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Role of Financial Sector Development in the Nexus Between Inclusive Growth and Poverty: A Regional Comparative Analysis from Sub-Saharan Africa

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Abstract

The problem of poverty in the developing countries and what makes Sub-Saharan Africa (SSA) a region with the "highest number of poor people" in the world remains a topical issue that requires serious research attention. Following extant studies, in which the mediating role of financial sector development has not been taken into consideration in their finance- growth and poverty nexus, this study deviates by using two measures of poverty level: absolute and multidimensional poverty level; and at the same time provides comparative analyses at SSA sub-regional communities. Our findings reveal that the effects of inclusive growth on poverty reduction (both absolute and multidimensional level), for most sub-regions in SSA except Central African countries, are positive. While the mediating role of financial sector development appeared to be slightly different with mixed results. In West and Central African countries, the mediating role of the financial sector, though very weak, complements the inclusive growth effects on poverty reduction. On the contrary, financial sector development does not complement inclusive growth when it comes to poverty reduction in South African countries. Also, financial sector development does not complement the absolute poverty reduction effect of inclusive growth in the East African sub-region but the result is otherwise under multidimensional poverty reduction. Therefore, we recommend that financial sector development in most SSA countries should be improved upon through relevant monetary policy that promotes financial innovations, financial sector reforms, efficiency in financial inclusion across the region, and at the same time efforts should be geared toward directing some of the gains in financial sector development to inclusive growth-enhancing activities in southern African sub-region.

Keywords: inclusive growth, financial sector, poverty, absolute, multi-dimensional, SSA

1. Introduction

The incidence of poverty and how to reduce it has been known to be one of the major issues of development in 'sub-Sahara African' countries even in the face of growing economic activities and improvement in the financial sector development (World Bank, 2009; Fillio, 2010; AfDB, 2013; IMF, 2016). Recently, some countries in sub-Saharan Africa (SSA) especially at the sub-regional levels of SSA have been effective in changing their economies with substantial economic growth (averaging about 5 percent before the outburst of COVID-19) through various financial sector reforms and developments as witnessed by the growth of some Pan African financial institutions establishing branches to promote greater economic integration and financial inclusion in other member countries (AfDB, 2013; African Development Report, 2016; IMF, 2016).

Despite these, the unemployment rate remains very high (often almost 46 percent), mass poverty remains, and globally, sub-Sahara Africa (SSA) seems to be the region with the highest number of poor people (Anyanwu, 2014; Poverty and Equity Databank online, World Bank, 2015; IMF, 2016; World Bank Country Profile/Report, 2018). This is due to the fact that some countries that have recorded significant 'economic growth in the region in the time past later discovered that such growth had produced no gain to the people in terms of inclusiveness and poverty reduction. One of the possible reasons for this discovery is that the growth experienced by these countries was not an inclusive one, since standards of living, health, education, and financial services indicators in the region were very low, and job opportunities are no match with the population growth in the region (Africa Development Bank (AfDB), 2013; Agyemang, 2014; Anyanwu, 2014; IMF, 2015; Kuada, 2016; World Bank Country Profile, 2018; UNCTAD, 2018; Olayiwola, 2022).

Even though developing countries differ greatly in terms of economic growth and financial sector development, one of the questions that come to mind is; whether the development of this sector has any role to play in the nexus between "economic growth that is inclusive in nature and poverty level" or whether this inclusiveness in the growth process has any role to play in the 'financial development- poverty level' nexus in the developing countries of SSA or not? This is because if financial sector development can promote economic growth in line with supply–leading hypothesis and as such influence poverty reduction through trickle-down/ growth- effect, then the extent to which financial sector development affects poverty level can be examined through the interactive effect of the financial sector and economic growth that is inclusive. The idea of inclusive growth is all about improving the general level of investment, productive economic opportunities, and ensuring that these opportunities are available to all citizens, especially, the poor in SSA sub-regional countries (Rahul, Mishra & Shanaka, 2013; Munir & Ullah, 2018; Olayiwola & Joseph, 2020; Olayiwola *et al.,* 2021).

Despite a well-established connection between financial sector development and economic growth (which remains a subset of inclusive growth), empirical studies on the nexus among financial sector development, economic growth, and poverty level in developing countries of sub-Saharan Africa (SSA) generally are relatively scanty. This is because there seems to be very little or no comprehensive references to a single framework analysis using inclusive

growth in the nexus (Ali & Zhuang, 2007; Pradhan, 2010; Rahul, Mishra & Shanaka, 2013; Moges, 2013; Olayiwola, 2022). Studies in the literature until recently in sub-Saharan Africa focused more on 'economic growth in their finance-growth relationship, which is just a unit of many components of inclusiveness used in this study. Inclusive growth provides more information about the economy than ordinary economic growth (GDP) and as such, it is all-encompassing in nature (Joseph *et al.,* 2021; Olayiwola, 2022). In addition, we focus on SSA sub-regions because most countries in these regions, even though there is diversity among them, share similar peculiarities in terms of geographical structure, political and socioeconomic background in which high poverty, the problem of financing conditions, and less favorable economic outlook in the recent years are the most serious and common challenges facing them. Also, these sub-regional economic communities are now considered the pillars of the SSA economic community, and as such separating and comparing these SSA sub-regions offers proper perception and guiding principle for policy recommendations on this subject matter.

Therefore, this study empirically provides a comparative answer to some critical questions concerning whether financial sector development and inclusive growth have implications on each other or not when it comes to poverty reduction in sub-Sahara African (SSA) countries and sub-regions. Besides, this study maps out a new direction for exploring the concept of financial sector development –economic growth and poverty relationship in SSA sub-regions by looking at the effect of inclusive growth (which is the broad base economic growth) instead of ordinary growth (GDP). In other words, this study also bothers on the vital effects and role of inclusive growth, as well as the mediating role of financial sector development in the nexus between inclusive growth and poverty level using comparative analysis, thereby, contributing to the literature in this area.

The rest of the study is presented as follows; section two centers on literature review; section three presents the methodology, model specification, data sources, and measurement. Section four is based on findings and discussion of results while section five concludes the study.

2. Literature Review

Theoretically speaking, there are two channels through which financial sector development connects with the poverty level: the direct channel through access to financial facilities and the indirect medium. One of the channels through which the poverty level is affected indirectly by the financial sector development is through the economic growth channel (Kakwani, 2000; Fields, 2001). To reduce absolute poverty according to the growth effect theory, the marginal consequence of the financial sector on the poverty level through broad-based economic growth runs through several possible ways indirectly.

Firstly, financial sector development promotes economic growth (that is inclusive) which in turn generates empl for the underprivileged in the society. Secondly, broad-based economic growth helps in generating higher tax revenues for the government which can be assigned to more resources on social expenditure and investment on human capital development which benefit the poor more. Lastly, increased capital accumulation because of elevated economy

guarantees the availability of resources to the people for the pu investment and as such leading to an increase in their income. (Galor & Tsiddon 1996; Perroti 1993; Aghion & Bolton 1997).

Alternatively, the "trickle-down" theory claimed that inclusive growth would affect the poor through employment opportunity that is necessary for the broader circulation of wealth and social benefits for all (King & Levine, 1993; Todaro 1997; Habibullah & Eng, 2006). However, a consensus that has emerged through the "growth effect and trickle-down" argument is that all-encompassing growth (Inclusive growth) affects poverty level through an alteration in the Lorenz curve holding ordinary income fixed (Datt & Ravallion, 1992; Kakwani, 2000; Fields, 2001). This implies that the imperative of growth for fighting poverty should not be misunderstood with "growth is all that matters" although economic growth is essential ordinary growth is not adequate when it comes to poverty alleviation. Apart from GDP growth, poverty reduction involves some other supplementary components such as the need to build up resource base of the people to partake in the growth process because benefits from growth, sometimes, get to the poor very late, hence, the need for inclusive growth (Fields,2001).

Sequel to recent aggressive policies targeting at promoting "broad-based economic growth" and "access to credit" to reduce poverty in emerging nations especially at SSA sub-regional level, the relationship existing among financial sector development- growth and poverty has become topical issues among researchers and policymakers due to the discrepancies between theory and empirical results about the interplay of these variables. Many studies also have been conducted on "finance- economic growth and poverty" nexus with many suggestions that financial development sometimes promotes economic growth and poverty reduction (Husain, 2004; Burgess & Pande, 2005; Claessens & Feijen 2006; Ang & McKibbin, 2005; Bittencourt, 2006; Quartey, 2008; Banerjee *et al*., 2009; Shahbaz & Rehman, 2013; Benjamin, 2017; Rewilak, 2017; Pradhan, 2010; Sovia, Shabri & Aliasuddin, 2018; Sin-Yu & Bernard, 2018).

Recently, Keho (2017) examined "finance - economic growth and poverty" nexus in nine selected countries in Africa within 1970 and 2013; and found evidence of long-run connection among the variables in nations with "high GDP" while financial sector development has a significant effect on poverty reduction in five economies using ARDL bounds testing approach. Given the severity of the poverty issue besides the need for inclusive growth in Africa, especially the SSA, this finding is far from being general as the level of financial sector development in most African countries has improved over the past decade especially at the SSA's sub-region. Likewise, this relationship was examined by Yaya (2017) among these variables of interest in some selected African countries with proof of long-run relationship among them. Though "GDP and financial deepening" of these selected nations (Benin, Cameroon, Cote d'Ivoire, Gabon, South Africa, Nigeria, and Senegal) have a substantial effect on poverty, the multidimensional nature of these variables as well as the perception of inclusiveness in the growth was not captured in the study and more so, the study centered on very few countries in the region which are majorly west African countries.

Sovia, Shabri & Aliasuddin, (2018) studied the links regarding financial sector advancement and poverty in Indonesia as the government intensified efforts towards improving the influence of finance on poverty reduction. This study buttressed the results of Pradhan (2010) in India

and Uddin *et al*., (2012) in Bangladesh on the long-run relationship among these variables by revealing a "one-way causality" from finance to poverty reduction and a "two-way causality" between growth and poverty reduction in Indonesia. Their outcomes remain consistent with the work of Sin-Yu & Bernard, (2018) which uncovered that the development of the financial sector led to economic growth, and in turn, resulted in "poverty reduction" in Ghana during the period 1960 to 2015.

