Doing Business and Inclusive Human Development in Sub-Saharan Africa

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Doing Business and Inclusive Human Development in Sub-Saharan Africa

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Abstract

Purpose- This study examines how doing business affects inclusive human development in 48 sub-Saharan Africa for the period 2000-2012.

Design/methodology/approach- The measurement of inclusive human development encompasses both absolute pro-poor and relative pro-poor concepts of inclusive development. Three doing business variables are used, namely: the number of start-up procedures required to register a business; time required to start a business; and time to prepare and pay taxes. The empirical evidence is based on Fixed Effects and Generalised Method of Moments regressions.

Findings- The findings show that increasing constraints to the doing of business have a negative effect on inclusive human development.

Originality/value- The study is timely and very relevant to the post-2015 Sustainable Development agenda for two fundamental reasons: (i) Exclusive development is a critical policy syndrome in Africa because about 50% of countries in the continent did not attain the MDG extreme poverty target despite enjoying more than two decades of growth resurgence. (ii) Growth in Africa is primarily driven by large extractive industries and with the population of the continent expected to double in about 30 years, scholarship on entrepreneurship for inclusive development is very welcome. This is essentially because studies have shown that the increase in unemployment (resulting from the underlying demographic change) would be accommodated by the private sector, not the public sector.

JEL Classification: M20; I30; O10; O30; O55
Keywords: Doing Business; Inclusive Development; Entrepreneurship; Africa

1. Introduction

This study is motivated by three main strands in contemporary development literature, namely: (i) a burgeoning population and need to accommodate the corresponding rising unemployment; (ii) growing exclusive development in Sub-Saharan Africa (SSA); and (iii) gaps in the literature.

First, as documented by the United Nation's population prospects (UN, 2009), the population of the African continent is estimated to double by 2036 and constitute about one-fifth of the global population by 2050. Accordingly, a substantial policy syndrome confronting Africa in the post-2015 development agenda is high unemployment (AERC, 2014). This is consistent with the narrative that the growing population in the African continent can only be accommodated in the long-term by the private sector through enhanced entrepreneurship and ease of doing business (Asongu, 2013; Brixiova et al., 2015). Ultimately, favourable conditions for doing business contribute towards addressing development concerns like poverty and non-inclusive development.

Second, a 2015 World Bank report documenting trends toward attainment of the Millennium Development Goals (MDGs) extreme poverty targets has shown that from the 1990s, extreme poverty has been declining in all world regions with the exception of Africa, where close to 50% of countries in SSA were substantially off-track from reaching the MDG's extreme poverty target (World Bank, 2015). Unfortunately, this evidence contrasts with more than two decades of growth resurgence in SSA that began in the mid-1990s (see Asongu & Nwachukwu, 2017a). It follows that growth has been non-inclusive in the sub-region (Obeng-Odoom, 2013, 2015; Nanziri, 2016; Bicaba et al., 2017).

Third, in the light of the above, recent African development literature has not focused on the relevance of doing business on inclusive development. We briefly discuss the aforementioned contemporary literature in two strands. On the one hand, recent inclusive development literature in Africa has focused on, *inter alia*: poverty growth transformations (Thorbecke, 2013; Fosu, 2015); determinants and measurements of inclusive development (Anand et al., 2013; Mlachila et al., 2017); the Azzimonti et al. (2014) theorization of globalisation-induced inequality for developed countries that has been partly confirmed in Africa (see Asongu et al., 2015); poverty correlates (Anyanwu, 2013,2014), and gender inequality (Elu & Loubert, 2013; Baliamoune-Lutz, 2007; Baliamoune-Lutz & McGillivray, 2009; Efobi et al., 2016).

