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## Article Financial inclusion and inclusive growth in sub-Saharan Africa

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## DEVELOPMENT ECONOMICS | RESEARCH ARTICLE Financial inclusion and inclusive growth in sub-Saharan Africa

Bernard Sarpong<sup>1\*</sup> and Edward Nketiah-Amponsah<sup>2</sup>

Abstract: This paper empirically examines the quantitative relationship between financial inclusion and inclusive growth in sub-Saharan Africa using a panel of 46 countries for the period 2004-2018. The evidence suggests that usage of financial services, among other covariates, has a quantifiable and discernible impact on inclusive growth compared with availability and knowledge of financial services. Precisely, a unit increase in the usage of financial products and services improves inclusive growth by 0.03 units in sub-Saharan Africa. The paper contributes to literature by initially constructing a broader index of inclusive growth and subsequently estimating the separate quantitative effects of three categories of financial inclusion indicators on inclusive growth by employing the Arellano-Bover/Blundell-Bond system Generalized Method of Moment estimator. The findings underscore the need for policymakers to develop innovative, sustainable and inclusive financial systems capable of distributing growth benefits equitably. This can be achieved through moderate lending rates and transaction charges, improved access to retail and corporate loans, mortgages, overdrafts, credit cards, letters of credits and userfriendly financial technologies.



Bernard Sarpong

## ABOUT THE AUTHOR

Bernard Sarpong is a young Economist with research interest in Development, Financial and Monetary Policies for inclusive growth in emerging and frontier market economies. He has six (6) years' experience in financial market analysis and strategic banking research. He has over the years tutored students pursuing various Economics courses at both the Department of Economics and School of Continuing and Distance Education, University of Ghana. He is also a peer reviewer for three refereed economics journals; Economic Letters, International Journal of Social Economics and Ghanaian Journal of Economics. He holds both Master of Philosophy and Bachelor of Arts degrees in Economics from the University of Ghana.

The findings reported in this paper provide a compelling evidence for central governments to devote more resources to the provision of robust Information and Communication Technology infrastructure to complement the financial inclusion agenda of monetary authorities.

## PUBLIC INTEREST STATEMENT

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The World Bank Group theorized that financial inclusion is a catalyst to achieving some of the Sustainable Development Goals (SDGs). Moreover, empirical evidences also suggest that broader adoption and usage of financial services reduces poverty and income inequality, supports the growth of businesses and has implications for monetary policy effectiveness and financial stability.It is against this background that monetary policymakers in developing economies have gradually taken steps to eliminate some of the barriers to accessing financial services in order to address the socio-economic consequences of widespread involuntary financial exclusion.Consequently, we investigated whether knowledge, available and usage of financial services by various economic agents promote inclusive growth in Sub-Saharan Africa. The evidence suggest that the extent of usage of financial services matters more than knowledge and availability in promoting inclusive growth. It is recommended that, policymakers and financial institutions collaborate to progressively develop innovative, sustainable and inclusive financial systems.





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#### Subjects: Poverty & Unemployment; Development Economics; Banking

# Keywords: Financial Inclusion; Inclusive Growth; Poverty; Inequality; Sub-Saharan Africa JEL: G21; I30; O15; O16

#### 1. Introduction

In spite of extensive progress made by banks, microfinances, savings and loans institutions, credit unions and cooperative societies in extending financial services to marginalized groups, majority of the world's adult population, nearly 2.5 billion, are excluded from formal financial services (Hannig & Jansen, 2010). The United Nations Secretary-General's Special Advocate's (2013) for inclusive finance for development stated that more than 200 million small- and medium-sized businesses in emerging economies have no access to finance, thus limiting their competitiveness and ability to thrive. World Bank (2014) distinguishes between two forms of financial services either because they have no immediate need for them or due to cultural and religious beliefs. Others also cite inadequate household incomes, commuter distances from financial service providers, cumbersome documentations and market failures and imperfections associated with the free market as reasons for their involuntary exclusion (Park & Mercado, 2015).

Although Financial Technology (Fintech) is eliminating some of these barriers, there still remains much to be done to ensure access to these services by the poor and marginalized. Thus, financial policymakers and development partners are increasingly being preoccupied with formulation of appropriate financial inclusive policies to integrate the unbanked population into the formal financial system in order to address the consequences of widespread involuntary exclusion— exposure of the poor to usurious moneylenders, inability of the poor to improve earnings, protect themselves in times of crisis and to build for the future. Financial inclusion is when "individuals and businesses have access to useful and affordable financial products and services that meet their needs—transactions, payments, savings, credit and insurance, delivered in a responsible and sustainable way" (World Bank, 2018, para. 1).