However, there appears to be limited literature found on financial sector development – inclusive growth and poverty nexus in Africa sub-regions especially countries in SSA sub-regions as all these findings demonstrate that poverty must be taken seriously as it does not only remain the bane of humanity, but also a situation of deprived economic resources, and therefore it is related with the poor state of finance and negative social-economic consequence.

3. Methodology: Model Specification, Measurement of Variable and Sources of Data

3.1 Model Specification

Financial sector development via efficient distribution of "capital" to diverse investments substitutes contributes to poverty reduction by improving the opportunities for the poor through access to finance and by reducing poverty level indirectly through enhanced growth that is inclusive as the gains from this inclusiveness are channeled to the people to achieve a sustainable livelihood (Aghion & Bolton, 1997; Blackburn & Hung, 1998; Fields, 2001; Habibullah & Eng, 2006). Therefore, changes in the level of poverty are expected to be a normal outcome of inclusive growth associated with financial sector development; since it is assumed within the trickle-down effect theory that financial intermediation and efficiency of the financial market which are key components of the financial sector development (FSD) affect inclusive growth (IGI) and poverty level (POV) through saving rate, access to financial facilities and availability of credit (Blackburn & Hung, 1998; Fields, 2001; Trew, 2006; Zhuang, Juzhong *et al*., 2009; Arner, 2017). Hence, the baseline model of poverty as a function of both financial sector development (FSD) and inclusive growth (IGI) in various SSA sub-regions is specified in a "Cobb-Douglas" form as:

$$POV_{it} = \beta_0 (FSDI_{it}{}^{\alpha_1} IGI_{it}{}^{\alpha_2}) \quad 1$$

$POV_{it}the$ denotes poverty variable of country i at time t, $FSDI_{it}$ represents level of financial sector development of country i at time t, and IGI_{it} is the vector of inclusive growth indicators of country i at time t [including education expenditure (% of GDP), mortality rate, under-5, health expenditure (% of GDP), control of corruption, government effectiveness, "GDP per capita" and employment to population ratio "15+, total (%)". Others are total reserves, investment, primary school enrolment rate, and improved sanitation facilities]; α_1 and α_2 are the degrees of elasticity of financial development and inclusive growth respectively, while β_0 gauges the subsistence level of poverty with a constant value.

The logarithmic transformation to linearize equation 1 is;

$$lnPOV_{it} = \beta_0 + \alpha_1 lnFSDI_{it} + \alpha_2 lnIGI_{it} + \varepsilon_{it} \quad 2$$

Where, $\varepsilon_{it} = \mu_i + \nu_{it}$

ε_{it} denotes the composite error term comprising the country specific term μ_i and the time-changing disturbance term ν_{it} expected to remain "identically and independently distributed".

By the way of permitting some level of persistence in the data generating procedure via dynamic panel model that accommodates interaction between financial sector development and inclusive growth (*FSDI*IGI*), we have equation (3) with the inclusion of the lag dependent variable and interaction between *FSDI* and *IGI* becomes

$$lnPOV_{it} = \beta_0 + \beta_1 lnPOV_{it-1} + \alpha_1 lnFSDI_{it} + \alpha_2 lnIGI_{it} + \alpha_3 \ln(FSDI^{*}IGI)_{it} + \varepsilon_{it} \quad 3$$

Where, POV_{it-1} is the lagged poverty variable.

Differentiating the dependent variable POV_{it} concerning these independent variables of interest, the role of "financial sector development" (FSDI) in inducing and enabling the impact of *IGI* on *POV* as well as the role of inclusive growth in prompting the relationship between *FSDI* and *POV* can be obtained through equations 4 and 5

$$\partial POV_{it} / \partial FSDI_{it} = \alpha_2 + \alpha_4 IGI_{it} \quad 4$$

$$\partial POV_{it} / \partial IGII_{it} = \alpha_3 + \alpha_4 FSD_{it} \quad 5$$

Since countries in sub- Saharan Africa (SSA) are categorized as developing economies, close attention is paid to the 'peculiarities' of each geographical structure and divergencies of each sub-region in this study. This is because countries in these SSA sub-regions are becoming increasingly integrated and as such, one country may suffer from changes in another country due to many unobserved factors and shocks coming from this financial or economic integration of countries. Therefore, the dynamic common correlated effect (DCCE) approach that takes care of endogeneity, heterogeneity in slopes, and cross-sectional dependence in errors is specified as the appropriate estimation" if the presence of cross-sectional dependence is established.

The equation of the DCCE model is therefore specified as follows in equation 6.

$$lnPOV_{it} = \alpha_0 lnPOV_{it-1} + \alpha_i A_{it} + \sum_{\alpha=1}^{m} \alpha \bar{A}_{xit-m} + \sum_{\alpha=1}^{n} \alpha \bar{A}_{yit-n} + \sum_{\alpha=1}^{p} \alpha \bar{A}_{zit-p} + \varepsilon_{it} \quad 6$$

Where $lnPOV$ indicates log of poverty and its lag is applied as an "independent variable"; A_{it} represents set of explanatory variables, and m, n and p represent lags of cross-sectional averages for independent variables which are *FSDI*, *IGI* and $FSDI^{*}IGI$ in this case.

3.2 Measurement of Variable and Sources of Data

This study uses annual data over the study period of 2000 to 2019 (20 years). The choice of this time frame (20 years annual data) coincides with the period when majority of countries in

the region have recorded progress in financial sector development (both in financial market and institutional development relative to the 1980s and 1990s) and embraced policies to articulate their development agendas through "Poverty Reduction Strategy Papers" (PRSPs) as an essential share of tumbling poverty in the developing world in the early parts of 2000 to achieve "Millennium Development Goal" (MDG) of halving poverty levels by 2015. Also, this issue of tumbling "extreme poverty" in addition to promoting "inclusive growth", is key to the United Nation's "Sustainable Development Goals" (SDGs).

Therefore, for sub-regional comparative analyses sake, the selection is based on the availability of data, sub-regional economic bloc (West, East, South, and Central African sub-regions of SSA), level of financial sector development and economic buoyancy of the countries using the respective sub-regions in SSA as follows: From West African sub-region: Nigeria, Ghana, Senegal, Mali, Burkina Faso, Cote d'ivoire, Gambia, Liberia, Mali, Senegal, Togo, and Guinue Bisau are selected; from East African sub-regional community: Kenya, Tanzania, Uganda, Ethiopia, Sudan, Rwanda, and Malawi are selected; from South African sub-region: South Africa, Botswana, Zambia, Mozambique and Angola, Madagascar, Namibia and Comoros are selected and from the Central African sub-region: Cameroon, Central Africa Republic, Burundi, Congo Republic, Equatorial Guinea, Gabon, and Chad are selected.

The descriptions, measurements of variables and the sources of data are presented below.

Table 1. Data, Definition, and Sources

	Variable	Measurement	Source
APOV	Absolute Poverty	Proxied by real consumption expenditure Per capita (Absolute poverty indicator, APOV) is calculated as Household consumption expenditure per capital divided by inflation	World Development Indicator (WDI)
MPI	Multidimensional Poverty index	Constructed from multidimensional poverty indicators like Per Capital Income, Life Expectancy, Agricultural Value Added and Real Consumption Per Capital using PCA	WDI
FSDI	Financial sector development index	It contains nine indicators that summarize how the developed the financial sector is; using financial institutions and financial markets in terms of their depth, access, and efficiency	International Financial Statistics, IFS (2020).
IGI	Inclusive Growth Index	This is generated via key indicators and pillars of inclusive economic growth such as Education expenditure (%GDP), Mortality rate under-5, primary school enrolment, Health expenditure (%GDP), GDP per capita, investment, total reserve, and Employment to population ratio, 15+, total (%). using the Z-sum score technique	WDI
INFL	Inflation	Consumer price index (2010 = 100	WDI
TRO	Trade Openness	The sum of exports and imports of goods and services measured as a share of gross domestic product.	WDI

Source: Authors' Compilation, 2021

4. Findings and Discussion of Results

This section provides empirical findings obtained by using the Cross-section dependence test, panel Unit root test, and dynamic common correlated effects estimation results for each SSA sub-regions. It should be noted that this study, unlike some extant studies on SSA sub-regions, separates Central African countries from the East African sub-region to present the true nature and unbiased examinations in the nexus amid financial sector development, inclusive growth, and poverty level for these two sub-regions.

4.1 Preliminary Analyses

4.1.1 Descriptive Statistics

The characteristics of the variables used in the panel of selected West African countries are presented in Table 2 (panel A) through the descriptive statistics. The average value of real consumption expenditure per capita which is used as a proxy for Absolute poverty (APOV) in West African countries over the study period is $698.67 and this is higher than the median value of $633.53. This indicates that the distribution of APOV is slightly skewed to the right. By implication, this shows that most of the selected countries in the West African sub-region have real consumption expenditure per capita lower than the average value. Thus, APOV is not normally distributed as shown in the value of Jarque-bera statistics. The standard deviation is relatively low compared to the mean and median values. This indicates that most countries in the West African region have real consumption expenditure per capital that is close to the mean value. The mean and median values of the financial sector development index (FSDI) reveal that this variable is a little bit skewed to the right. Also, trade openness (TRO) is skewed to the right while inclusive growth index (IGI) and multidimensional poverty indicators (MPI) are somehow skewed to the left a little. Based on the Jarque-Bera statistics, all other variables except IGI and MPI are not normally distributed.