On the other hand, the bulk of the literature on doing business has been oriented toward, among others: legal challenges to doing business (Taplin & Synman, 2004); the cost of doing business (Eifert et al., 2008); drivers of entrepreneurship in East Africa (Khavul et al., 2009); the influence of labour regulation externalities on the cost of doing business (Paul et al., 2010); the relationship between financial literacy and youth entrepreneurship (Oseifuah, 2010); intensity by which trade affects synchronisation of business cycles (Tapsoba, 2010); the long-run impact of entrepreneurial training on poverty reduction (Mensah & Benedict, 2010); motivations behind female entrepreneurship (Singh et al., 2011);the intention of undergraduate students to become entrepreneurs (Gerba, 2012; Ita et al., 2014), and the role of knowledge economy in doing business (Tchamyou, 2017).

The present inquiry integrates the above motivations by investigating the relevance of doing business in inclusive human development in SSA. Accordingly, it fills the identified gap in the literature by assessing how doing business constraints affect a policy challenge of inclusive development. The policy interest of the inquiry builds on the fact that the definition, measurement and conception of inclusive development used as the outcome variable is consistent with at least six of the seventeen Sustainable Development Goals (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') (see Asongu& le Roux, 2017).

The rest of the study is structured as follows. Section 2 discusses the intuition and related literature. The data and methodology are covered in section 3, while section 4 presents the empirical results. We conclude in section 5 with implications and future research directions.

2. Intuition and related literature

This section is discussed in two main strands, namely: the intuition for the relationship between doing business and inclusive development on the one hand and the contemporary literature on doing business in Africa on the other hand. For the intuition in the first strand,

doing business by means of Small and Medium Enterprises (SMEs) has some leverage in boosting economic prosperity, creating new jobs and reducing poverty (Hussain et al., 2014). According to the narrative, social entrepreneurship is a means of doing business which channels the resources, talents and expertise of entrepreneurs to address development concerns confronting poor countries such as education, health, personal security and safety, environmental sustainability and social prosperity. In essence, such social mechanisms of doing business have been used by a growing number of enterprises that have consolidated models which efficiently address concerns related to basic human needs that existing institutions and markets have been unable to satisfy. Accordingly, doing business by means of social entrepreneurship has as principal mission to improve human wellbeing and change society.

Improving conditions for doing business could offer more avenues for enterprise forms and business strategies that are more sustainable and socially acceptable. This is essentially because some promotion is made for enterprises with more social responsibility which ultimately contributes towards sustainable development programs. Furthermore, more avenues to doing business allow for some forms of entrepreneurship (e.g. 'social entrepreneurship') which enable resources to be re-directed towards neglected societal and human development programs.

In the second strand on existing literature, Kuada (2014) has assessed the relevance of cross-border inter-firm knowledge in entrepreneurship in Africa, Kuada (2015) has provided a classification of the research agenda on doing business in Africa, while Asongu et al. (2019) have provided information technology thresholds through which remittances can enhance entrepreneurship in SSA. Eifert et al. (2008) have focused on the cost of doing business in Africa to establish that the relative performance of enterprises in Africa is undervalued by standard measurements. Legal positions with emphasis on doing business challenges in South Africa have been investigated by Taplin and Synman (2004). Tapsoba (2010) has examined the degree of responsiveness of business cycle synchronisation to trade and concluded that some causal relationship is apparent. In accordance with Khavul et al. (2009), substantial community and family relations affect the growth of entrepreneurs and the doing of business in East Africa. The influence of foreign direct investment in social responsibility has been examined by Bardy et al. (2012) to document plausible theoretical and practical patterns on the relationship. The effect of externalities from labour regulation on the cost of doing

business is assessed by Paul et al. (2010) who conclude that the World Bank's doing business indicators fail to provide a clear perspective on the employment of workers.

