated with low income, French Civil law, Islam-dominated, Un-landlocked, Resource-rich and Politically-unstable countries. Third, FDI is positively associated with: (i) Low income, French Civil law and Landlocked countries compared to respectively Middle income, English Common law and Un-landlocked countries where the effect is insignificant and (ii) Politically-stable countries compared to their Politically-unstable counterparts where the effect is negative.

**Table 2: Comparative economics with Tobit regressions**

	Dependent Variable: Inequality Adjusted Human Development Index (IHDI)											
	Income levels		Legal origins		Religion		Openness to sea		Oil exports		Political stability	
	LI	MI	Eng.	Frch.	Christ.	Islam	Open	Closed	Oil	Nonoil	Stable	Unstable
Constant	<b>0.457***</b> (0.000)	<b>0.370***</b> (0.000)	<b>0.419***</b> (0.000)	<b>0.431***</b> (0.000)	<b>0.431***</b> (0.000)	<b>0.492***</b> (0.000)	<b>0.494***</b> (0.000)	<b>0.429***</b> (0.000)	<b>0.473***</b> (0.000)	<b>0.424***</b> (0.000)	<b>0.392***</b> (0.000)	<b>0.535***</b> (0.000)
Remi	0.00003 (0.938)	<b>-0.003*</b> (0.097)	<b>0.0008*</b> (0.059)	<b>-0.004***</b> (0.001)	-0.00002 (0.952)	-0.001 (0.692)	-0.0005 (0.227)	-0.001 (0.422)	<b>-0.009***</b> (0.003)	<b>0.0007*</b> (0.092)	0.0001 (0.779)	-0.0008 (0.888)
ODA	<b>-0.003***</b> (0.000)	<b>-0.001***</b> (0.000)	<b>-0.0007**</b> (0.012)	<b>-0.004***</b> (0.000)	<b>-0.001***</b> (0.000)	<b>-0.006***</b> (0.000)	<b>-0.005***</b> (0.000)	<b>-0.001***</b> (0.003)	<b>-0.003***</b> (0.009)	<b>-0.0009***</b> (0.001)	<b>-0.001***</b> (0.000)	<b>-0.005***</b> (0.000)
FDI	<b>0.003***</b> (0.000)	0.0001 (0.882)	-0.0001 (0.835)	<b>0.003***</b> (0.000)	0.001 (0.110)	0.002 (0.433)	-0.0007 (0.466)	<b>0.001**</b> (0.029)	0.001 (0.463)	0.0006 (0.275)	<b>0.001**</b> (0.021)	<b>-0.005**</b> (0.012)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LR Chi-Square	<b>204.86***</b>	<b>97.88***</b>	<b>125.49***</b>	<b>201.44***</b>	<b>124.69***</b>	<b>110.69***</b>	<b>214.95***</b>	<b>91.37***</b>	<b>26.36***</b>	<b>287.86***</b>	<b>244.35***</b>	<b>63.35***</b>
Log Likelihood	259.832	130.289	186.708	220.945	268.709	103.911	269.645	122.916	58.050	343.330	325.179	66.787
Observations	190	118	140	168	221	87	212	96	44	264	257	51

\*\*\*, \*\*, \*: significance levels of 10%, 5% and 1% respectively. IV: Instrumented Variable. Glob: Globalisation. LI: Low Income. MI: Middle Income. Eng. English common law. Frch: French civil law. Christ: Christian-dominated. Islam: Islam-oriented. Open: Unlandlocked. Closed: Landlocked. Oil: petroleum exporting. Nonoil: Non petroleum exporting. Stable: Politically stable. Unstable: Politically unstable. Remi: remittances. ODA: Official Development Assistance. FDI: Foreign Direct Investment.

The findings are further discussed in two main strands, notably: the relevance of external flows in inclusive development and the theoretical contributions in the light of decreasing cross-country differences in inequality adjusted human development. Compared to remittances and FDI, foreign aid may be less likely to improve inclusive human development for at least two main reasons (Asiedu et al., 2012). (i) Foreign aid is more volatile because its standard deviation is about twice the respective standard deviations of foreign investment and remittances<sup>12</sup>. In essence, foreign aid volatility has adverse effects on development (see Kangoye, 2013). (ii) There is also a bulk of development literature which is consistent with

<sup>12</sup> From the summary statistics, the standard deviations of foreign aid, foreign direct investment and remittances are respectively 14.213, 8.737 and 8.031.



the view that the effect of foreign aid on development is ambiguous, notably: provocative titles like ‘foreign aid follies’ (Rogoff, 2014) and sceptical findings from meta analysis and surveys of over forty years of foreign aid research (Doucouliagos & Paldam, 2008, 2009).

The main theoretical contribution of the study is that convergence can be established beyond income per capita (see Asongu, 2014b). This is consistent with the scarce literature on catch-up in living standards (see Mayer-Foulkes, 2010; Clark, 2011; Konya & Guisan, 2008, p. 9; Mazumdar, 2002; Neumayer, 2003; Sutcliffe, 2004; Noorbakhsh, 2006; Sutcliffe, 2004). There is evidence of convergence in inclusive human development because the absolute lagged value of inclusive human development is between zero and one (see Asongu, 2014b). The evidence of convergence implies that countries with lower levels of inclusive development are catching-up their counterparts with higher levels in inclusive development. This substantially contrasts with the literature that has assessed convergence in the HDI notably: (i) Mazumdar (2002) and Sutcliffe (2004) who have rebuffed the idea of convergence and concluded on the absence of convergence in the HDI and (ii) Hobijn and Franses (2001) on divergence in living standards.