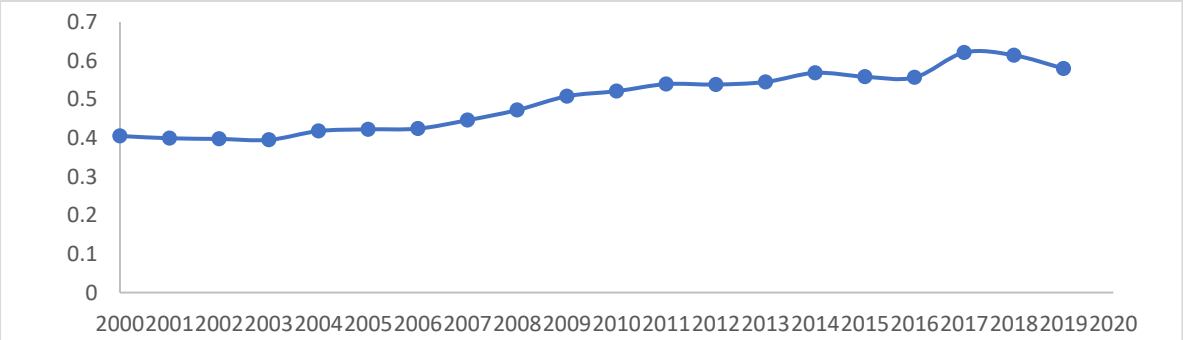

Figure 1. Average Inclusive Growth index in West African Region

Source: Author's Construct

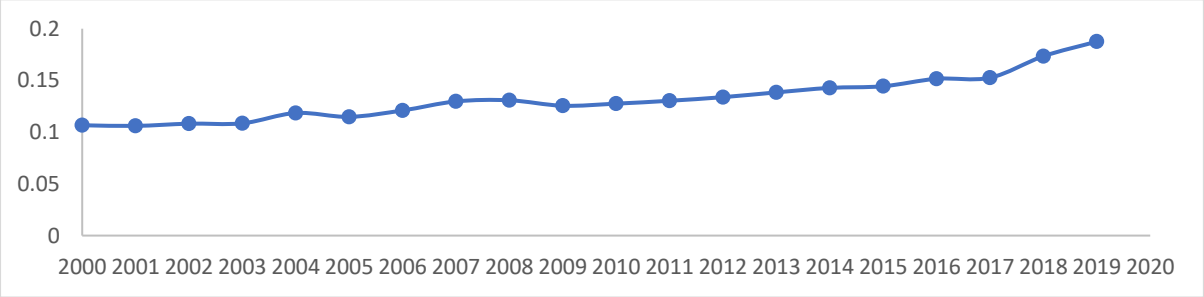

Figure 2. Average Financial Sector Development Index in West African Region

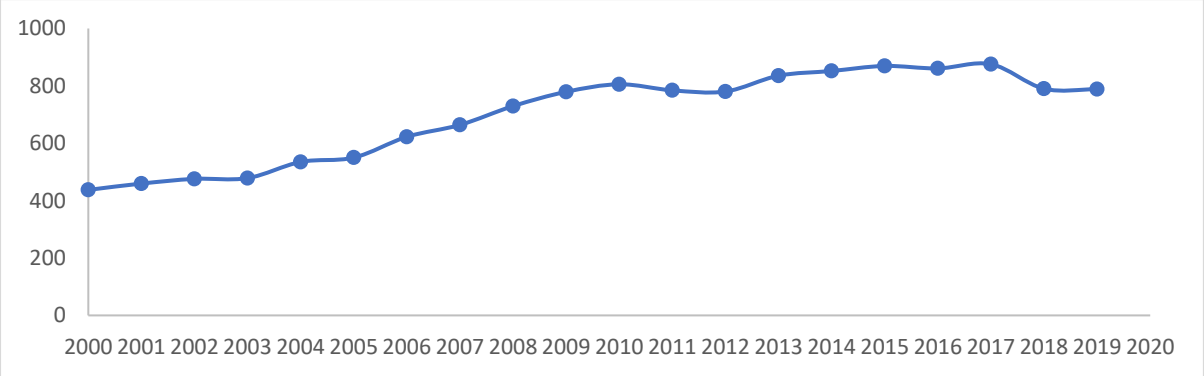

Figure 3. Average Absolute Poverty indicator (Real Consumption Expenditure) in West African

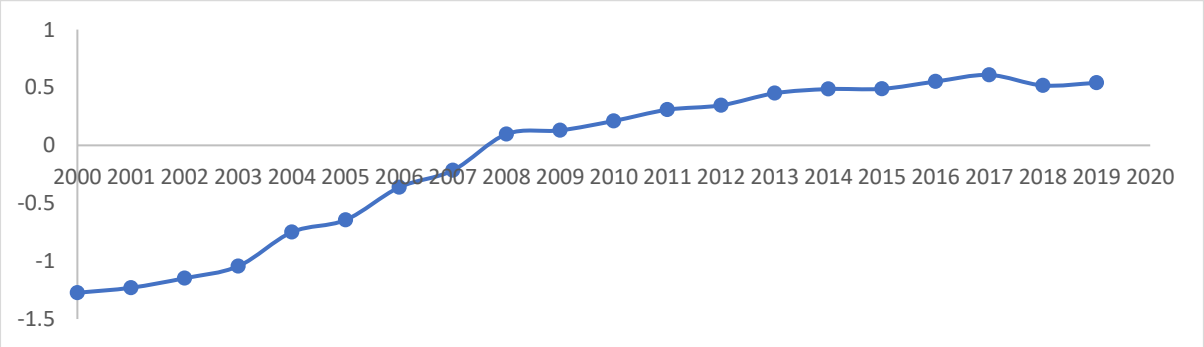

Figure 4. Average Multidimensional Poverty Index in West African sub-Region of SSA

In the panel of South African sub-region. The mean value of real consumption expenditure per capita (APOV) variable in South African countries is $1888.95 which is greater than its median value of $1283.3. This shows that the data distribution of APOV is skewed to the right. The standard deviation of 1640.1 is too high compared to the value of mean and median. This indicates that the variable is not normally distributed across the region as this is supported by Jarque-Bera statistics. Also, FSDI, MPI, and TRO all indicate by their mean and median values

that their data are skewed to the right while IGI alone skewed to the left (see Table 2. panel B). It should be noted that, on the average, South African sub-region has the highest positive values of real consumption expenditure per cap (APOV indicator), financial sector development indicators (FSDI) and multidimensional indicators (MPI) in the entire SSA region.

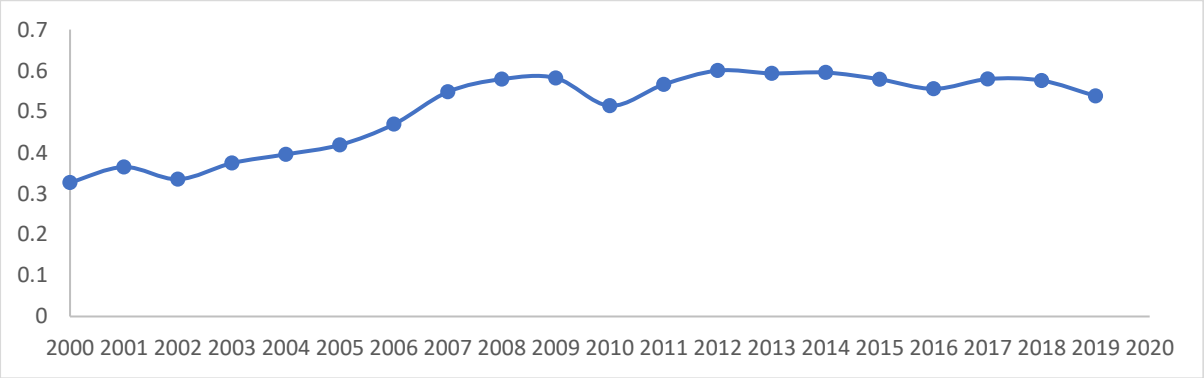

Figure 5. Average Inclusive Growth index in South African sub-Region of SSA

Source: Author's Construct

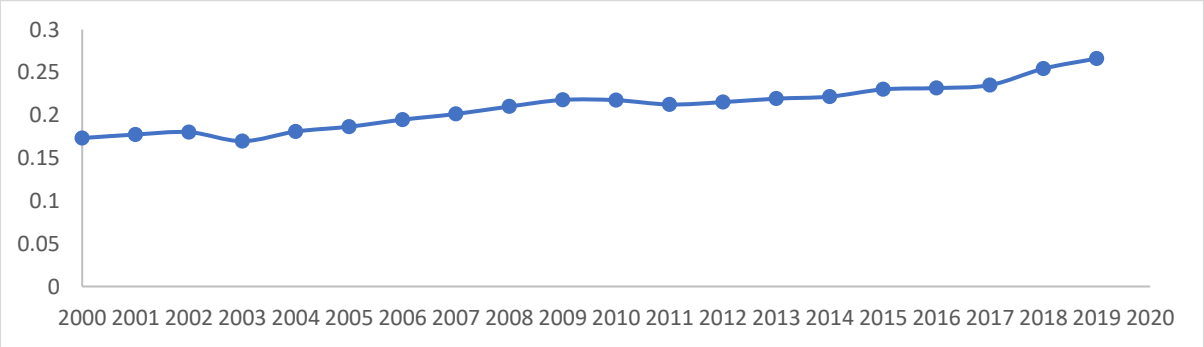

Figure 6. Average Financial Sector Development index in South African Region

Source: Author's Construct based on data from International Financial Statistics, IFS

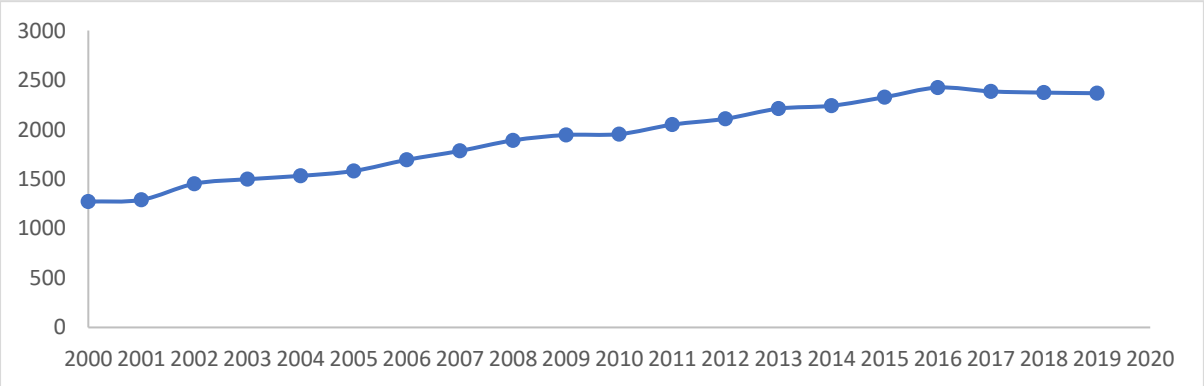

Figure 5. Average Absolute Poverty Indicator (Real Consumption Expenditure) in South African