The intentions of doing business by Ethiopian undergraduate students are examined by Gerba (2012) who concludes that such intentions are strongly affected by doing business lessons. Drivers of decisions underpinning the doing of business among women in Nigeria are investigated by Singh et al. (2011) who conclude on the following determining motivational characteristics: education, family capital and economic environments are conducive for economic deregulation and social recognition. The relationship between youth entrepreneurship and financial literacy is examined by Oseifuah (2010) in South Africa to find that the latter is a driver of the former. Mensah and Benedict (2010) assess long-run externalities of training in doing business to conclude that government poverty-reducing handouts only mitigate poverty in the short-term, with probable consequences of protests and violent demonstrations. Conversely, when the government provides citizens with training and opportunities of doing business (notably: for the consolidation of existing businesses and creation of new ones), long-run poverty-mitigating externalities are more apparent. In more contemporary African literature, Tchamyou (2017) has assessed the role of knowledge economy in the doing of business, whereas Asongu and Tchamyou (2017) have examined the impact of entrepreneurship on knowledge economy. A two-way causality is established by the authors, notably that: knowledge economy drives the doing of business and vice versa. As an extension, Asongu et al. (2018) have investigated linkages between mobile phones, institutional quality and entrepreneurship in SSA to conclude that: (i) the mobile phone has a favourable complementary role in some doing business factors, and (ii) good governance should be improved in order to enhance the relevance of mobile phones in doing business.

In Ghana, Afutu-Kotey et al. (2017) have established that many young entrepreneurs still have aspirations which are motivating them to stay in business despite the challenges of informality, Boadi et al. (2017) in the same country show that SMEs are contributing considerably to the profitability of banks and Domeher et al. (2017) have found that there are sectoral variations in the SME financing gap, of which the agricultural sector is most affected.

3. Data and Methodology

3. Data

This study assesses 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[2]. Whereas, the periodicity is due to data availability constraints, the scope of SSA is consistent with the motivation of the inquiry, notably: the comparatively high extreme poverty, non-inclusive development and challenges to sustainable development goals.

Borrowing from recent African inclusive development literature (Asongu et al., 2015), the inequality adjusted human development index (IHDI) is used to measure inclusive human development. The human development index (HDI) represents a national mean in three main dimensions, namely: health and long life; basic living standards and knowledge. Therefore, the IHDI adjusts the HDI to account for the manner in which national achievements in health, education and income are evenly distributed among the population.

In the light of the above, the IHDI is a better measurement of inclusive development because it encompasses both 'relative pro-poor' and 'absolute pro-poor' inclusive development concepts by respectively, accounting for inequality and poverty. Poverty is incorporated because it reflects three fundamental elements of human development, whereas inequality is controlled because the three fundamental elements are adjusted for non-inclusive distribution. Hence, both absolute pro-poor growth (Ravallion & Chen, 2003) and relative pro-poor growth (Dollar & Kraay, 2003) concepts are adopted by this study. Furthermore, the measurement of inclusive human development is not exclusively limited to monetary aspects which have been criticised by a strand of the literature (Lopez & Serven, 2004; Klasen, 2005). In essence, the inclusive development measurement encompasses: equal access to employment avenues and pro-poor improvements in social opportunities.

Consistent with recent doing business literature (see Tchamyou, 2017), three independent variables on doing business are employed, namely, the: number of start-up procedures required to register a business; time required to start a business and time to prepare and pay taxes. Given that an increasing tendency in these variables reflects constraints to doing business, a negative estimated coefficient is expected in order to conclude that

[2] Of the forty-nine countries in SSA, only South Sudan is not included because data for the country is not available before 2011.

increasing ‘doing business’ constraints decreases inclusive human development and vice-versa.