## **5. Concluding implications and future research directions**

In the transition from Millennium Development Goals (MDGs) to Sustainable Development Goals (SDGs), extreme poverty has been declining in all regions of the world with the exception of Sub-Saharan Africa (SSA) where close to half of nations in the sub-region was substantially off-course from attaining the MDG extreme poverty target. This study has assessed how external flows influence inclusive human development in a panel of 48 countries in Sub-Saharan Africa for the period 2000-2012. The empirical evidence is based on Tobit regressions and Generalised Method of Moments (GMM).

The findings from both estimation techniques reveal that remittances and FDI increase inclusive development whereas foreign aid has the opposite effect. Comparative results from fundamental features of human development reveal the following. First, remittances are negatively associated with: (i) Middle income countries compared to Low income countries where the effect is not significant; (ii) French Civil law countries compared to English Common law countries where the effect is positive and (iii) Resource-rich countries compared to their Resource-poor counterparts where the effect is positive. Second, foreign aid is more negatively associated with Low income, French Civil law, Islam-dominated, Un-landlocked, Resource-rich and Politically-unstable countries. Third, FDI is positively associated with: (i)

Low income, French Civil law and Landlocked countries compared to respectively Middle income, English Common law and Un-landlocked countries where the effect is insignificant and (ii) Politically-stable countries compared to their Politically-unstable counterparts where the effect is negative.

The findings show that more emphasis should be placed on alternative sources of external financial flows in view of fighting non-inclusive development in SSA. In these efforts, priority should be placed on remittances and foreign direct investment compared to foreign aid in the post-2015 sustainable development agenda. Moreover, the degree of responsiveness of inclusive development to external flows is contingent on various fundamental characteristics and types of external flows. Therefore the results have relevant implications for countries in the sub-region in their quest to attain SDGs. This is specifically because the post-2015 SDG agenda is for the most part oriented towards reversing non-inclusive development trends and consolidating global inclusive development tendencies. The former framework is consistent with growing extreme poverty trends in SSA.

It is important to note that the conception, definition and measurement of ‘inequality adjusted human development’ employed as the dependent variable in this inquiry is consistent with at least six of the seventeen SDGs, notably: (i) *Goal 1* (‘end poverty in all its forms everywhere’); (ii) *Goal 2* (‘end hunger, achieve food security and improved nutrition and promote sustainable agriculture’); (iii) *Goal 3* (‘ensure healthy lives and promote well-being for all ages’); (iv) *Goal 4* (‘ensure inclusive and equitable quality education and promote lifelong learning opportunities for all’); (v) *Goal 8* (‘promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all’) and (vi) *Goal 10* (reduce inequality within and among countries)<sup>13</sup>.

Future research can focus on assessing how the established linkages withstand empirical scrutiny on the one hand and on the other hand investigating mechanisms by which such external flows can be channelled to improve inclusive human development. Moreover, given that endogeneity may not have been sufficiently accounted-for in the regressions, it is worthwhile to extend the analysis with more endogeneity-robust empirical strategies.

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<sup>13</sup>The interested reader can refer to Michel (2016), for a full list of SDGs.

## Appendices

### Appendix 1: Definitions and sources of variables

Variables	Signs	Definitions	Sources
Inclusive development	IHDI	Inequality Adjusted Human Development Index	UNDP
Remittance	Remit	Remittance inflows (% of GDP)	WDI
Foreign Aid	NODA	Total Net Official Development Assistance (% of GDP)	WDI
Foreign investment	FDI	Foreign Direct Investment net inflows (% of GDP)	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
GDP per capita	GDPpcg	GDP per Capita growth rate	WDI
Private Credit	Credit	Private credit by deposit banks and other financial institutions (% of GDP)	WDI
Mobile Phone	Mobile	Mobile phone subscriptions (per 100 people)	WDI

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	0.445	0.115	0.129	0.768	482
Remittances	3.977	8.031	0.000	64.100	434
Foreign Aid	11.686	14.213	-0.253	181.187	604
Net Foreign Direct Investment Inflows	5.332	8.737	-6.043	91.007	603
Regulation Quality	-0.712	0.643	-2.665	0.983	576
GDP per Capita growth	2.300	5.616	-33.983	58.363	604
Private Domestic Credit	18.551	22.472	0.550	149.78	507
Mobile Phone Penetration	23.379	28.004	0.000	147.202	572

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

### Appendix 3 : Correlation matrix (uniform sample size: 308)

Remit	NODA	FDI	RQ	GDPpcg	Credit	Mobile	IHDI	
1.000	-0.009	0.125	-0.076	0.026	-0.095	-0.057	-0.043	Remit
	1.000	0.427	-0.322	0.134	-0.185	-0.191	-0.395	NODA
		1.000	-0.191	0.170	-0.084	0.085	-0.025	FDI
			1.000	0.0007	0.532	0.362	0.512	RQ
				1.000	0.029	0.044	0.077	GDPpcg
					1.000	0.512	0.536	Credit
						1.000	0.635	Mobile
							1.000	IHDI

Remit: Remittances. NODA: Net Official Development Assistance. FDI: Foreign Direct Investment. RQ: Regulation Quality. GDPpcg : GDP per capita growth rate. Credit: Private domestic credit. Mobile: Mobile Phone Penetration. IHDI: Inequality Adjusted Human Development Index.

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