Source: Data from World Development Indicator

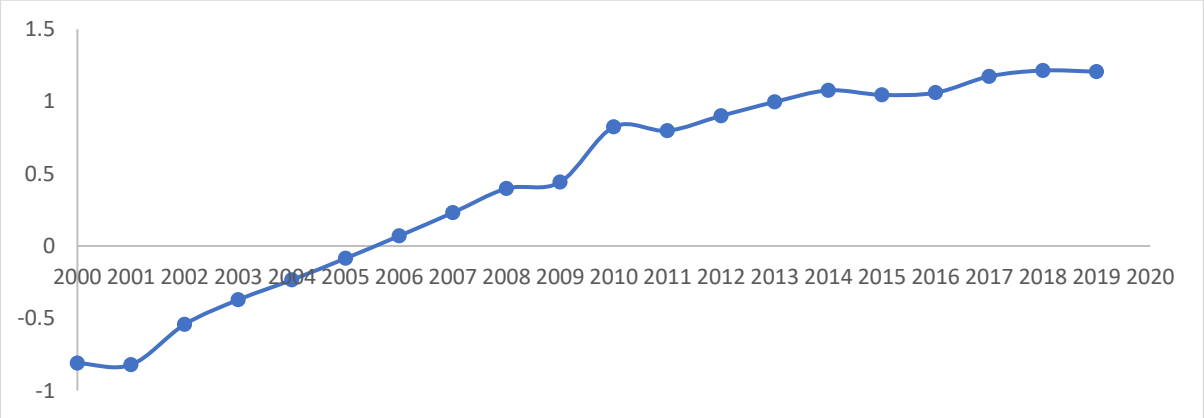

Figure 8. Average Multidimensional Poverty Index in South African sub-Region of SSA

Source: Author's Construct based on data from World Development Indicator, WDI using PCA

Meanwhile, the average value of real consumption expenditure per capita (APOV indicator variable) in East African countries is $826.49 and this is greater than the median value of $639.19. This indicates that the data distribution is skewed to the right. The standard deviation is too high compared to the values of mean and median. This implies that most countries in East African sub-region have real consumption expenditure per capita lower than the average and such APOV data is not normally distributed as this is supported by Jarque-Bera statistics. The mean values of fthe financial sector development index (FSDI), inclusive growth (IGI), and trade openness (TRO) depict that their data distributions are skewed to the right because their mean values somehow are greater than the median values (see Table 2. panel C). the standard deviations of this variable are lower than their mean values. This indicates that the mean values represent the data distribution very well. However, the multidimensional poverty indicator (MPI) remains skewed to the left because the mean value is less than the median value with the standard deviation greater than the mean value.

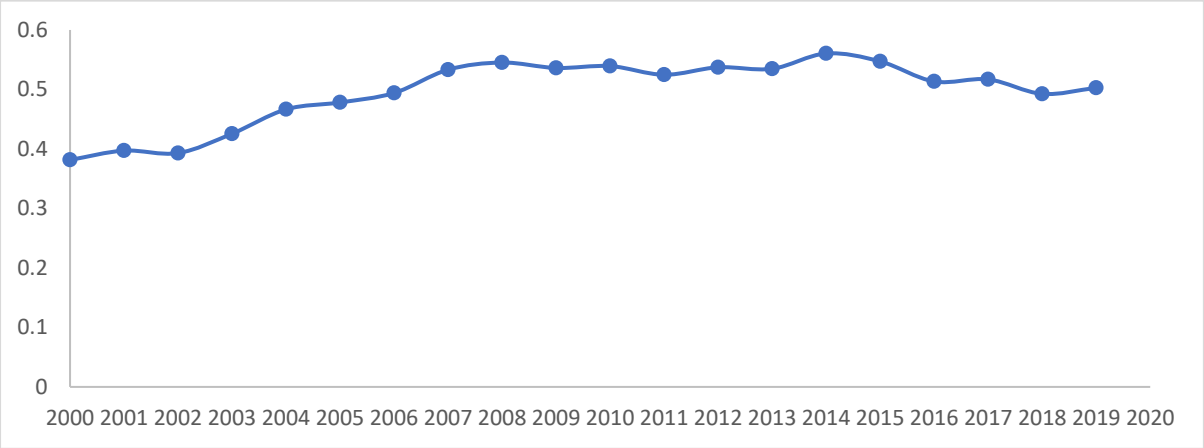

Figure 9. Average Inclusive Growth index in East African sub-Region of SSA

Source: Author's Construct based on data from World Development Indicator, WDI using Z-score

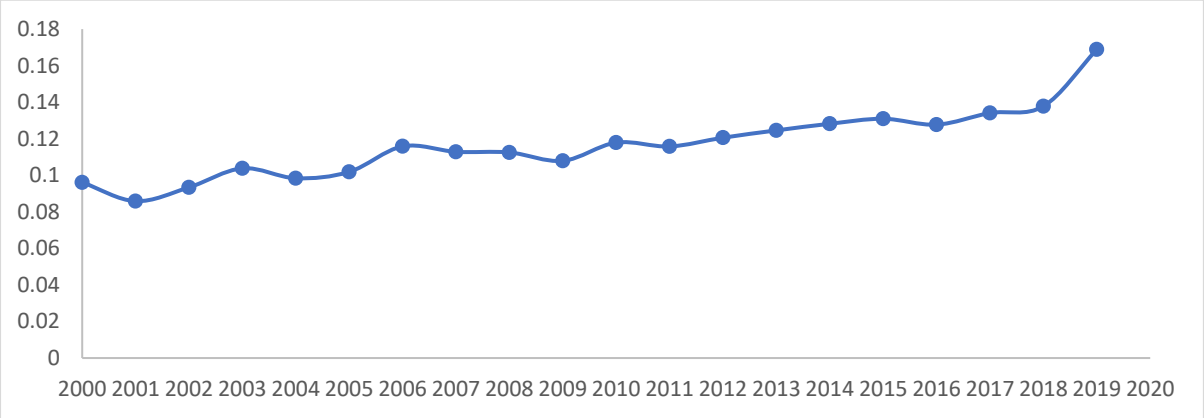

Figure 10. Average Financial Sector Development index in Eastern African sub-Region

Source: Author's Construct based on data from International Financial Statistics, IFS

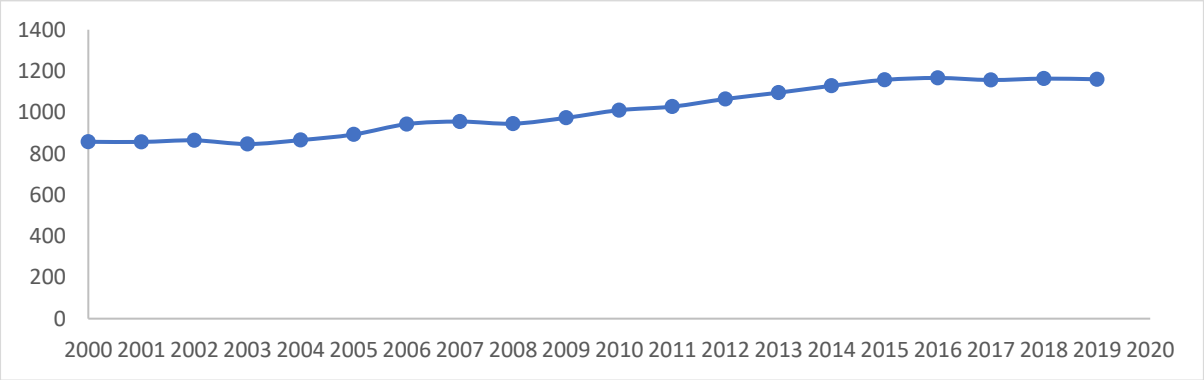

Figure 11. Average Absolute Poverty Indicator (Real Consumption Expenditure) in Eastern African sub-Region of SSA

Source: Author's Construct based on data from World Development Indicator, WDI

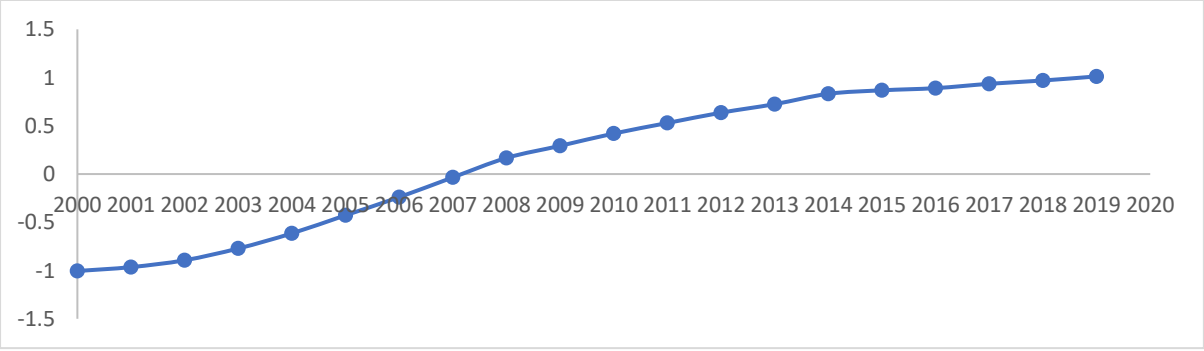

Figure 12. Average Multidimensional Poverty Indicator in East African sub-Region of SSA

Source: Author's Construct based on data from World Development Indicator, WDI using PCA

In Table 2. Panel D, the descriptive statistical results for the panel of selected Central African countries show that the mean value of real consumption expenditure per cap (APOV variable) in Central African sub-region is $864.61 which is higher than the median value of $474.86. This implies that the data distribution on APOV is skewed to the right. Also, Data distribution on multidimensional poverty indicators (MPI) and trade openness (TRO) is skewed to the right while financial sector development indicators (FSDI) are skewed to the left. Apart from FSDI, the mean values of all other variables are greater than their median values. FSDI in the Central African countries, on average, remains the lowest in the entire SSA region which the maximum and minimum values standing at 0.161 and 0.024 respectively. Inclusive growth indicators (IGI) data distribution, on the other hand, is approximately symmetrical since the mean value (0.49) and the median value (0.48) are approximately the same. This indicates a normal distribution, though not perfectly symmetrical.