Seven 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, mobile phone penetration, remittances, development assistance and foreign direct investment (FDI). The selected control variables have been documented to improve inclusive development (see Mishra et al., 2011; Anand et al., 2012; Seneviratne & Sun, 2013; Mlachila et al., 2017; Asongu & Nwachukwu, 2016a, 2017b). (i) From intuition, GDP per capita growth should improve human development because it is a constituent of the HDI. (ii) According to Mlachila et al. (2017), private domestic credit increases inclusive development. (iii) The mobile phone has been documented to be positively associated with non-exclusive development in Africa (Asongu, 2015). (iv) Regulation quality which represents an aspect of economic governance should have a positive effect on the dependent variable because by definition, economic governance is the formulation and implementation of policies that deliver public commodities. The three dimensions of the HDI are associated with such public commodities. (v) Remittances are expected to improve inclusive human development because they are largely used for consumption purposes. Such consumption is directly associated with improvements in social services like health and education (Ssozi & Asongu, 2016). (vi) Foreign aid has been established to decrease inclusive human development in Africa (Asongu, 2014). (vii) The effect of FDI cannot be established a priori because it depends on whether the corresponding investment is concentrated in a few economic sectors or broad-based. In essence, broad-based FDI is more likely to improve the human and economic developments for majority of the population.

Given the above, the choice of the control indicators is motivated by both the intuition on the IHDI constituents and the available literature on inclusive development. For example, while GDP per capita and education (which are constituents of the IHDI) are justified both by the literature and intuition, the remaining control variables are justified by the engaged literature. 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 Fixed Effects regression

The equation of Fixed Effects (FE) regressions that is used to control for the unobserved heterogeneity is presented in Eq. (1) as follows.

$$IHD_{i,t} = \partial_0 + \partial_1 SP_{i,t} + \partial_2 TB_{i,t} + \partial_3 TT_{i,t} + \sum_{h=1}^{k} \gamma_h W_{h,i,t-\tau} + \eta_i + \zeta_{i,t} \qquad (1)$$

where, $IHD_{i,t}$ is inclusive human development in country i at period t; $SP_{i,t}$ is the number of start-up procedures required to register a business; $TB_{i,t}$ is the time required to start a business; $TT_{i,t}$ is the time to prepare and pay taxes of country i at period t; ∂_0 is a constant; W is the vector of control variables , η_i is the country-specific effects and $\zeta_{i,t}$ the error term.

3.2.2 Generalised Method of Moments

There are five main motivations for adopting a Generalised Method of Moments (GMM) estimation technique: two are requirements for the use of the technique whereas, three are associated advantages (Tchamyou & Asongu, 2017). (i) Persistence is a requirement for using the technique. The criterion for persistence is met because the correlation between the dependent variable and its first lag is 0.9876, which is higher than the rule of thumb threshold of 0.800 needed to establish persistence in an outcome variable. (ii) The N(48)>T(13) criterion that is needed for the employment of a GMM technique is also fulfilled because the number of cross sections are higher than the number of time series in each cross section. (iii) There is some control for endogeneity by the estimation approach because it accounts for: the unobserved heterogeneity by employing time invariant variables on the one hand and on the other hand, simultaneity in the regressors by using instrumented explanatory variables. (iv) Cross-country variations in the regressions are also taken into account given that the estimation approach is consistent with a panel data structure. (v) In accordance 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).

In this study, a Roodman (2009a, 2009b) extension of Arellano and Bover (1995) is adopted. This approach uses forward orthogonal variations as opposed to first differences because the underlying approach has been documented to restrict over-identification and limit instrument proliferation (see Love & Zicchino, 2006; Baltagi, 2008; Tchamyou, 2018a,

2018b). 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 (2) and first difference (3) summarize the standard *system* GMM estimation procedure.

$$IHD_{i,t} = \sigma_0 + \sigma_1 IHD_{i,t-\tau} + \sigma_2 SP_{i,t} + \sigma_3 TB_{i,t} + \sigma_4 TT_{i,t} + \sum_{h=1}^{k} \delta_h W_{h,i,t-\tau} + \eta_i + \xi_t + \varepsilon_{i,t} \quad (2)$$

$$IHD_{i,t} - IHD_{i,t-\tau} = \sigma_1 (IHD_{i,t-\tau} - IHD_{i,t-2\tau}) + \sigma_2 (SP_{i,t} - SP_{i,t-\tau}) + \sigma_3 (TB_{i,t} - TB_{i,t-\tau}) + \sigma_4 (TT_{i,t} - TT_{i,t-\tau}) + \sum_{h=1}^{k} \delta_h (W_{h,i,t-\tau} - W_{h,i,t-2\tau}) + (\xi_t - \xi_{t-\tau}) + (\varepsilon_{i,t} - \varepsilon_{i,t-\tau}) \quad (3)$$