Financial policy reforms in most emerging economies within the last four decades evolved from financially repressed systems into liberalized ones. In Sub-Saharan Africa (SSA), the reforms of the 1980s were simultaneously targeted at increasing financial depth and stabilizing macroeconomic indicators—economic growth, inflation, exchange rate and financial stability, with limited emphasis on access and utilization of wide range of financial services. The direct credit control which characterized this financial regime involved channeling of funds to target groups especially farmers and small-scale businesses with explicit directive on the scope of usage of these funds (Hannig & Jansen, 2010). The rationale was to grant the rural poor access to cheap loans which were to be financed by pooling cheap deposits from surplus spending households. However, the regulatory ceiling on deposit rates below market-determined rates undermined financial resource mobilization. The consequences of this policy approach were poor financial performance and marginal improvements in outreach of financial services to rural areas.

For the post 1980 reforms, banks and other institutions freely allocated scarce financial resources to parastatals and private corporate sector with little influence from the state and monetary authorities. Development banks which were the vehicles of the controlled credit regime were converted to regular banks whilst publicly owned ones were also privatized. This market-led regime also operationalized interest rate movements, allowing for financial innovation and expansion of financial services (Ghosh, 2005).

In recent times, Fintech is changing how people bank and transact businesses. In a world where time is of much essence, mobile financial services have expedited financial transactions and made them convenient for all manner of persons. People are able to perform transactions on their mobile phones without necessarily visiting their physical banks' branches. A variant of mobile financial services popularly known as "Mobile Money" recently emerged in SSA. Patronage of this medium as an effective means of providing financial services to a varied group of people is on the ascendancy because the proportion of adult population that continue to subscribe to the services of mobile telecommunication networks is skyrocketing. Unlike other mobile financial services that use mobile phone applications and often require Internet connectivity, this alternative service only requires a client to have a registered Subscriber Identity Module (SIM) connected to a particular telecommunication network. The flexibility and convenience of this platform is that SIM numbers serve as account numbers. This platform supports all mobile phone specifications and does not require any Internet connectivity. Expectations are that, aside eliminating the barriers to financial inclusion, mobile money services also increase efficiency and lower transaction costs, create new job opportunities and offer opportunities for inclusive growth. figure 1 summarily describes the current state of mobile financial services in SSA and how it contributes to inclusive growth.

Additionally, financial institutions are reaching out to clients through a series of innovative media such as Automated Teller Machines (ATMs), Point of Sale Terminals (POS) and other tellers that take banking to remote areas. Other innovations also include electronic opening of bank accounts and prompt receipt of signed bank statements via mobile phone applications.

Growth of most economies is unevenly distributed with large cities and construction industry enjoying large proportions of the country's wealth at the expense of agriculture and rural development. The recognition given to inclusive growth in recent times stem from the assertion that economic growth must be increasingly pro-poor and accompanied by improved productivity and new employment opportunities (Alexander, 2015). Thus, it is imperative to pursue beyond growth-first agenda in order to achieve inclusive growth. A comprehensive and robust policy action will be to complement economic growth policies with those that create equal opportunities for all and an



enabling environment for the excluded. It involves designing policies to include economic agents whose contributions are inevitable to the growth process but often viewed as being mere targets of social protection schemes (Dixit & Ghosh, 2013).

The rationale of this paper is to empirically estimate the quantitative effect of financial inclusion on inclusive growth in SSA. The results suggest that, for financial outreach to promote and sustain inclusive growth, businesses and households must increasingly utilize the various financial services accessible to them. This paper contributes to literature by initially constructing a broader index of inclusive growth and subsequently estimating the separate quantitative effects of three categories of financial inclusion indicators by employing the Arellano–Bover/Blundell–Bond system Generalized Method of Moment estimator. These findings will guide policymakers in developing innovative, sustainable and inclusive financial systems capable of distributing growth benefits to indigent households and vulnerable sectors of the economy, who also form an integral part of the development process.

The rest of the paper is organized as follows: the next section presents a review of relevant literature on the financial inclusion-inclusive growth nexus. Subsequent sections discuss the empirical methods and findings of the study. The final section summarizes the major contribution to literature and policy relevance of the study.