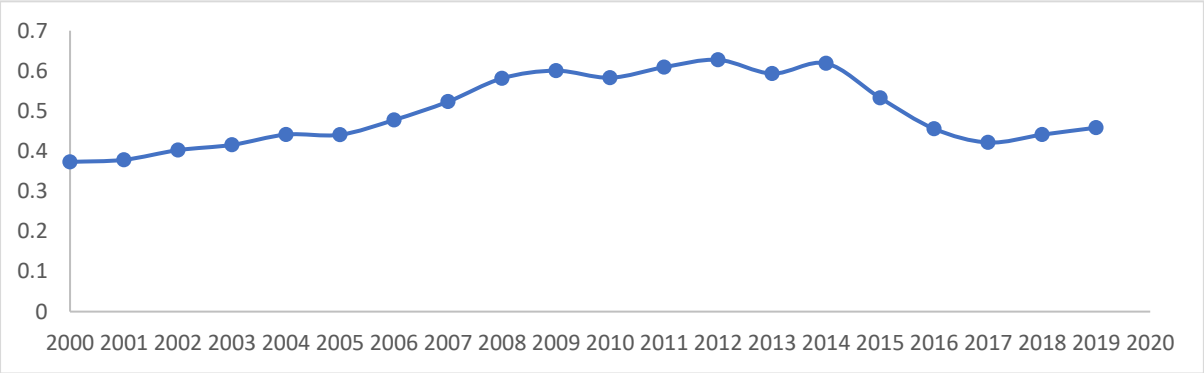

Figure 13. Average Inclusive Growth indicator in Central African sub-Region of SSA

Source: Author's Construct based on data from World Development Indicator, WDI using Z-score

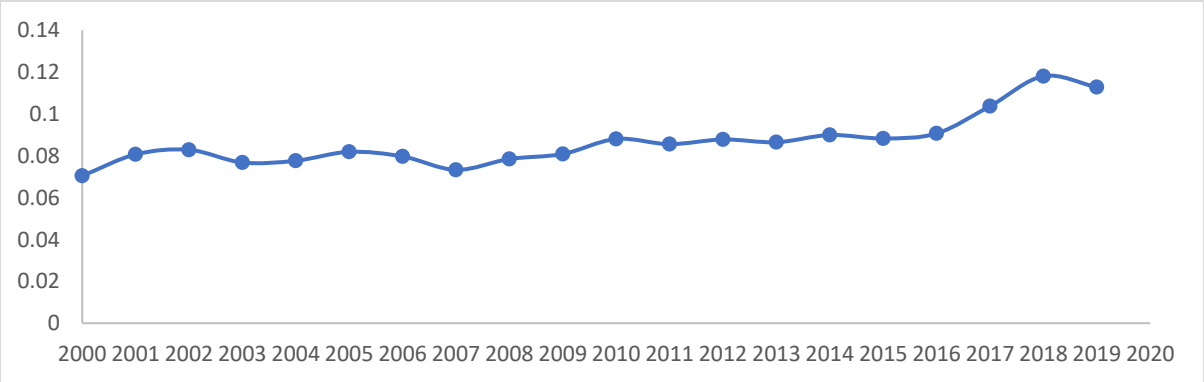

Figure 14. Average Financial Sector Development index in Central African sub-Region

Source: Author's Construct based on data from International Financial Statistics, IFS

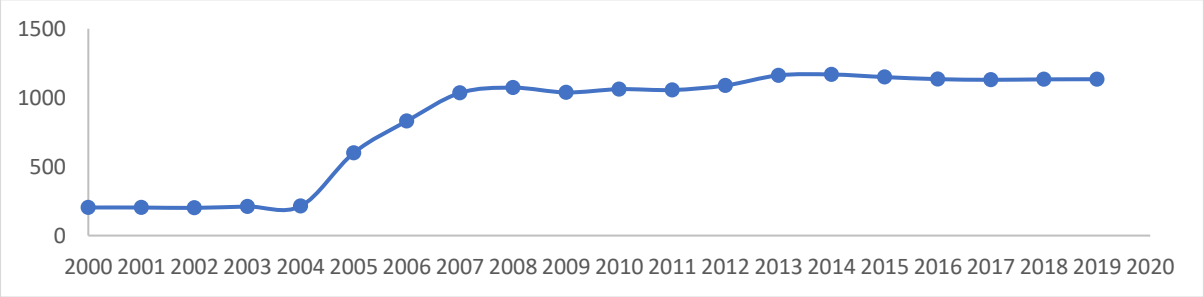

Figure 15. Average Absolute Poverty Indicator (Real Consumption Expenditure) in Central African

Source: Data from World Development Indicator, WDI

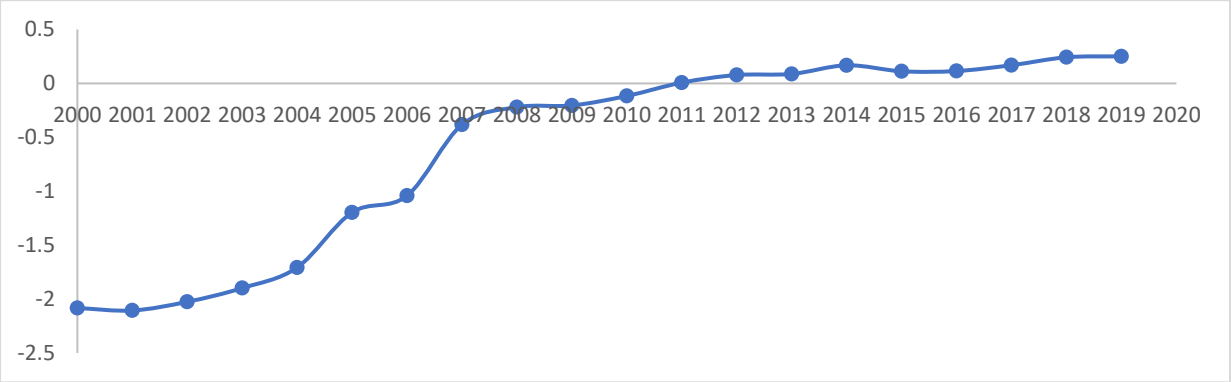

Figure 16. Average Multidimensional Poverty Index in Central African sub-Region

Source: Author's Construct based on data from World Development Indicator, WDI using PCA

Table 2. Descriptive Statistics for SSA Sub-Regions

Panels	Variables	Mean	Median	Max	Min	Std. Dev.	Skewness	Kurtosis	Jarque- Bera
West	APOV	698.6732	633.5335	1713.407	0	398.9571	0.509915	3.14546	9.727779
African	MPI	-0.09681	0.072267	1.606033	-2.35682	0.898239	-0.60506	2.8904	13.53353
Region	FSDI	0.13261	0.123726	0.352736	0.001585	0.055602	0.655218	4.80254	45.52539
A	IGI	0.496402	0.498333	0.728	0.236	0.103742	-0.06244	2.34353	4.093263
	TRO	67.188	58.12298	311.3541	20.72252	38.45421	3.695187	21.0532	3488.257
South	APOV	1888.953	1283.302	5318.773	0	1640.104	0.481449	1.77979	18.12051
African	MPI	0.528445	0.485637	2.986452	-3.36477	1.359054	-0.52739	3.10568	8.42789
Region	FSDI	0.225461	0.150152	0.674261	0.037494	0.161127	0.927383	2.89484	25.88413
	IGI	0.502976	0.52	0.731667	0.2	0.121845	-0.38186	2.33098	7.731454
B	TRO	76.15838	74.6228	152.5471	33.15618	25.03011	0.310077	2.63756	3.869635
East	APOV	862.4946	639.188	3059.914	0	819.1314	1.52947	4.30589	64.53114
African	MPI	0.16631	0.355246	2.658523	-3.11361	1.330545	-0.27365	2.76846	2.060046
Region	FSDI	0.11675	0.113659	0.287341	0.04275	0.033478	1.431902	7.22168	151.8065
	IGI	0.495995	0.488572	0.76	0.268571	0.09591	0.080967	2.96998	0.158223
C	TRO	43.86913	43.03161	101.7019	0	24.13243	-0.09087	2.85492	0.315453

Central	APOV	864.6117	474.8606	4655.907	0	1195.222	2.225173	6.80227	199.8669
Africa	MPI	-0.41207	-0.45022	2.537064	-3.70172	1.472938	-0.12428	3.0499	0.37490
	FSDI	0.087335	0.089057	0.161338	0.024009	0.027544	0.245989	3.25147	1.780814
D	IGI	0.498502	0.482262	0.773333	0.248857	0.118294	0.245969	2.39316	3.559776
	TRO	56.11119	53.12012	144.6682	0	31.24309	0.384905	3.23918	3.790605

Note: Std. Dev denotes standard deviation

Source: Author's compilation

4.2 Cross-sectional Dependence Test

The consideration of cross-country dependencies is crucial when sub-Sahara African (SSA) economies and emerging markets are analyzed based on historical indication throughout the region since financial sector development and trade openness may stimulate spillover effects which could result in contagions and significantly affect the actual economies. Therefore, it is sensible to consider the impact of a shock to the economy of SSA countries as a panel while the response to those shocks may also be investigated on a regional economic communities' level to homogenize responses of different magnitude. The results of these tests in Table 5.3 show the existence of cross-sectional dependence as the test strongly rejected the null hypothesis of cross-sectional independence at 1% and 5% significance levels. This finding emphasizes the importance of accounting for cross-unit lagged interdependence across the selected countries. This implies that the corresponding effects or relationships among variables of interest were highly heterogeneous across countries so that a country-specific consideration when analyzing a response to shock might result in a biased conclusion about the region.

