FINANCIAL DEVELOPMENT, ECONOMIC GROWTH AND POVERTY LEVEL IN FIVE UPPER-MIDDLE INCOME SUB-SAHARAN AFRICAN (SSA) COUNTRIES

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Abstract

The study investigates the interactions among financial development, economic growth and poverty level in five selected upper-middle income sub-Saharan African countries (SSA) using an annual data obtained from World Bank Development Indicators (WDI) for the period 1980 to 2012. Cointegration test was applied to find out the long run relationship among these three key variables while panel vector autoregression model was employed to investigate the dynamic interactions. The result obtained suggests that economic growth is a weak channel connecting financial development and poverty level in the region. Therefore, it is recommended that policymakers should initiate viable financial sector reforms that would promote economic growth which would, in turn, translate into a reduction in poverty level. Allocation of funds by the government to real sectors of the economy should target increasing the economic growth and reducing poverty level so as to induce a corresponding improvement in the welfare of the people.

Keywords: Financial Development, Economic Growth, Poverty, Panel Vector Autoregression, Upper-Middle Income Sub-Saharan African (SSA) countries, dynamic interactions

JEL classification: G28, H10

1. INTRODUCTION

The issue of poverty is not only having an insufficient income to purchase a minimum basket of goods and services but a lack of basic capabilities to live in dignity (Sengupta, 2003). According to WDI (2012) poverty headcount in SSA countries stood at 53.4 in 1981 and later rose to 55.8 in 1984 before escalating to

57.6 in 1990 and 58.8 in 1996. In spite of the reforms in the financial sector, inauguration of poverty alleviation programme and the rise in government spending during this period, the poverty rate increased significantly. In the year 2010, poverty headcount fell to 50.9 percent but comparing the success recorded in SSA with the rest of the world, sub-Saharan Africa countries still have high poverty rates (WDI, 2012).

In pursuance of poverty reduction in SSA countries, given the state of financial development, efforts have yielded inconsistent results. Broad money supply as a percentage of GDP (a proxy for financial development) for all income levels in SSA decreased by 6.33 percent in 1985 and 3.63 percent in 1990 but increased by 5.21 percent between 1990 and 1995. The value dropped to 2.88 percent in 2000, 5.86 percent between 2000 and 2005 and 0.84 percent in 2012. The overview of GDP growth rate in SSA shows that GDP growth rate was 4.0 percent in 1980, 2.2 percent in 1985, 3.2 percent in 1995; 3.6 percent in 2000; 5.5 percent in 2005 but decreased to 5.3 percent in 2010 and 3.0 in 2015. Also, according to WDI (2016), the poverty headcount ratio at $1.90 a day (PPP) as a percentage of the population in SSA countries was 54.3, 47.0, 45.7, 42.6 and 41.0 percent in 1990, 2008, 2010, 2012 and 2013 respectively.

In some SSA countries, the economic and poverty level nexus presents puzzling scenarios. For instance, Botswana is one of the world fastest growing economies since the past 50 years, and has succeeded in changing its income status from being one of the poorest countries to upper middle-income status; still many of her citizens remain poor. Its inequality status is among the highest in the world, and its human development outcomes are far below the norms for an upper middle-income country in spite of huge revenues from diamonds and public sector (World Bank Group, 2015). Angola situation is also a paradox, being one of the Africa's most resource-rich countries; the second largest oil producer and the world's fourth largest producer in SSA of diamonds (International Fund for Agricultural Development, 2014). In addition, with high global oil prices and increased oil production, the average growth rate of GDP was about 17 percent and Angola was able to expand her economy rapidly between 2003 and 2008. However, Angola is still ranked 150th out of 188 countries on the Human Development Index (HDI) (HDI report, 2016) and 58 percent of the rural population is still poor in 2014 (Rural Poverty Portal, 2014).