#### 1.0.1. Literature review

Prioritizing economic growth alone may not be enough in meeting the sustainable development goals as it fails to address poverty, inequality and unemployment concerns (Alexander, 2015). Rather than focus on only rapid growth, policymakers should initiate strategies that promote inclusive growth (Anand et al., 2013). There is no consensus in literature on the precise definition and measurement of inclusive growth. Consequently, measuring inclusive growth at both the country and programme level is challenging. Notwithstanding, some consensus have been reached on the method of its analysis and how it differs from pro-poor growth. Critics of pro-poor growth argued that inclusive growth focuses on improving the permanent income of marginalized groups by increasing their economic participation rather than just direct income transfers (Ianchovichina & Lundstrom, 2009). Ramos et al. (2013) argued that economic growth that is inclusive has three outcomes—poverty and income inequality reduction, increased economic participation. They explained that poverty and inequality have already been established as pro-poor growth outcomes, but the inclusion of economic participation makes growth more inclusive. Moreover, economic growth may not necessarily explain increase in inclusiveness as some countries showed high inclusiveness with lower growth rates and vice versa. Nonetheless, World Bank (2013) is unambiguous that economic growth provides the foundation for shared prosperity, which requires continuous growth of economies whilst ensuring that the welfare of the bottom 40% of the population is improved. Klasen (2010) had long asserted that inclusive growth is related to broad-based growth across all sectors of an economy accompanied by non-discriminatory participation in the growth process.

Other scholars have argued that the human capabilities that are needed for gainful employment in order to take advantage of available economic opportunities must be considered in inclusive growth agenda (McKinley, 2010). It involves increasing access to basic healthcare, education and other social infrastructure that may impact the quality of human capital. Further, growth must foster equity among various groups in society. People from all genders, sexual orientation, religion and ethnic background should be able to contribute to and benefit from economic growth (Huang & Quibria, 2013). Strengthening government effectiveness also guarantees that the trickle-down effect of growth is realized. It also ensures that social safety net programmes and other interventions cushion the vulnerable in society without any marginal social cost.

Literature is replete with empirical findings on the drivers of inclusive growth. However, the evidences differ significantly due to the time period involved, methods of estimation and sampled countries. In a panel of 31 countries, Aoyagi and Ganelli (2015) showed that fiscal redistribution, macroeconomic stability, trade openness, reduction in unemployment and increased productivity are important determinants of inclusive growth. Based on the Fixed Effect Estimator, Tella and Alimi (2016) found that financing of healthcare had a greater impact on inclusive growth in 14 African countries between 1995 and 2012. However, population growth tends to destabilize any agenda toward inclusive growth. Jalles and de Mello (2019) also showed that human capital accumulation, the redistributive potential of tax-benefit systems, increases in multifactor productivity and labor force participation, as well as trade openness and institutional factors stimulated inclusive growth in a sample of 78 countries for the period 1980-2013. Relying on dataset for 18 SSA countries for the period 1995-2013, Raheem et al. (2018) found that augmenting health expenditure with natural resources makes the growth process more inclusive. In a more recent panel analysis, Alekhina and Ganelli (2021) found evidence to suggest that fiscal redistribution, female labour force participation, productivity growth, FDI inflows, digitalization and savings significantly promote inclusive growth.

From the foregoing literature, the role of financial development in enhancing inclusive growth is relegated to the background. Meanwhile, it has long been theorized that financial access has rippling effects on economic welfare. Thus, limitations to financial access may account for the ever-widening income inequality gap as well as slower pace of growth in developing countries (Serrao et al., 2012). This formed the theoretical basis for empirical research into the financial inclusion-inclusive growth nexus. To date, not much is documented on the quantitative effect of financial inclusion on broadbased inclusive growth. The few studies that exist are Asian-based. For instance, Park and Mercado (2015) examined the relationship between financial inclusion, poverty and income inequality in 35 developing Asian countries for the period 2004-2012. They found that usage of financial services by a wide range of people reduces poverty. However, there was no evidence to support the theory that financial inclusion reduces income inequality. In India, Swamy (2010) found that bank-led financial inclusion could foster inclusive growth in emerging economies. Similarly, Dixit and Ghosh (2013) found that equitable distribution of financial services could potentially ensure inclusive growth in India. Burgess and Pande (2005) also showed that state-led opening of commercial banks' branches in rural India was poverty-reducing. Based on the Autoregressive Distributed Lag model, Khan et al. (2016) showed that the ease of accessing loans among other covariates was an enabler of inclusive growth in Pakistan between 1990 and 2012. Likewise, Anand et al. (2013) contend that financial openness promotes inclusive growth in emerging markets. More recently, Munir and Ullah (2018) found financial deepening as inclusive growth enabler in Pakistan.