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 $t-1$; $SP_{i,t}$ is the number of start-up procedures required to register a business; $TB_{i,t}$ is the time required to start a business; $TT_{i,t}$ is the time to prepare and pay taxes of country i at period t; σ_0 is a constant; τ represents the coefficient of auto-regression; W is the vector of control variables , η_i is the country-specific effects, ξ_t is the time-specific constant and $\varepsilon_{i,t}$ the error term.

3.2.3 Identification, simultaneity and exclusion restrictions

It is worthwhile to discuss identification, simultaneity and exclusion restrictions that are essential in a GMM specification. All explanatory variables are considered as predetermined or suspected endogenous variables whereas, the time-invariant indicators or years are considered to be strictly exogenous. This identification approach is consistent with Dewanand Ramaprasad (2014) and Asongu and Nwachukwu (2016b). It is important to note that it is unfeasible for years to be endogenous in first-difference (see Roodman, 2009b). Therefore, the procedure for treating time invariant omitted variables (or *ivstyle*) is 'iv(years, eq(diff))' whereas, the *gmmstyle* is used for the predetermined or suspected endogenous variables.

The issue of simultaneity is tackled with lagged explanatory indicators as instruments, contrary to forward differenced indicators. Accordingly, Helmet transformations are used to purge fixed effects that are linked to the error terms because such could result in estimated linkages that are biased (Arellano & Bover, 1995; Love & Zicchino, 2006). The transformation encompasses the employment of forward mean variations of variables which

are quite different from the process of deducting previous observations from contemporary observations (see Roodman, 2009b, p. 104). In essence, the mean of future observations is reduced from previous observations. Such transformations permit parallel or orthogonal conditions between forward-differenced indicators and lagged observations. Regardless of lagged number, data loss is avoided by computing such transformation 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).

As regards exclusion restrictions, the dependent variable is affected by time invariant indicators exclusively through predetermined or suspected endogenous variables. Furthermore, the statistical validity of the exclusion restriction is assessed with the Difference in Hansen Test (DHT) for the validity of instruments. In essence, in order for years or time invariant indicators to elucidate the outcome variable exclusively via the endogenous explaining indicators, the null hypothesis of the test should not be rejected. It is important to note that when an instrumental variable (IV) estimation procedure is employed, rejecting the null hypothesis of the Sargan Overidentifying Restrictions (OIR) test means 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 based on forward orthogonal deviations, the information criterion that is required for assessing whether time invariant variables exhibit strict exogeneity is the DHT. Hence, 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.

4. Empirical results

Table 1 presents the empirical results. There are three sets of specifications corresponding chronologically to the following categories: (i) number of start-up procedures required to register a business; (ii) time required to start a business; (iii) time needed to prepare and pay taxes and (iv) doing business. While in the first-three categories, the doing business variables are employed independently in respective specifications, in the last category, at least two doing business variables are employed in the same specification. It is important to note that all three doing business variables cannot be employed in the same specification because of the relatively high coefficient of correlation between two doing business variables (see Appendix 3). Each category entails both GMM and FE specifications.