The bulk of studies on SSA related to financial development at both country-specific and cross-country levels are substantially based on establishing causality between financial development and economic growth with no attempt at incorporating inequality and poverty level in their modelling framework (Levine, Beck and Loayza, 2000; Christopoulos and Tsionas, 2004; Khan, Qayyum and Sheikh, 2005; Shan and Jianhong, 2006; Ayadi, Arbak, Naceur and De Groen, 2013; Odeniran and Udeaja, 2010). Other scholars have examined the links among financial development, economic growth and poverty level with inconsistent results. Holden and Prokopenko, 2001 examined the relationship between financial development and poverty level from 1995 to 2000 for samples of 112 countries and

found that financial development promotes economic growth and also contributes to poverty alleviation. ;

Furthermore, Khan, Qayyum and Sheikh (2005) investigated the relationship between financial development and economic growth for Pakistan from 1971–2004, using Autoregressive Distributed Lag (ARDL) approach and found a stable long-run relationship between economic growth and financial depth. Ravallion and Chens (2007) advanced the argument that growth seemed to reduce inequality in the transitional economies of Eastern Europe and Central Asia. This result is however inconsistent with the finding of Fowowe and Abidoye (2012) in Nigeria that the ratio of private credit to GDP as a measure of financial development does not significantly influence poverty in SSA countries. Also, Ayyagari, Beck and Hoseini (2013) study in India found contrary result from that of Ravallion and Chens that a strong negative relationship exist between financial deepening and rural poverty. Other studies that found negative relationship between economic growth and poverty are: Dollar and Kraay, (2000), Ravallion (2001), Christiaensen, Demery, and Paternostro (2003).

Besides, studies on financial development and poverty in SSA are sparse. The two outstanding studies that can be identified in the extant literature in SSA include Goodness (2013) that examined causality among financial deepening, economic growth and poverty in Nigeria between 1960 and 2011 Also, Fowowe and Abidoye (2012) that investigated the effect of financial development on poverty level in the SSA countries. However, the author neither considered the long-run relationship among financial development, economic growth and poverty level nor categorised the SSA countries along income groupings for robust economic analysis.

We propose the examination of SSA based on their income groupings by considering their level of economic development and homogenous income characteristics in order to draw a valid policy inference considering that SSA countries are heterogeneous in terms of economic development and income. The decomposition of SSA countries into income groups is based on World Bank classifications which categorised the SSA countries into low, low-middle and upper-middle income countries. Hence, this present study investigates the interactions among financial development, economic growth and poverty level in upper middle-income of SSA region.

It is equally important to address the issue of poverty considering the high rate of poverty in sub-Saharan Africa, thus making poverty reduction a key issue in SSA developmental policy design. Researchers such as Uddin, Shahbaz and Arouri (2013); Khan, Ahmad and Jan, (2012); Pradhan (2010) and Fulford (2011) revealed key channels through which development could translate into a reduction in poverty levels in both cross-country and country-specific studies. A critical channel identified is economic growth in SSA countries, but it is however a possibility for a strong financial development to co-exist with increased economic growth and high poverty level. Economic situations in most SSA countries validate this assertion. For rigorous empirical analysis, the present study investigates the

interactions among financial development, economic growth and poverty level in upper middle-income of SSA countries.

The study is structured as follows: Section 2 explores the methodologies applied in the study. Section 3 reports and discusses the empirical findings while section 4 concludes the study.

2. METHODOLOGY AND DATA

2.1. MODEL SPECIFICATION

Based on the divergent theoretical postulations established by AK model that economic growth can be conditioned by physical capital, human capital and other critical determinants of growth like financial development. And Mackinnon and Shaw hypothesis that identified the critical role of financial development as an engine of growth; coupled with empirical findings that economic growth is causally related to poverty, we specify a PVAR model of the form in equations 1 to 3.

2.2. PANEL VECTOR AUTOREGRESSION (PVAR)

For i^{th} country at time t, the VAR (P) model involves the estimation of the following equation system for aggregate panel level:

$$Y_{i,t} = \Gamma_0 + \Gamma(L)Y_{i,t} + \upsilon_i + \varepsilon_{i,t}\,, i = 1, \ldots\ldots N \qquad t = 1, \ldots\ldots, T \quad (1)$$

Where $Y_{i,t}$ is a (4x1) vector of endogenous variables, Γ_0 is a (4x1) vector of constant, $\Gamma(L)$ is a matrix polynomial in the lag operator L defined as

$$\Gamma(L) = B_1 L + B_2 L^2 + \cdots \ldots \ldots + B_p L^p$$

Hoffmann (2003), B_i is a (4x4) matrix of coefficients, υ_i is a matrix of country-specific fixed effects. $\boldsymbol{\varepsilon_{i,}}$ is a (4x1) vector of normality, identically distributed disturbances. The components of equation (1) can be explicitly defined as:

$$Y_{i,t} = \begin{bmatrix} LPov_{i,t} \\ LY_{i,t} \\ LM_{i,t} \\ LK_{i,t} \end{bmatrix}, \Gamma_0 = \begin{bmatrix} \mu_{LPov} \\ \mu_{LM} \\ \mu_{LK} \\ \mu_{LY} \end{bmatrix}$$

$$\Gamma(L) \cdot Y_{i,t} = \sum_{p=1}^{n} \begin{bmatrix} \beta_{i,t} & \gamma_{i,t} & \theta_{i,t} & \lambda_{i,t} \\ \beta_{i,t} & \gamma_{i,t} & \theta_{i,t} & \lambda_{i,t} \\ \beta_{i,t} & \gamma_{i,t} & \theta_{i,t} & \lambda_{\nu} \\ \beta_{i,t} & \gamma_{\nu} & \theta_{i,t} & \lambda_{i,t} \end{bmatrix} \begin{bmatrix} LPov_{i,t-p} \\ LY_{i,t-p} \\ LM_{i,t-p} \\ LK_{i,t-p} \end{bmatrix} \varepsilon_{it} = \begin{bmatrix} LPov \\ LM \\ LK \\ LY \end{bmatrix} \quad (2)$$

Where:

$LPov_{i,t}$ is the log of poverty level proxy with real per capita consumption expenditure at period t, i across the countries.

$LY_{i,t}$ is real GDP (in constant of \$2000) at period t, i across the countries

$LM_{i,t}$ is log of broad money supply as a percentage of GDP at period t, i across the countries.

$LK_{i,t}$ is capital stock at period t, i across the countries.

Equations (2) can be written in a single equation of the form:

$$\begin{bmatrix} LPov_{i,t} \\ LY_{i,t} \\ LM_{i,t} \\ LK_{i,t} \end{bmatrix} = \begin{bmatrix} \Phi_0 \\ \Phi_0 \\ \Phi_0 \\ \Phi_0 \end{bmatrix} + \sum_{p=1}^{n} \begin{bmatrix} \beta_{i,t} & \gamma_{i,t} & \theta_{i,t} & \lambda_{i,t} \\ \beta_{i,t} & \gamma_{i,t} & \theta_{i,t} & \lambda_{i,t} \\ \beta_{i,t} & \gamma_{i,t} & \theta_{i,t} & \lambda_{v} \\ \beta_{i,t} & \gamma_{v} & \theta_{i,t} & \lambda_{i,t} \end{bmatrix} \begin{bmatrix} LPov_{i,t-p} \\ LY_{i,t-p} \\ LM_{i,t-p} \\ LK_{i,t-p} \end{bmatrix} + \begin{bmatrix} \varepsilon_{LPov} \\ \varepsilon_{LM} \\ \varepsilon_{LK} \\ \varepsilon_{LY} \end{bmatrix} \quad (3)$$

Equation 3 was estimated to verify if economic growth is a significant channel through which financial development can reduce poverty level for the panel of five selected sub-Saharan African countries.

2.3. ESTIMATION TECHNIQUE

2.3.1. PANEL UNIT ROOT TEST TECHNIQUE

Panel unit root tests were conducted to test the stationarity of the series. These tests offer the prospect of ameliorating some important weaknesses of existing single time series tests, including low-power and large-size distortions. This is done by employing Levin, Lin Chu (t-statistic), Im, Pesaran and Shin (W-Stat) and ADF-Fisher (Chi-Square) unit root test. Levin Lin Chu t-stat with the null of unit root assumes common unit root process, while Im, Pesaran and Shin W-stat, ADF-Fisher Chi-Square: assume the null of individual unit root process, Im et al. (2003) test specifies ADF regression for each cross- section as expressed below

$$y_{it} = \rho_i y_{it-1} \sum_{j-1}^{\rho i} \Phi_{it}\, \varepsilon_{it-j} + \delta_i X_{it} + U_{it} \quad (4)$$

Where ρ_i is the number of lags in the ADF regression and the error terms U_{it} are assumed to be independently and normally distributed random variables for all i and t with zero means and finite heterogeneous variances δ_i^2. Both ρ_i and the lag order are allowed to vary among cross-sections. The hypothesis is stated as follows:

H_0 = Each series in the panel contains a unit root (ρ_i=1 for all i)

H_1 = At least one of the individual series in the panel is stationary (ρ_i<1 for at least one i).

The test statistic is normally distributed under H_0 and the critical values for given values of N and T is provided in Im et al. (2003).