In SSA, Fowowe (2017) opined that constraints to finance inhibited the growth of 10,888 firms across 30 African countries. Mohammed et al. (2017) also shed more light on the potential impact of financial inclusion on poverty in 35 low-income countries in SSA. The findings of the Treatment Effect Model and Propensity Score Matching techniques suggest that poorer households with access to finance derived higher welfare benefits than their excluded counterparts. Similarly, Kirui et al. (2013) assessed the effect of mobile money transfers on agriculture in three provinces of Kenya. They found that mobile money transfers increased the annual usage of agriculture inputs, incomes and agricultural commercialization by \$42, \$224 and \$37, respectively. They further argued that this medium of money transfer is necessary to eliminate the barriers to financial access by farmers. Okaro (2016) also empirically investigated the relationship between financial inclusion and poverty reduction in Nigeria over the period 1990–2015. The results of the Ordinary Least Squares (OLS) estimator revealed that financial depth and accessibility significantly affects economic growth. However, there was not enough evidence to establish any link between improvement in financial inclusion and poverty alleviation. In Ghana, Abor et al. (2018) explored the impact of mobile telephony on consumer welfare using the probit model and

instrumental variable technique. The results showed that the probability of mobile telephony reducing poverty and increasing per capita consumption is more pronounced in male-headed households.

To a very large extent, literature concludes that access to a wide range of financial services is a catalyst of inclusive growth. That notwithstanding, the underpinning methodologies differ significantly among the various researchers. Evidently, most of the studies are descriptive in nature and country-specific, with the few quantitative ones being exclusive to Asia and other regions of the world. Moreover, recent quantitative modelling of inclusive growth determinants in SSA did not account for the role of financial inclusion or financial development (Adeosun et al., 2020; Oyinlola et al., 2020). Thus, there is still a dearth of empirical literature on the quantitative relationship between financial inclusion and inclusive growth in SSA.

This paper fills the existing research gap in the following unique ways; first, we schematically assessed the depth of financial inclusion in SSA. Second, a broader index of inclusive growth is constructed for the selected SSA economies. Further, the unexplored quantitative relationship is estimated using the Arellano-Bover/Blundell-Bond system Generalized Method of Moments (GMM) estimator with robust standard errors. To the best of our knowledge, no known study has quantitatively modelled this panel dynamic relationship in the SSA sub-region.

### 1.0.2. Methodology

### 1.1. Data

The study employs data on 46 SSA countries for the period 2004–2018. The time period reflects a period of measured attempts by the international community in addressing involuntary financial exclusion across the globe. Data for this study were sourced from the following databases of the World Bank; Global Financial Inclusion Databank (2018), Worldwide Governance Indicators Databank (2019), Poverty and Equity Databank (2020) and World Development Indicators Databank (2020).

### 1.2. Measurement of inclusive growth

In constructing our composite index of inclusive growth, we initially considered the three inclusive growth outcomes proposed by Ramos et al. (2013)—poverty, inequality and economic participation. Further, we followed Khan et al. (2016) to add economic growth itself and adopted an ad hoc weighting scheme for the construction of the composite index of inclusive growth (Mitra & Das, 2018). Khan et al. (2016) argued that a composite index that is based on a scoring methodology and a weighting scheme implicitly involves value judgment. Our composite index is constructed on a weighting scale of 0–1, based on the importance of each indicator in the collection. Table 1 presents the weights assigned to the four broad pillars of inclusive growth.

### 1.3. Measurement of financial inclusion

The study utilized three categories of financial inclusion indicators;

- (i)*Financial availability indicator*: This reflects the extent of financial services' outreach in the form of POS terminals, ATMs per 100,000 adults and Commercial bank branches per 100,000 adults among others. The average of ATMs and Commercial bank branches per 100,000 adults is used a proxy for financial availability.
- (ii)Financial Services usage indicator: It measures how clients use financial services and products available to them over time. It includes percentage of people who save and borrowed from financial institutions, proportion of people who made or received digital payments, proportion of firms with loans and other lines of credits. For the purpose of our empirical estimations, usage of financial services is proxied by a measure of financial depth—private sector credit by financial

Table 1. Construction of composite index of inclusive growth						
Indicator	Measurement	Source	Weight			
Economic growth	Growth rate of real GDP per capita.	World Development Indicators	0.40			
Poverty	Poverty headcount ratio at international poverty line of \$1.90 a day.	Poverty and Equity Databank	0.20			
Income Inequality	GINI index	Poverty and Equity Databank	0.20			
Economic Participation	Labour force participation rate, total (% of total population aged 15–64).	World Development Indicators	0.20			

Source: Authors' Compilation based on Empirical Literature

sector as a percentage of Gross Domestic Product (GDP). This reflects the extent to which the private sector contracts loans from financial institutions for various projects. A number of empirical findings support this indicator's close link to poverty reduction (Demirguc-Kunt & Levine, 2008; King & Levine, 1993).