Table 1: Inclusive development and doing business

Dependent variable: Inequality Adjusted Human Development (IHDI)

	Start-up procedure		**Time to start a business**		**Time to pay taxes**		**Doing business**			
	GMM	FE	GMM	FE	GMM	FE	GMM	FE	GMM	FE
Constant	**0.087*****	**0.481*****	**0.087*****	**0.462*****	**0.105*****	**0.493*****	**0.091*****	**0.507*****	**0.093*****	**0.496*****
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
IHDI(-1)	**0.846*****	---	**0.813*****	---	**0.787*****		**0.792*****	---	**0.823*****	---
	(0.000)		**(0.000)**		**(0.000)**		**(0.000)**		**(0.000)**	
Start-up procedure	**-0.001****	**-0.002****	---	---	---	---	**-0.001****	-0.001	---	---
	(0.011)	**(0.017)**					**(0.025)**	(0.220)		
Time to start a business	---	---	**-0.00005****	-0.00006	---	---			-0.00001	-0.00002
			(0.012)	(0.228)					(0.687)	(0.691)
Time to pay taxes	---	---	---	---	**0.787*****	-0.00005	**-0.00005*****	-0.00005	**-0.00005****	-0.00005
					(0.000)	(0.234)	**(0.001)**	(0.237)	**(0.017)**	(0.225)
Remittances	-0.00004	0.0001	0.0003	0.0003	**0.0006*****	0.0002	**0.0008*****	0.0002	0.0003	0.0003
	(0.793)	(0.688)	(0.102)	(0.516)	**(0.000)**	(0.736)	**(0.000)**	(0.750)	(0.214)	(0.709)
Foreign Aid	**-0.0001*****	-0.0002	**-0.0001*****	-0.0001	**-0.0001*****	-0.0001	**-0.0001****	-0.0001	**-0.0001*****	-0.0001
	(0.000)	(0.123)	**(0.007)**	(0.169)	**(0.000)**	(0.408)	**(0.014)**	(0.373)	**(0.003)**	(0.414)
Foreign Investment	**0.0004*****	0.0002	**0.0003*****	0.0002	**0.0003*****	0.0003	**0.0001***	0.0002	**0.0002*****	0.0003
	(0.000)	(0.313)	**(0.002)**	(0.253)	**(0.000)**	(0.249)	**(0.084)**	(0.291)	**(0.001)**	(0.262)
Regulation Quality	**0.017*****	**0.024****	**0.020*****	**0.027****	**0.019*****	**0.040****	**0.012****	**0.038****	**0.011****	**0.039****
	(0.005)	**(0.045)**	**(0.000)**	**(0.026)**	**(0.000)**	**(0.022)**	**(0.024)**	**(0.030)**	**(0.024)**	**(0.025)**
GDP per capita growth	**0.0007*****	**0.0006***	**0.0006*****	**0.0006***	-0.0001	0.0004	**-0.003****	0.0004	-0.00001	0.0004
	(0.000)	**(0.074)**	**(0.000)**	**(0.080)**	(0.264)	(0.407)	**(0.025)**	(0.371)	(0.921)	(0.394)
Private Domestic Credit	0.0001	-0.0004	0.0002	-0.0004	**0.0005*****	-0.0006	**0.0005*****	-0.0007	**0.0004*****	-0.0007
	(0.521)	(0.303)	(0.151)	(0.364)	**(0.000)**	(0.197)	**(0.000)**	(0.144)	**(0.005)**	(0.180)
Mobile Phone	**0.0003*****	**0.0005*****	**0.0004*****	**0.0006*****	**0.0004*****	**0.0005*****	**0.0004*****	**0.0005*****	**0.0004*****	**0.0005*****
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
AR(1)	(0.036)	---	(0.075)	---	**(0.353)**	---	**(0.516)**	---	**(0.216)**	---
AR(2)	**(0.578)**		**(0.589)**		**(0.436)**		**(0.507)**		**(0.632)**	
Sargan OIR	(0.000)	---	(0.000)	---	(0.000)	---	(0.000)	---	(0.000)	---
Hansen OIR	**(0.538)**		**(0.678)**		**(0.527)**		**(0.656)**		**(0.744)**	
DHT for instruments										
(a)Instruments in levels										
H excluding group	**(0.333)**	---	**(0.317)**	---	**(0.437)**	---	**(0.325)**	---	**(0.743)**	---
Dif(null, H=exogenous)	**(0.626)**		**(0.803)**		**(0.531)**		**(0.761)**		**(0.608)**	
(b) IV (years, eq(diff))										
H excluding group	(0.272)	---	(0.205)	---	(0.447)	---	(0.466)	---	(0.469)	---
Dif(null, H=exogenous)	**(0.889)**		**(1.000)**		**(0.580)**		**(0.825)**		**(0.969)**	
Fisher	**193303*****	**19.20*****	**24296*****	**18.28*****	**56078*****	**10.91*****	**525818*****	**9.90*****	**35292.03*****	**9.66*****
Instruments	43		43		41		41			
Within R^2		0.428		0.416		0.350		0.356	41	0.350
Countries	38	39	38	39	38	39	38	39	38	39
Observations	227	252	227	252	184	209	184	209	184	209