Table 3. Panel Cross-Sectional Dependence Test Results

Panels/Regions	Pesaran's CD test Ho: CS independence Hi: CS dependence		Friedman's CD test Ho: CS independence Hi: CS dependence		Frees' CD test Ho: CS independence Hi: CS dependence	
	CSD-test statistic	**P-value**	**CSD-test statistic**	**P-value**	**CSD-test statistic**	**P-value**
SSA Panel	10.515*	0.0000	89.741*	0.0000	3.778*	0.0001
	CS Dependence: yes		CS Dependence: yes		CS Dependence: yes	
West	0.054	0.9571	30.049*	0.0008	1.250*	0.0000
African Region	CS Dependence: no		CS Dependence: yes		CS Dependence: yes	
South	0.949	0.3428	22.156**	0.0046	1.066*	0.0000
African Region	CS Dependence: no		CS Dependence: yes		CS Dependence: yes	
East	54.510*	0.0000	54.510*	0.0000	2.838*	0.0000
African Region	CS Dependence: yes		CS Dependence: yes		CS Dependence: yes	
Central	-0.424	0.6717	19.041**	0.0041	0.527*	0.0000
African Region	CS Dependence: no		CS Dependence: yes		CS Dependence: yes	

*Notes: Under the null hypothesis of cross-section independence, CD ~ N(0,1). p-values close to zero indicate data are correlated across panel groups. * and ** indicate rejection of the null hypothesis at the 1% and 5% significance level respectively.*

Source: Author's compilation using Stata-16

4.3 Panel Unit Roots Tests

This study, therefore, adopts a selection of panel unit root tests to deliver reliable and impartial evaluations since the cross-sectional dependence test revealed that the panels of sub-Saharan Africa (SSA) and other SSA sub-regions were heterogeneous. These panel unit roots tests are Im, Pesaran & Shin test (IPS), LLC (Lin *et al.,*) and Pesaran CD unit root test, and the results are presented in the table below.

Table 4. Panel Unit Root Test Results

Panels	Variables	PESCADF Ho: Panels contain unit roots Ha: Panels are stationary			IPS Ho: All contain unit roots Ha: Some are stationary			LLC Ho: Panels contain unit roots Ha: Panels are stationary		
		Levels	**1st Diff**	**Status**	**Levels**	**1st Diff**	**Status**	**Levels**	**1st Diff**	**Status**
	APOV	-1.589	-2.285**	I(1)	-1.4271	-4.7787*	I(1)	-0.4715	-5.7031*	I(1)
West	**MPI**	-1.950	-2.592*	I(1)	-2.1246	-3.4400*	I(1)	-6.4679*	-3.7113*	I(0)
African	**FSDI**	-1.777	-2.170	I(1)	-0.1397	-3.9928*	I(1)	3.1233	-4.1642*	I(1)
Region	**IGI**	-2.261**	-2.325**	I(0)	-1.4816	-4.2775*	I(1)	-2.1122	-5.5526*	I(1)
	TRO	-1.205	-2.357**	I(1)	-1.8292	-4.5405*	I(1)	-1.2253	-6.1529*	I(1)
	INFL	-0.583	-1.256	I(1)	0.1352	-3.1908*	I(1)	0.9825	-2.1122***	I(1)
	APOV	-1.328	-2.003***	I(1)	-1.5788	-4.2841*	I(1)	-2.8721**	-11.3963*	I(0)
South	**MPI**	-1.875	-2.272**	I(1)	-1.0968	-4.0462*	I(1)	-5.1353*	-9.2887*	I(0)
African	**FSDI**	-1.218	-1.540***	I(1)	-0.1353	-4.4522*	I(1)	2.0026	-2.7989**	I(1)
Region	**IGI**	-1.665	-1.832***	I(1)	-1.8276	-4.3135*	I(1)	-5.2387***	-3.3469*	I(0)
	TRO	-2.084	-2.220***	I(1)	-1.6447	-4.1048*	I(1)	-2.5839**	-5.8704*	I(0)
	INFL	-0.748	-2.224***	I(1)	1.0220	-3.3556*	I(1)	2.0507	-23.6749*	I(1)
	APOV	-0.657	-1.119	I(1)	-	-	-	0.1299	-3.8511*	I(1)
East	**MPI**	-1.514	-1.853**	I(1)	-0.2827	-2.4429***	I(1)	-4.9907*	-1.3212	I(0)
African	**FSDI**	-1.916	-2.333***	I(1)	-0.4833	-4.5767*	I(1)	0.9897	-3.3891*	I(1)
Region	**IGI**	-1.524	-2.318	I(1)	-1.7475	-5.3256*	I(1)	-1.2884	-3.8044*	I(1)
	TRO	-1.726	-3.328*	I(1)	-1.1047	-4.0414*	I(1)	0.8000	-5.9060*	I(1)
	INFL	0.702	-1.322**	I(1)	3.3741	-2.1577***	I(1)	3.7567	-2.0292***	I(1)
	APOV	-2.210	-2.096	I(1)	-1.1148	-3.9280*	I(1)	-0.7579	-4.7458*	I(1)
Central	**MPI**	-1.804	-2.761*	I(1)	-1.6112	-4.4573	I(1)	-4.6446*	-0.2062	I(0)
African	**FSDI**	-1.264	-2.258***	I(1)	-1.7942	-5.1596*	I(1)	1.0390	-2.8779**	I(1)
Region	**IGI**	-1.870	-2.190**	I(1)	-1.4965	-4.0027*	I(1)	-1.2576	-2.9707*	I(1)
	TRO	-2.458**	-3.224*	I(0)	-2.0496	-4.6245*	I(1)	-2.7935**	-10.5943*	I(0)
	INFL	-0.281	-1.227	I(1)	0.8262	-2.8117***	I(1)	-0.0361	-1.9318***	I(1)

*Note: *, ** and *** indicate rejection of the null hypothesis at the 1% and 5% significance level respectively.*

4.4 Mediating Role of Financial Sector Development in the Nexus between Inclusive Growth and Poverty Level in SSA Sub-regions

For the sake of comparison and precision, this section concentrates on the mediating role of financial sector development in each SSA sub-region using inclusive growth – poverty nexus using two measures of the poverty level (Absolute poverty, APOV, and Multidimensional poverty index, MPI). In this study, absolute poverty level (APOV, as measured by real consumption expenditure per capita) is interpreted in a way that an increase in its values indicates a reduction in poverty level in the respective SSA sub-region. Similarly, the multidimensional poverty index, MPI (as generated by PCA from four human/multidimensional poverty indicators of; real per capita income, life expectance at birth, consumption per capita, and multidimensional agricultural value-added per capital) is interpreted in such a way that any increase its values, denotes a decrease in multidimensional poverty level in the selected SSA countries/sub-regions. Thus, any positive relationship between these proxy variables (APOV and MPI) and the independent variables (say FSDI and IGI) implies a lower level of absolute and multidimensional poverty in the selected SSA countries and sub-regions. While negative relationship implies an increase in these states of the poverty level.

To put this study in the right perspective and to justify the use of dynamic panel analysis for each of the SSA sub-region, all the dynamic common correlated effects (DCCE) results confirm that dependent variables are significant at one percent level of significance. These show the importance of initial levels of the dependent variables in their present status in each of the sub-region.

4.4.1 Evidence from Western African sub-Region of SSA

Eleven Countries are selected from this sub-region. The dynamic common correlated effects (DCCE) result in Tables 5.5a reveals that inclusive has positive but statistically insignificant effect on real consumption expenditure per capital (as proxy for absolute poverty level, APOV). This result indicates that inclusive growth contributes positively to real consumption expenditure per capital in Western African countries and as such decreases absolute poverty level accordingly. Likewise, the result in Table 5.5b shows that inclusive growth distinctly exerts positive but has influence on multidimensional poverty index and in so doing decreasing multhe tidimensional poverty level insignificantly. This shows that inclusive growth does not have strong effects on absolute poverty and multidimensional poverty reduction in Western African countries. However, the findings on the mediating role of financial sector development revealed that financial sector development in Western African countries, though weak, have tendencies to support the poverty reduction effect of inclusive growth in Western African sub-region of SSA (see Table 5 (29.7; $\partial POV_{it}/\partial IGI_{it} = 2.63 + 29.7FSDI_{it}$) and Table 6 (58.7; $\partial POV_{it}/\partial IGI_{it} = 5.0 + 58.7FSDI_{it}$)). This finding supports the findings of Adediran *et al.*, (2017) that revealed a positive nexus between inclusive growth and financial sector development. This shows that the mediating role of financial sector development is favorable

to poverty reduction influence of inclusive growth. It equally indicates that financial system in most West African countries complements and improves inclusive growth strategies of the government. This outcome stands in line with the general proposition that financial sector development is growth-enhancing in developing countries as supported by the works of Christoppoulos and Tsionas, (2004), Tursory and Faisal (2018), Okonji, Nnadi and Igbanugo (2018).

4.4.2 Evidence from South African sub-Regional Community

Before proceeding to the mediating role of financial sector development in the nexus between inclusive growth and poverty in South African sub-region, details of separate effect of inclusive growth on poverty (absolute and multidimensional poverty) revealed that inclusive growth has a significant positive effect at 10 percent level of significance on real consumption expenditure per capital. This indicates that inclusive growth has solid positive effect on real consumption expenditure per capital (as proxy for absolute poverty level) in south African sub-region. This suggests that any inclusiveness in the growth process of most South African countries facilitates and enhances appropriate absolute poverty reduction (see Table 7). In the same way, the results from Table 8 reveal that inclusive growth has positive but statistically inconsequential effect on multidimensional poverty index (MPI) in South African sub-region. This insignificant effect confirms one of the reasons why multidimensional poverty level remains a serious issue in most South African countries. These positive effects outcomes are in line with the theoretical suggestion that emphasized the need for inclusive growth that allows the poor and every stratum of the economy to benefit and participate in the economic growth process (Filho, 2010; Elena &Susana, 2010; OECD, 2014; Vellala, Madala & Chhattopadhyay, 2014; Clarke, Xu, & Fou, 2017).