(iii)Financial knowledge indicators: Depth of credit information is used as a proxy for financial knowledge. This measures the scope, accessibility and quality of credit information at public and or private credit registries. Various financial actors depend on credit information to make informed credit decisions. Higher values indicate the extent to which information asymmetry is eliminated in financial markets.

## 1.4. Specification of empirical model

The three categories of financial inclusion variables discussed earlier are incorporated in the inclusive growth index to validate the findings of Abor et al. (2018), Mohammed et al. (2017), Khan et al. (2016), Park and Mercado (2015) and Anand et al. (2013). Based on the empirical justifications as set out in Table 2, our empirical relationship between financial inclusion and inclusive growth is modelled as

 $\begin{aligned} \text{Incg}_{it} &= \beta_0 + \beta_1 \text{Finavail}_{it} + \beta_2 \text{Finusage}_{it} + + \beta_3 \text{Finknow}_{it} + \beta_4 \text{Govconsumptn}_{it} \\ &+ \beta_5 \text{Investment}_{it} + \beta_6 \text{Accessinfras}_{it} + \beta_7 \text{Fdi}_{it} + \beta_8 \text{Oda}_{it} + \beta_9 \text{Humancapital}_{it} \\ &+ \beta_{10} \text{Trade}_{it} + \beta_{11} \text{Governance}_{it} + \beta_{12} \text{Inflation}_{it} + u_{it} \end{aligned}$ 

### where

- (1)  $\beta'$  s represent the coefficients of the empirical model.
- (2)  $Incg_{it}$  is the composite index of inclusive growth for country *i* at time *t*.
- (3) *Finavai<sub>it</sub>*, *Finusage<sub>it</sub>* and *Finknow<sub>it</sub>* represent financial availability, usage and knowledge variables for country i at time t, respectively.
- (4) Govconsumptn<sub>it</sub>, Investment<sub>it</sub>, Accessinfras<sub>it</sub>, Fdi<sub>it</sub>, Oda<sub>it</sub>, Humancapital<sub>it</sub>, Trade<sub>it</sub>, Governance<sub>it</sub> and Inflation<sub>it</sub> are government consumption, investment, access to quality infrastructure, foreign direct investment (FDI), official development assistance (ODA), human capital development, trade openness, quality of governance and inflation rate for country i at time t, respectively.

(1)

Table 2. Definition, source, justification and expected relationship of other covariates						
Variable	Measurement	Source	Empirical Justification	Expected Relationship		
Government Consumption	General Government Final Consumption Expenditure (% of GDP)	World Development Indicators	Asian Development Bank (2014); Mathers and Slater (2014)	Positive		
Investment	Gross fixed capital formation, private sector (% of GDP)	World Development Indicators	Akobeng (2017); Bal et al. (2016); Uneze (2013)	Positive		
Access to quality Infrastructure	Access to electricity (% of population)	World Development Indicators	Asian Development Bank (2012); Jahan and McCleery (2005)	Positive		
Foreign Direct Investment	Net FDI inflows (% of GDP)	World Development Indicators	Umoh et al. (2012); Shaikh (2010)	Positive		
Official Development Assistance (ODA)	Net Total ODA (% of GDP)	World Development Indicators	Refaei and Sameti (2015); Tezanos et al. (2013)	Positive		
Human Capital Development	Average education and health expenditures (% of GDP)	World Development Indicators	Oyinlola and Adedeji (2019); Oluwadamilola et al. (2018); McKinley (2010); Anand et al. (2014); Gebrehiwot, 2014)	Positive		
Trade Openness	Total Trade (% of GDP)	World Development Indicators	Huchet-Bourdon et al. (2018)	Positive		
Quality of Governance	Average Scores for the six World Bank Governance Indicators	Worldwide Governance Indicators	Dwumfour (2020); Nketiah-Amponsah and Sarpong (2019); Tebaldi and Mohan (2010)	Positive		
Inflation Rate	Annual percentage change in Consumer Prices	World Development Indicators	Madurapperuma (2016); Kasidi and Mwakanemela (2013); Umaru and Zubairu (2012)	Negative		

(5)  $u_{it}$  is the random error term that captures all other unobservable variables that can influence inclusive growth.