*,**,***: 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 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 and Hansen OIR tests. FE: Fixed Effects. GMM: Generalised Method of Moments. Whereas, 48 countries are used, the total number of countries after the estimation output may be less than 48 when there are missing observations in some variables.

Four principal information criteria are employed to investigate the validity of the GMM model with forward orthogonal deviations[3]. Based on these criteria, all estimated coefficients in the models are valid. As for the FE regressions, all estimated models are valid because of a significant Fisher statistics on the one hand and on the other hand, corresponding coefficients of determination (or within R^2) are quite moderately high. Based on the estimated coefficients, it can be established that increasing constraints to the doing of business negatively affect inclusive human development. The significant control variables have the expected signs.

The findings are broadly consistent with a strand of the literature which has established the relevance of doing business in inclusive development, notably: (i) Mensah and Benedict (2010), who have shown that educating citizens in doing business reduces poverty; (ii) the importance of entrepreneurship in promoting inclusive growth and mitigating social exclusion (Hall *et al*., 2012), and (iii) the role of doing business in female social inclusion (Fielden & Dawe, 2004; Kuada, 2009).

5. Concluding implications and future research directions

This study has examined how doing business affects inclusive human development in Sub-Saharan Africa for the period 2000-2012. The measurement of inclusive human development encompasses both absolute pro-poor and relative pro-poor concepts of inclusive development. Three doing business variables are used namely, the: number of start-up procedures required to register a business; time required to start a business and time to prepare and pay taxes. The empirical evidence is based on Fixed Effects and Generalised Method of Moments regressions. The findings show that increasing constraints to the doing of business has a negative effect on inclusive human development. The following implications are relevant to the findings in view of decreasing doing business constraints for inclusive development.

The number of start-up procedures required to register a business can be decreased by: (i) reducing bureaucracy through decentralization and(ii) digitalizing the process of starting a business in order to reduce transaction costs. Accordingly, decentralization would increase the

[3]"*First, the null hypothesis of the second-order Arellano and Bond autocorrelation test (AR(2)) in difference for the absence of autocorrelation in the residuals should not be rejected. Second the Sargan and Hansen overidentification restrictions (OIR) tests should not be significant because their null hypotheses are the positions that instruments are valid or not correlated with the error terms. In essence, while the Sargan OIR test is not robust but not weakened by instruments, the Hansen OIR is robust but weakened by instruments. In order to restrict identification or limit the proliferation of instruments, we have ensured that instruments are lower than the number of cross-sections in most specifications. Third, the Difference in Hansen Test (DHT) for exogeneity of instruments 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).

probability of formalizing informal business activities on the one hand and reducing the cost of business start-up on the other hand. This is essentially because some students and poor factions of the population who aim to start a business may not have the financial means to travel to big cities where business registration takes place. Furthermore, digitalization would also substantially reduce both the time to and cost of starting a business which would ultimately have a negative incidence on the number of procedures required to start a business. Other indirect benefits of digitalization by means of enhanced information and communication technology (ICT) channels include: corruption and information asymmetry which constrain the doing of business. It is important to note that digitalization of procedures required to start a business can reduce informational rents (associated with information asymmetry and corruption) previously enjoyed by a few privileged elite.