Meanwhile, the coefficient of interaction between financial sector development and inclusive growth (fsdi_igi) which measures the mediating role of financial sector development in the nexus between inclusive growth and absolute poverty is negative (-16.04; $\partial POV_{it}/\partial IGI_{it} = 1.45 - 16.04FSDI_{it}$) and statistically insignificant (see Table 7). Similarly, the coefficient of interaction indicating mediating role of financial sector in the relationship between inclusive growth and multidimensional poverty is negative (-25.26; $\partial POV_{it}/\partial IGI_{it} = 3.18 - 25.26\ FSDI_{it}$) but significant at 10 per cent level of significance (see Table 8). These results disclose that the development in the financial sector does not work hand in hand with inclusive growth when it comes to poverty reduction effect in South African sub-region of SSA. This suggests that financial sector development and inclusive growth are substitute to each other. This implies that both financial sector development and inclusive growth could not be pursued instantaneously in most south Africa countries. These results support the argument of Acemoglu and Autor (2011), Aizeman, Lee, and Park (2012), IMF (2007) and, Adeniyi (2015) that there is an inverse association between financial sector development and "inclusive growth because financial sector development is strongly linked with the increasing level of poverty and inequality. By a way of comparison, financial sector development and poverty reduction

goal of inclusive growth are independent of each other in south African sub-region, unlike west African countries where they both have tendency to complement each other.

4.4.3 Evidence from East African sub-Region of sub-Saharan Africa (SSA)

The dynamic common correlated effects (DCCE) results on the effect of inclusive growth on poverty level separately in Table 9 shows that inclusive growth exercises significant and positive influence on real consumption expenditure per capital (as proxy for absolute poverty level) in the East African countries at 10 percent level of significance. This suggests that inclusive growth has a substantial effect on absolute poverty reduction in the East African sub-region of sub-Saharan Africa (SSA). Though**,** the results in Table 10 specifies that inclusive growth exerts positive but statistically insignificant effect on MPI (multidimensional poverty indicators) in this sub-region of SSA. This infers that inclusive growth, though weak, in East African countries has tendency to reduce multidimensional poverty in the region. Comparatively, inclusive growth separately in East African sub-region, like other SSA sub-regions, tends to promote absolute and multidimensional poverty reduction.

By implication, inclusive growth remains a very strong factor and driver of poverty reduction in East African sub-region and in the entire sub-Saharan African (SSA) region if adequate and proper measures of sustainable development goals (SDGs) are put in place. Thus, growth that is inclusive in nature remains vital to multidimensional poverty reduction in East African sub-region (Elena &Susana, 2010; OECD, 2015; IMF, 2016; Khan, Khan, Ahmad & Siraj, 2015; Clarke, Xu, & Fou, 2017).

Furthermore, the mediating role of financial sector development in the relationship between financial sector development and poverty level in East African countries as captured by the values of coefficients of interaction (fsdi_igi) in Table 9 reveals that financial sector development does not encourage inclusive growth to positively influence absolute poverty reduction. This is because the value of the coefficient of interaction between them is negative and not statistically significant (-1.54; $^{\partial POV_{it}}/_{\partial IGI_{it}} = 0.31 - 1.54\, FSDI_{it}$). The implies that financial sector development does not complement absolute poverty reduction effect of inclusive growth in East African countries and this contradicts the work of Sin-Yu and Bernard, (2018) which emphasizes that financial sector development encourages growth that inclusive and in turn resulted in poverty reduction. This means that financial sector development and inclusive growth are substitute in most East African countries when it comes to absolute poverty reduction goal.

On the hand, the coefficient of interaction revealing the mediating role of financial sector development in the nexus between inclusive growth and multidimensional poverty level in Table 5.7b is positive (13.50; $^{\partial POV_{it}}/_{\partial IGI_{it}} = 0.897 + 13.50\, FSDI_{it}$) and statistically insignificant. This indicates that financial sector development, though not statistically significant, complements inclusive growth to reduce multidimensional poverty level in most east African countries. This complementary role of financial sector development in the nexus between inclusive growth and multidimensional poverty is in line with trickle down theoretical

proposition on how growth that is inclusive in nature serves as channel through which poverty level remains affected indirectly by the financial sector development (Aghion & Bolton 1993; King & Levine, 1993; Todaro 1997; Kakwani, 2000; Fields, 2001; Habibullah & Eng, 2006). It also supports the result of Sin-Yu and Bernard, (2018) and Waiyaki (2016) which revealed that progress in financial sector development encourages growth which sequentially resulted in poverty reduction and thereby confirming the trickle-down hypothesis.

4.4.4 Evidence from Central African sub-Region of sub-Saharan Africa (SSA)

On the separate effect of inclusive growth on absolute poverty level in this sub-region, Table 11 reveals that inclusive growth indicator has negative and significant effect (-2.63) on real consumption expenditure per capital (as proxy for absolute poverty level) at 5 percent level of significance. This shows that inclusive growth impacts negatively on real consumption expenditure per capital and this in turn increases absolute poverty level in Central African sub-region by about 3%.

Comparatively, unlike other SSA's sub-regions, inclusive growth indicators in most central African countries could not facilitate absolute poverty reduction. Unexpectedly, this result contradicts the general intention put forward by the studies of Filho, (2010), Elena and Susana (2010), OECD (2014), Vellala *et al*., (2014) and Clarke *et al*., (2017) that inclusive growth is inductive in nature and it is based on long term perspective of absolute poverty reduction. Meanwhile, inclusive growth has positive but statistically insignificant effect on multidimensional poverty indicator (MPI). This result indicates that inclusive growth has tendency to reduce multidimensional poverty level in most Central African countries if the proceed of this growth are adequately and properly distributed for all and sundry.

Sequel to these separate effects of inclusive growth on both absolute and multidimensional poverty level in Central African sub-region of SSA, the main focus of this study remains the mediating role of financial sector development in the nexus between inclusive growth and poverty level. Therefore, the coefficient of interaction term (fsdi_igi) showing the mediating role of financial sector development in the nexus between inclusive growth and absolute poverty level is positive and significant at 5 percent level (see Table 11). Also, this coefficient of interaction term between inclusive growth and financial sector development has positive but statistically insignificant effect vis-à-vis multidimensional poverty level (see Table 12). This indicates that financial sector development stimulates multidimensional poverty reduction effects of inclusive growth in most Central African countries.

These research findings reveal that financial sector development, though very weak with negative impacts on poverty reduction, in most Central African countries has tendency of supporting inclusive growth influence on poverty level. This also indicates that financial sector development which complements inclusive growth in this sub-region to increase absolute poverty level (24.2; $^{\partial POV_{it}}/_{\partial IGI_{it}} = -2.63 + 24.2\, FSDI_{it}$) has propensity to decrease multidimensional poverty level (70.1; $^{\partial POV_{it}}/_{\partial IGI_{it}} = 5.71 + 70.1\, FSDI_{it}$) at the same time.

By implications, these findings suggest that adequate and proper development in the financial sector in Central African countries with all-encompassing growth could propel poverty reduction (since the problem of poverty in most developing region is more of multidimensional concepts than absolute level). In other words, more inclusiveness in the growth strategies with adequate financial sector development could reduce multidimensional poverty in Central African sub-region of SSA. Thus, this research finding seems to be in line with the studies outcome of Sin-Yu & Bernard, (2018) and Waiyaki (2016) and confirm the trickle-down hypothesis which describes how effects of financial sector development on growth that is inclusive in nature sequentially resulted in poverty reduction (Aghion & Bolton 1993; King & Levine, 1993; Todaro 1997; Kakwani, 2000; Fields, 2001).

5. Conclusion and Policy Recommendation

This study comparatively examined the mediating role of financial sector development in the nexus between inclusive growth and poverty level in SSA sub-regions. Using annual data from 2000 to 2019, empirical findings at sub-regional level appeared to be slightly different with mixed results.

In west African countries, financial sector development, though weak, has tendencies to promote both absolute and multidimensional poverty reduction effect of inclusive growth. On the contrary, the development in the financial sector does not work hand in hand with inclusive growth when it comes to poverty reduction effect in south African countries. the role financial sector development does not complement absolute poverty reduction effect of inclusive growth but has tendency to complement inclusive growth in decreasing multidimensional poverty level in most east African countries. Finally, research findings in Central African sub-region revealed that the mediating role of financial sector complements inclusive growth in this sub-region to increase absolute poverty level and at the same time has propensity to support inclusive growth in reducing multidimensional poverty.

Therefore, this study concludes that financial sector development complements and favors inclusive growth effects on poverty level in most SSA sub-regions except South African countries and recommends that financial sector development in most SSA countries should be improved upon through relevant monetary policy that promotes financial innovations, financial sector reforms, efficiency in financial inclusion across the region and at the same time efforts should be geared toward directing some of the gains in financial sector development to inclusive growth enhancing activities in south African sub-region.

Table 5. Results of Dynamic Roles of FSDI and IGI on Poverty Level (APOV)

		AUGMENTED MEAN GROUP (AMG)		COMMON CORELATED EFFECTS (CCE)		DYNAMIC COMMON CORELATED EFFECTS (DCCE)	
	Variables	**Coefficients**	**P-Value**	**Coefficients**	**P-Value**	**Coefficients**	**P-Value**
	APOV Dependent Variable						
West African sub-Region of SSA	**L.lapov**	**-.8040636***	0.000	**-.993025***	0.000	**-.9311521***	0.000
		(.0503021)		(.1254244)		(.1015445)	
	fsdi	.3098299	0.834	-45.03956	0.166	-19.11173	0.217
		(1.478702)		(32.52817)		(15.48452)	
	igi	.0946815	0.471	6.543284	0.365	2.629546	0.351
		(.131248)		(7.22797)		(2.820149)	
	fsdi_igi	-.176636	0.949	68.32321	0.232	29.77365	0.214
		(2.747323)		(57.15031)		(23.95699)	
	ltro	**-.1628429****	0.020	-.5024619	0.468	-.6613947	0.101
		(.0698292)		(.6931046)		(.403001)	
	linfl	.1013015	0.668	3.40127	0.613	4.108208	0.291
		(.2362366)		(6.716826)		(3.886657)	
West African Region	**MPI Dependent Variable**						
	L.mpi	**-.4479305***	0.000	**-.6222528***	0.002	**-.3775055***	0.000
		(.1031916)		(.2019554)		(.1134773)	
	fsdi	-.7010637	0.916	**-28.29088*****	0.086	**-29.58643*****	0.073
		(6.670757)		(16.46943)		(16.95829)	
	igi	-.8706538	0.634	4.033404	0.289	5.004268	0.328
		(1.828857)		(3.80087)		(5.112125)	
	fsdi_igi	1.274381	0.848	41.74252	0.153	58.65018	0.196
		(6.638606)		(29.18879)		(45.339)	
	ltro	-.1527606	0.105	**-1.194802****	0.028	**-.453997****	0.042
		(.0942595)		(.542187)		(.18783)	
	linfl	**1.196207***	0.004	2.64216	0.421	-15.75008	0.276
		(.414516)		(3.285849)		(14.45473)	