### 1.5. Estimation technique

Conventional panel estimation procedures require unit root tests to examine the stationarity properties of the dataset to ascertain its appropriateness for the estimations. However, Kitamura and Phillips (1997) and Okafor et al. (2015) argued that in smaller samples where the number of observations is larger than the time period under consideration, non-stationarity of any variable does not undermine the validity of the estimates since the problem of serial correlation is reduced under this pre-condition.

Fixed effects (FE) and Random effects (RE) estimators are initially used to generate the estimates. We further estimated our dynamic panel model using the Arellano-Bover/Blundell-Bond system GMM estimator, which is an extension of the Arellano and Bond (1991) model, to correct for endogeneity

Figure 2. Financial inclusion in SSA. Source: Data from Global Financial Inclusion Databank (2018)



biases and any other econometric problems associated with the FE and RE models. Arellano and Bover (1995) and Blundell and Bond (1998) found that if the autoregressive process is too persistent, then the lagged-levels are weak instruments for the model in differences. In small samples, weak instruments are likely to produce biased coefficient estimates. To correct for any potential biases, the authors proposed using additional moment conditions in which lagged differences of the dependent variable are orthogonal to levels of the disturbances. They augmented the Arellano-Bond estimator by making additional assumption that the first differences of instruments are uncorrelated with the fixed effects. Generally, the Arellano-Bover/Blundell-Bond estimator is more appropriate for situations with 1) linear dynamic panel data estimation; 2) one left-hand-side variable depending on it past values; 3) independent variables that are not strictly exogenous; 4) fixed individual effects; and 5) heteroskedasticity and autocorrelation within individuals but not across them. This estimator controls for weak instrument by using a level equation to obtain a system of two equations. The first equation includes instruments in first differences, while the second includes instruments in levels. By including the second equation, the variables in the first differences become instruments for variables in levels. The resulting GMM model arising from Equation (1) includes the first lag of inclusive growth as the instrument:

 $Incg_{it} = \beta_0 + \beta_1 Incg_{it-1} + \beta_2 Finavail_{it} + \beta_3 Finusage_{it} + \beta_4 Finknow_{it} + \beta_5 Govconsumptn_{it} + \beta_6 Investment_{it} + \beta_7 Accessinfras_{it} + \beta_8 Fd_{it} + \beta_9 Oda_{it} + \beta_{10} Humancapital_{it} + \beta_{11} Trade_{it} + \beta_{12} Governance_{it} + \beta_{13} Inflation_{it} + u_{it}$ (2)

1.5.1. Results and discussion

### 1.6. Descriptive analysis

We begin our empirical analysis with an overview of the depth of financial inclusion in SSA. Financial account ownership seemed to have risen steadily between 2011 and 2017 as shown in Figure 2. However, only 32.8% of the adult population of SSA had a formal bank account, and this is attributable to cumbersome account opening procedures and low financial literacy. This validates the findings of Demirgüç-Kunt and Klapper (2012) and Migap et al. (2015) that the extent of financial inclusion is shallow in SSA. With regard to traditional usage of formal bank accounts, approximately 14.9% and 7.0% saved and borrowed, respectively, in the year 2017. In the developing countries, most people patronize the services of cooperative societies, credit unions, "susu collectors" and usurious moneylenders due to lack of required documents. These situations are impediments to financial inclusion and inclusive growth.

Digital payment is a faster and easier means of undertaking any financial transactions. It involves use of credit and debit cards, mobile financial services and internet banking applications

Figure 3. Inclusive growth outcomes across the World Bank (2018)

Source: Data from Poverty and Equity Databank (2020) and World Development Indicators Databank (2020)



among others. As shown in figure 2, poor Internet connectivity and low financial literacy have made the usage of digital payment solutions unattractive, averaging 34.4% by year-end 2017.

figure 3 shows the current levels of inclusive growth outcomes across the World Bank regions. The North American region is excluded from this particular graph due to data unavailability. Poverty, inequality and economic participation are measured as headcount ratio at international extreme poverty line of \$1.90 a day, GINI index and labour force participation rate, respectively.

Using the international poverty line of \$1.90 a day, extreme poverty is highest in the SSA subregion, followed by South Asia and Middle East-North Africa, respectively. With respect to inequality, SSA is only better than Latin America-Caribbean region. Most SSA economies are plagued with high levels of unemployment and low incomes. Social safety net programmes to protect the poor and unemployed are at best mismanaged by government appointees, deepening the already existing poverty and inequality gap. In the quest for survival, most people engage in low-paying informal jobs that can only guarantee daily survival. Thus, it is no surprising that poverty, income inequality and economic participation situation is alarming relative to the advanced regions of the world.