2.3.2. PANEL COINTEGRATION TECHNIQUE

Pedroni's cointegration tests (1999, 2001) allows for cross-sectional interdependence with different individual effects in the intercepts and slopes of the cointegrating equation. This technique significantly improves the conventional cointegration analysis applied on single country series. Data are pooled to determine the common long-run relationship and, at the same time, the cointegrating vectors are allowed to vary across the panel units.

In our empirical estimations, we adopt Pedroni cointegration tests (1999, 2001) and the Kao residual cointegration test to test for long run relationships among the variables.

The cointegration test is achieved using the following regression:

$$\varepsilon_{i,t} = \rho_i \varepsilon_{i,t-1} + u_{i,t}$$

Where $\varepsilon_{i,t}$ is the residual term generated from the regression encompassing the variables of interest i.e. log Pov_{it}, log $Y_{it,}$ log M_{it} and logK_{it} while $\varepsilon_{i,t-1}$ is a period lag of the residual.

Where the hypothesis is set as:

H_0: $\rho_i = 1$ (There is no cointegration).

H_0: $\rho i < 1$ (There is cointegration) where ρi is autoregression coefficient

If the residuals $\varepsilon_{i,t}$ are stationary, then log Pov_{it}, log $Y_{it,}$ log M_{it} and logK_{it} are co-integrated i.e. there is a long-run relationship between them, otherwise long run relationship does not exist.

2.4. SOURCES OF DATA

Data employed in this study were extracted from World Bank African Development Indicators (2012) on five sub-Saharan African countries, Mauritius, South Africa, Botswana, Namibia and Gabon. These countries were grouped as Upper-middle income countries on the basis of their income levels which range between $4,806 and $12,615.

Data on poverty (real per capita consumption expenditure), financial development (M) proxied by broad money supply as a percentage of GDP, and economic growth proxied by real GDP (Y) and gross capital formation as the percentage of GDP (K) were the key variables sourced and employed in this study.

2.5. DEFINITION AND MEASUREMENTS OF VARIABLES

Financial development is measured by broad money supply as percentage of gross domestic product M_2/GDP (Jeanneney and Kpodar, 2008).

Economic growth is an increase in the capacity of an economy to produce goods and services, compared from one period of time to another. Economic growth can be measured either as nominal or real. This study use real GDP which is the value of the goods and services produced by an economic entity in a specific period, adjusted for inflation.

Gross capital formation also known as capital accumulation, refers to the increase in the stock of real capital in an economy during an accounting period (a year or a quarter). Capital formation involves the creation of more capital goods such as buildings, tools, vehicles, etc. which is used for producing goods and providing services. Traditional economists like Adam Smith, J.S Mill modern economists like Harrod, Domar, etc., have identified capital formation as the most important factor of economic development as percentage of GDP. Thus, gross capital formation as percentage of GDP is used as a control variable in this study.

The poverty headcount ratio according to UNDP (2005) is the national population whose incomes are below the official threshold (or thresholds) set by the national government. According to WDI (2011) poverty headcount ratio is the percentage of the population living on less than $1.25 a day at 2005 international price. However, the key weakness in this measure is that it only measures changes in income that cross the poverty line and ignores shifts below the poverty line. If a poor person becomes poorer, this is not reflected in the headcount index (Roemer and Gugerty, 1997). Due to the unavailability of poverty headcount ratio and other poverty indicator data and the shortcomings of the measure, real per capita consumption expenditure is employed as appropriate measure of poverty in this study. This is obtained by dividing consumption expenditure by countries' population and consumer price index.

3. DATA ANALYSIS AND RESULTS

Table 1. *Test statistics and choice of criteria for selecting order of VAR model. The underlying endogenous variables consist of financial development (LM), economic growth (LY) and poverty level (LPov) in the upper middle-income countries.*

Log L	LR	FPE	AIC	SC	HQ
-234.93	NA	0.007004	9.228090	9.415710	9.300019
324.7978	990.2883	8.24e-12	-11.33838	-10.21266*	-10.90680*
353.7591	45.66972	7.27e-12	-11.49074	-9.42692	-10.69952
376.8433	31.96272	7.27e-12	-11.41705	-8.415137	-10.26619
400.6124	28.34010	1.01e-11	-11.36971	-7.429697	-9.859201