The above policy recommendations also apply to the two other doing business constraints, namely: the time required to start a business and time to prepare and pay taxes. Whereas the former is directly related tothe number of start-up procedures required to register a business, the latter has added significance in inclusive development because it increases avenues along which government resources are mobilized through taxation for better economic governance: the formulation and implementation of policies that deliver public commodities needed for enhanced inclusive development.

In the light of the above, future research can focus on assessing how ICT can facilitate the doing of business for inclusive development. Moreover, investigating whether the established findings withstand empirical scrutiny within country-specific settings would provide room for country-specific policy implications.

Appendices

Appendix 1: Definitions of variables

Variables	Signs	Definitions of variables (Measurements)	Sources
Inclusive development	IHDI	Inequality Adjusted Human Development Index	UNDP
Start-up procedure	Startupproced	Start-up procedures to register a business (number)	World Bank (WDI)
Time to start a business	Timestartbus	Time required to start a business (days)	World Bank (WDI)
Time to pay taxes	Timetaxes	Time to prepare and pay taxes (hours)	World Bank (WDI)
Remittance	Remit	Remittance inflows (% of GDP)	World Bank (WDI)
Foreign aid	Aid	Total Development Assistance (% of GDP)	World Bank (WDI)
Foreign investment	FDI	Foreign Direct Investment inflows (% of GDP)	World Bank (WDI)
Regulation Quality	RQ	"Regulation quality (estimate): measured as the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development".	World Bank (WDI)
GDP per capita growth	GDPpcg	Gross Domestic Product (GDP) per capita growth (annual %)	World Bank (WDI)
Private Credit	Credit	Private credit by deposit banks and other financial institutions (% of GDP)	World Bank (WDI)
Mobile phones	Mobile	Mobile phone subscriptions (per 100 people)	World Bank (WDI)

WDI: World Development Indicators. UNDP: United Nations Development Program.

Appendix 2: Summary statistics (2000-2012)

	Mean	SD	Minimum	Maximum	Observations
Inequality Adj. Human Development	0.445	0.115	0.129	0.768	482
Start-up procedure	9.856	3.005	3.000	18.000	445
Time to start a business	49.884	43.658	5.000	260	445
Time to pay taxes	319.382	196.048	66	1120	375
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	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

S.D: Standard Deviation.

Appendix 3: Correlation matrix (uniform sample size: 209)

Startup-proced	Time-startbus	Time-taxes	Remit	Aid	FDI	RQ	GDPpcg	Credit	Mobile	IHDI	
1.000	0.495	-0.079	-0.107	-0.097	-0.133	-0.164	-0.003	-0.307	-0.289	-0.137	Startupproced
	1.000	-0.046	0.077	0.007	0.009	-0.204	0.049	-0.146	-0.115	0.016	Timestartbus
		1.000	0.283	-0.161	-0.035	-0.123	-0.123	-0.093	-0.095	-0.067	Timetaxes
			1.000	0.027	0.171	-0.133	0.032	-0.139	-0.069	-0.101	Remit
				1.000	0.445	-0.345	0.216	-0.189	-0.255	-0.380	Aid
					1.000	-0.212	0.205	-0.101	-0.002	-0.077	FDI
						1.000	0.037	0.588	0.478	0.546	RQ
							1.000	0.003	-0.040	0.025	GDPcpg
								1.000	0.520	0.545	Credit
									1.000	0.702	Mobile
										1.000	IHDI

Startupproced: Start-up procedures to register a business. Timestartbus: Time required to start a business. Timetaxes: Time to prepare and pay taxes. Remit: remittances. Aid: Foreign aid. FDI: Foreign Direct Investment. RQ: Regulation Quality. GDPpcg: Gross Domestic Product per capita growth rate. Credit: Private Domestic Credit. Mobile: Mobile Phone Penetration. IHDI: Inequality Adjusted Human Development Index.

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