The higher income inequality in Latin America relative to SSA can be partly attributed to the practice of "Latifundio-Minifundio" dualistic land tenure system, which gives a few privileged families significant control of large proportions of farmlands. Minifundios are subsistenceoriented smallholdings, farmed by peasant household. The Latifundios apart from owning large farms control the employment conditions of hired labourer. This mostly leads to labour exploitation and marginal income growth for poorer households. The Europe-Central Asian region has the best inequality and poverty indicator partly due to the existence of adequate unemployment benefits and social insurance schemes among other social protection programmes to guarantee average living standard for the poor and unemployed.

As shown in figure 4, the distribution of income amongst the various quintiles is largely unequal in SSA, with South Africa spearheading this form of socio-economic injustice. The richest 20% in South Africa have approximately 68% of income leaving the poorest 40 percent with barely 7% share of income. It is common knowledge that the behaviours of central government appointees account for the unfair distribution of income and poverty in the sub-region. It is perpetrated through corruption and nepotism, thus, making only few families better off. Cronyism and rent seeking behaviours also lead to the implementation of public policies that strategically increase





the wealth of a few at the expense of development and income redistribution programmes for the large indigent population.

#### 1.7. Empirical analysis

As shown in the lower regions of Table 3, the Breusch-Pagan Lagrange multiplier test supports the existence of panel effects, hence the pooled OLS is rejected for panel modelling. Further, the Hausman test favours the RE estimator over the FE. Our model passes the Sargan/Hansen post-estimation test of valid overidentifying restrictions. Similarly, based on the Arellano-Bond test for zero autocorrelation in first-differenced errors, we can conclude that the model does not suffer any autocorrelation problem. Accordingly, there is enough evidence to suggest that the model is correctly specified.

The results indicate clearly that financial inclusion is important to inclusive growth. Specifically, usage of financial services is significant to inclusive growth in all three models at the conventional 5% or better significance levels. Our finding is consistent with the findings of Demirguc-Kunt and Levine (2008), Anand et al. (2013), Park and Mercado (2015), Mohammed et al. (2017), Okaro (2016), and Khan et al. (2016). Although the coefficient of 0.03 is relatively smaller, we expect greater impact on poverty and other inclusive growth outcomes in the future as financial sector developments in SSA improve- upsurge in the adoption of user-friendly mobile financial services such as the "quick-loan" offer by MTN tele-communication network and mobile money interoperability. Further, the Arellano–Bover/Blundell–Bond system GMM estimates in Table 3 also suggest that availability and knowledge of financial services is not an end to financial inclusion. Rather, it is the extent of usage of financial products and services that matters for inclusive growth. Whilst our RE and FE models showed significant effect of availability of financial services on inclusive growth, the Arellano–Bover/Blundell–Bond system GMM estimates proved otherwise. Financial knowledge is unambiguously insignificant to inclusive growth in all three models. Our findings presuppose that for an economy to realize substantial welfare benefits from financial inclusion, firms and individuals must increasingly utilize the various financial services accessible to them.

The results of the other covariates that served as control variables are worth discussing. In line with previous studies, access to quality infrastructure is an enabler of inclusive growth through creation of jobs, reduction in the costs of production and improved productive capacity (Asian Development Bank, 2012). Firms and households primarily depend on constant supply of electricity in the pursuit of their daily activities. Our finding corroborates the views of Jahan and McCleery (2005) that even small-scale infrastructure projects have direct impact on the lives of the poor through increased savings and creation of jobs.

Table 3. Effects of financial inclusion on inclusive growth in SSA (2004–2018)					
Variables	Random Effect	Fixed Effect	System GMM		
First Lag of inclusive growth			0.466 (0.028)***		
Financial Availability	0.046	0.060	0.015		
	(0.026)*	(0.025)**	(0.014)		
Financial Usage	0.025	0.027	0.028		
	(0.009)***	(0.010)***	(0.010)***		
Financial Knowledge	0.122	0.125	0.170		
	(0.077)	(0.76)	(0.224)		
Government Consumption	0.098	0.081	0.067		
	(0.033)***	(0.033)**	(0.029)**		
Investment	0.033	0.018	0.053		
	(0.021)	(0.020)	(0.009)***		
Access to quality	0.124	0.110	0.055		
Infrastructure	(0.015)***	(0.015)***	(0.012)***		
Foreign Direct Investment	0.002	0.004	0.005		
	(0.014)	(0.014)	(0.012)		
Official Development	0.034	0.031	0.027		
Assistance	(0.013)***	(0.013)**	(0.016)*		
Human Capital	0.366	0.256	0.197		
	(0.185)**	(0.182)	(0.022)***		
Trade Openness	0.010	0.003	0.006		
	(0.005)**	(0.005)	(0.003)*		
Quality of Governance	0.015	0.019	0.129		
	(0.023)*	(0.024)	(0.019)***		
Inflation Rate	-0.024	-0.024	-0.003		
	(0.009)***	(0.009)***	(0.005)		
Breusch-Pagan LM Test	CHSQ = 2891.21 P-value = 0.000				
Hausman Test	CHSQ = 3.75 P-value = 0.0558				
Arellano-Bond AR(1)			Z = -2.9195 P-value = 0.0035		
Arellano-Bond AR(2)			Z = 0.3868 P-value = 0.6989		
Sargan Test			CHSQ = 37.7264 P-value = 1.0000		
Hansen Test			CHSQ = 32.50 P-value = 1.000		
No. of Obs.	689	689	643		