*Note: *,**,*** are the respective significant levels at 1%, 5% and 10%. () are standard errors. Lapov, fsdi, igi and fsdi_igi represent Absolute poverty level (proxy by real consumption expenditure per capital), Multi-dimensional poverty index, financial sector development index, inclusive growth index and the interaction between fsdi and igi respectively. Also, trade openness(ltro) and inflation (linfl)are used as control variables.*

Source: Author's compilation using Stata- 16

Table 7. Dynamic Roles of FSDI and IGI on Poverty Level (Absolute Poverty)

	Variables	AUGMENTED MEAN GROUP (AMG)		COMMON CORELATED EFFECTS (CCE)		**DYNAMIC COMMON CORELATED EFFECTS (DCCE)**	
		Coefficients	**P-Value**	**Coefficients**	**P-Value**	**Coefficients**	**P-Value**
South African sub-Region of SSA	**APOV Dependent Variable**						
	L.lapov	**-.6280545***	0.000	**-.4861248***	0.002	**-.6874455***	0.001
		(.1306408)		(.1545409)		(.2001082)	
	fsdi	.1735253	0.633	-.2238041	0.913	**7.574154*****	0.084
		(.3631527)		(2.057469)		(4.388584)	
	igi	**.2335424***	0.000	1.454955	0.196	**1.453402*****	0.088
		(.0547333)		(1.125571)		(.8526728)	
	fsdi_igi	**-1.327954***	0.011	**-11.67713*****	0.085	-16.04377	0.108
		(.519269)		(6.781533)		(9.990189)	
	ltro	**.1339363*****	0.079	-.0254712	0.827	-.1759475	0.785
		(.076176)		(.1167527)		(.6436826)	
	linfl	.0079828	0.953	-.2578064	0.704	-.1936885	0.869
		(.1357424)		(.679058)		(8.855476)	

Table 8. Dynamic Roles of FSDI and IGI on Poverty Level (Multidimensional Poverty, MPI)

Variables	AUGEMENTED MEAN GROUP (AMG)		COMMON CORELATED EFFECTS (CCE)		**DYNAMIC COMMON CORELATED EFFECTS (DCCE)**	
	Coefficients	**P-Value**	**Coefficients**	**P-Value**	**Coefficients**	**P-Value**
MPI Dependent Variable						
L.mpi	**-.5454412***	0.000	**-.8848188***	0.000	**-.6810942***	0.009
	(.1248479)		(.1340124)		(.2591651)	
fsdi	**-9.748643****	0.054	7.248261	0.471	12.18945	0.119
	(5.064752)		(10.06587)		(7.813987)	
igi	**4.23785****	0.043	.8169777	0.784	3.177819	0.124
	(2.097646)		(2.981032)		(2.066988)	
fsdi_igi	14.23216	0.142	-8.256923	0.678	**-25.26023*****	0.077
	(9.680452)		(19.87106)		(14.2943)	
ltro	-.2808493	0.127	-.4813118	0.507	1.143335	0.111
	(.1841836)		(.7260563)		(.7175738)	
linfl	-.1138924	0.868	-.2158959	0.674	.7333269	0.341
	(.6870665)		(.5135222)		(.769445)	

*Note: *,**,*** are the respective significant levels at 1%, 5% and 10%. () are standard errors. Lapov, fsdi, igi and fsdi_igi represent Absolute poverty level (proxy by real consumption expenditure per capital), Multi-dimensional poverty index, financial sector development index, inclusive growth index and the interaction between fsdi and igi respectively. Also, trade openness(ltro) and inflation (linfl)are used as control variables.*

Source: Author's compilation using Stata- 16

Table 9. Dynamic Roles of FSDI and IGI on Poverty Level (Absolute Poverty)

		MEAN GROUP (MG)		COMMON CORELATED EFFECTS (CCE)		DYNAMIC COMMON CORELATED EFFECTS (DCCE)	
	Variables	**Coefficients**	**P-Value**	**Coefficients**	**P-Value**	**Coefficients**	**P-Value**
	APOV Dependent Variable						
East African sub-Region of SSA	**L.lapov**	**-.5836512***	0.000	**-.8921609***	0.000	**-.649205***	0.001
		(.1505759)		(.203766)		(.1879349)	
	fsdi	-.2324935	0.763	.9747861	0.293	.1794402	0.844
		(.7705821)		(.9275612)		(.9097502)	
	igi	.0006252	0.997	.3331774	0.134	**.3143407*****	0.092
		(.143541)		(.2224514)		(.1867614)	
	fsdi_igi	.4433159	0.761	-1.742471	0.356	-1.54431	0.201
		(1.457096)		(1.887991)		(1.207027)	
	ltro	.021938	0.518	.0638964	0.433	**.0770488*****	0.098
		(.0339429)		(.0814604)		(.046599)	
	linfl	-.046266	0.731	-.1414185	0.625	.0274795	0.777
		(.1344631)		(.2889897)		(.0971089)	

Table 10. Dynamic Roles of FSDI and IGI on Poverty Level (multidimensional Poverty, MPI)

		AUGEMENTED MEAN GROUP (AMG)		COMMON CORELATED EFFECTS (CCE)		DYNAMIC COMMON CORELATED EFFECTS (DCCE)	
	Variables	**Coefficients**	**P-Value**	**Coefficients**	**P-Value**	**Coefficients**	**P-Value**
	MPI Dependent Variable						
East African Region	**L.mpi**	**-.3838816***	0.000	**-.9604789***	0.004	**-1.049035***	0.001
		(.0786306)		(.330473)		(.3087497)	
	fsdi	.3171347	0.846	**-3.629641***	0.010	**-8.075549*****	0.090
		(1.629898)		(1.405795)		(4.753915)	
	igi	**.7820689***	0.000	.2715644	0.792	.8978749	0.562
		(.2216332)		(1.027861)		(1.546444)	
	fsdi_igi	**-5.174276***	0.004	3.892961	0.664	13.49663	0.252
		(1.800508)		(8.948317)		(11.78954)	
	ltro	-.1901871	0.382	.7361027	0.313	-.2359955	0.470
		(.2174436)		(.7295749)		(.3268816)	
	linfl	.3227472	0.368	**1.445849****	0.045	**1.071633***	0.000
		(.3587405)		(.722527)		(.3055139)	

*Note: *,**,*** are the respective significant levels at 1%, 5% and 10%. () are standard errors. Lapov, fsdi, igi and fsdi_igi represent Absolute poverty level (proxy by real consumption expenditure per capital), Multi-dimensional poverty index, financial sector development index, inclusive growth index and the interaction between fsdi and igi respectively. Also, trade openness(ltro) and inflation (linfl)are used as control variables.*

Source: Author's compilation using Stata- 16

Table 11. Dynamic Roles of FSDI and IGI on Poverty Level (Absolute Poverty)

	Variables	MEAN GROUP (MG)		COMMON CORELATED EFFECTS (CCE)		DYNAMIC COMMON CORELATED EFFECTS (DCCE)	
		Coefficients	**P-Value**	**Coefficients**	**P-Value**	**Coefficients**	**P-Value**
	APOV Dependent Variable						
Central African sub-Region of SSA	**L.lapov**	**-.7224501***	0.000	**-1.087471***	0.000	**-.6730008***	0.000
		(.1080961)		(.1974487)		(.1089889)	
	fsdi	-3.173738	0.159	12.35389	0.430	**-17.75859****	0.042
		(2.251327)		(15.66021)		(8.730995)	
	igi	-.2318739	0.325	1.593582	0.397	**-2.63407****	0.047
		(.2354866)		(1.879525)		(1.328302)	
	fsdi_igi	**5.381984** ***	0.071	-34.55744	0.365	**24.17268****	0.031
		(2.985061)		(38.13608)		(11.22442)	
	ltro	-.0022048	0.876	.7756313	0.102	.7452341	0.104
		(.0141132)		(.4749248)		(.4584491)	
	linfl	.0477329	0.591	-.5289846	0.712	-.4948325	0.622
		(.0887957)		(1.431583)		(1.002319)	

Table 12. Dynamic Roles of FSDI and IGI on Poverty Level (Multidimensional Poverty, MPI)

	Variables	MEAN GROUP (MG)		COMMON CORELATED EFFECTS (CCE)		DYNAMIC COMMON CORELATED EFFECTS (DCCE)	
		Coefficients	**P-Value**	**Coefficients**	**P-Value**	**Coefficients**	**P-Value**
	MPI Dependent Variable						
Central African Region	**L.mpi**	**-.6298947***	0.000	**-.6541704***	0.000	**-.6220259***	0.009
		(.1029982)		(-.6541704)		(.2394263)	
	fsdi	**-6.30642***	0.000	-15.05789	0.372	-37.26955	0.211
		(.9411936)		(16.84963)		(29.79957)	
	igi	**.278428*****	0.095	-1.249532	0.560	5.70512	0.217
		(.1669086)		(2.145621)		(4.619842)	
	fsdi_igi	**10.27412*****	0.071	27.40976	0.341	70.11433	0.174
		(5.688371)		(28.77974)		(51.60923)	
	ltro	.0101737	0.977	.2694847	0.133	-1.144056	0.350
		(.3480109)		(.1791875)		(1.224333)	
	linfl	-.015043	0.984	.7547178	0.568	**4.850576****	0.036
		(.7484077)		(1.320115)		(2.183241)	

*Note: *,**,*** are the respective significant levels at 1%, 5% and 10%. () are standard errors. Lapov, fsdi, igi and fsdi_igi represent Absolute poverty level (proxy by real consumption expenditure per capital), Multi-dimensional poverty index, financial sector development index, inclusive growth index and the interaction between fsdi and igi respectively. Also, trade openness(ltro) and inflation (linfl)are used as control variables.*

Source: Author's compilation using Stata-16

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