Source: Authors' calculations using data from the outlined sources.

Standard errors are in parentheses

**Note**: \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1

Human capital development also has a discernible impact on inclusive growth. Labour is an invaluable asset to the poor, hence good levels of education and health empower the poor to participate in varied economic activities and benefit from the growth process. Some empirical findings support the relationship between investment in human capital and inclusive growth outcomes (Anand et al., 2014; McKinley, 2010).

The role of government is indispensable to inclusive growth. Government consumption expenditure is a more direct and effective fiscal policy tool for inclusive growth agenda as it can target low-income groups through redistributive policies such as conditional cash transfers, food subsidies and other social protection programmes to safeguard the poorest and most vulnerable in society from economic shocks and crises (Asian Development Bank, 2014; Mathers & Slater, 2014). Government expenditures provide the means of extending essential socioeconomic infrastructure to the indigent population and neglected sectors of the economy that play significant roles in the growth process. Further, government consumption expenditures also lead to the provision of health and educational infrastructure and improve access to these facilities by low-income families through granting of scholarships to brilliant but needy children, school feeding programmes and social health insurance schemes.

Again, our results affirm that official development assistance, government aids designed to improve living standards in low- and middle-income countries, has a positive and significant relationship with inclusive growth. The design and implementation of supportive policies and initiatives do not take place in a vacuum. It requires good governance that grant equal rights and opportunities, provides a business-friendly environment for private sector participation in the growth process whilst eliminating rent-seeking behaviours of vested interest groups (Nketiah-Amponsah & Sarpong, 2019). Sustainability of FDI's are guaranteed with the existence of institutions that encourage private investment by ensuring the rule of law and recognition of private property rights. The Arellano-Bover/Blundell-Bond system GMM estimates have shown that the quality of governance, private investment and trade openness are all crucial to the inclusive growth process.

#### 2. Conclusion and policy recommendation

This paper examined the empirical relationship between financial inclusion and inclusive growth in SSA using the RE, FE and Arellano-Bover/Blundell-Bond system GMM estimators. It also provided an insight into the depth of financial inclusion and inclusive growth in SSA relative to other World Bank regions. We found ample evidence to suggest that availability and usage of various financial services and products significantly promote inclusive growth. These findings indicate that for an economy to realize substantial welfare gains from financial development, firms and individuals must increasingly utilize the various financial services accessible to them. Additionally, access to quality infrastructure, government consumption, private investment, human capital development, official development assistance, good governance and trade openness are all crucial to inclusive growth. This paper contributes to literature by initially constructing a broader index of inclusive growth and subsequently estimating the separate quantitative effects of three categories of financial inclusion indicators using the Arellano-Bover/Blundell-Bond system Generalized Method of Moment estimator.

Policymakers and financial institutions in SSA economies must develop innovative, sustainable and inclusive financial services capable of distributing growth benefits equitably. A first point of call is for financial institutions to improve access to private sector credit through continuous expansion of retail and corporate loans, mortgages, overdrafts, credit cards and letters of credits to the willing adult population. Fintech products such as ATMs, POS terminals, mobile money platforms, Internet banking, mobile phone applications and other digital payment platforms should be made user-friendly to enhance usage of financial services by the least educated. Moreover, financial literacy could be integrated into the core business of banking to enlighten economic agents on the financial services and products available to them. We conclude that a reassessment of the documentary requirements of financial transactions and downward review of financial charges and lending rates are necessary to motivate the poorest 40% to patronize financial services. It is envisaged that the foregoing recommendations will gradually integrate majority of the unbanked adult population into the formal financial system to enhance the redistribution of growth benefits. Future studies on this topic should subject to data availability, estimate the quantitative effects of mobile money services and digital payment platforms on inclusive growth in SSA.

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