452.1592	51.54679*	4.68e-12*	-12.39074	-7.51263	-10.52059
484.0743	25.77761	5.45e-12	-12.65671*	-6.840498	-10.42691
508.0213	14.73657	1.13e-11	-12.6162	-5.861898	-10.02676

Source: Authors' computation,2018

LR: sequentially modified LR test statistic (each test at 5% level).FPE: Final prediction error

AIC: Akaike information criterion. SC: Schwarz information criterion. HQ: Hannan-Quinn information criterion

From the table, the Akaike Information Criteria (AIC) indicates the optimal lag length of 6. The Schwarz Criteria (SC) indicates the optimal lag length of 1 while Hannan-Quinn Information (HQ) also indicates an optimal lag length of 1. The selection of lag length was based on the HQ information criterion because HQ imposes a harsher penalty than AIC. Thus, the lag length of order 1 was considered based on the information criterion.

Table 2. *Panel Unit Root Test Results*

		ADF			PPF	
Variables	Level	1st Difference	Status	Level	1st Difference	Status
LPov	14.349 (0.073)	37.052* (0.000)	I(1)	43.178* (0.000)	65.683* (0.000)	I(1)
LY	20.629* (0.024)	31.01* (0.001)	I(1)	24.804* (0.006)	38.517* (0.000)	I(1)
LM	5.404 (0.863)	71.399* (0.000)	I(1)	5.468 (0.858)	75.685* (0.000)	I(1)
LK	21.135* (0.020)	109.171* (0.000)	I(1)	27.454* (0.002)	120.811* (0.000)	I(1)

Source: Authors' computation, 2018.

*NB: *implies the rejection of the null of non-stationarity (unit root) at 0.05 significance levels.ADF-Fisher Chi-Square, PP-Fisher Chi-square: with the Null of Unit root (assume individual unit root process)*

The unit root results show that the series could adequately be regarded as a random walk when they are in their levels but are mean reverting after first differencing all variables LPov, LY, LM and LK are stationary after difference. We, therefore, reject H_0: non-stationarity for all variables after first differencing.

Table 3. *Pedroni Residual Panel Co-integration test results*

Panel Statistics					Group Statistics		
	V	rho	PP	ADF	rho	PP	ADF
Statistics	0.919	-0.816	-2.476*	-2.316*	0.91	-2.292*	-3.511*
WeightedStat.	0.124	-0.634	-2.812*	-2.785*			

Source: Authors' computation, 2018

Note: V is non-parametric variance ratio statistic; rho is non-parametric test statistic analogous to the Phillips and Perron (PP) rho statistic; PP is non-parametric statistic analogous to the PP statistic; ADF is parametric statistic analogous to the augmented Dickey-Fuller statistic.
**Null of no cointegration is rejected at the 5 percent level.*

Decision Rule: Reject H_0 if the computed statistic at 5% significance level is greater than 1.645 or less than -1.645 otherwise accept H_0.

The result shows that out of the seven statistics, four are significant indicating a rejection of H_0 thus confirming the presence of cointegration. It can thus be inferred that cointegration exists among financial development, capital stock, economic growth and poverty level in upper-middle, meaning that the variables move together in the long-run.

Table 4. *Kao Residual Panel Cointegration Test*

t-Statistics		P-value
ADF	-3.359*	0.0004

Source: Authors' computation, 2018 .
*Note: * implies 5% level of significance* .Series: *LPov, LY, LM and LK*

Evidence from Kao residual panel co-integration test indicates rejection of H_0 at 5% significance level. From table 4 empirical results show that long-run relationship exists among the variables included in the model. From tables 3 and 4 H_0 is rejected at the 5 percent level of significance.

Panel Impulse Response Analysis

For the purpose of examining the effects of shocks to the adjustment path of financial development, economic growth and poverty level (real per capita consumption expenditure), the impulse response functions (IRFs) estimated from the panel VAR models were employed. Table 5 shows the estimated IRFs when non-recursive identification is used. The IRFs indicates the direction and size of the effect of a one standard deviation shock to one variable on other system variables over time.

Table 5: *The impulse responses from recursive VEC model for five upper-middle income SSA countries*

Response of poverty $\Delta(LPov)$					Response of Economic Growth $\Delta(LY)$			
Period	$\Delta(LPov)$	$\Delta(LY)$	$\Delta(LM)$	$\Delta(LK)$	$\Delta(LPov)$	$\Delta(LY)$	$\Delta(LM)$	$\Delta(LK)$
1	10.436 (0.682)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.026 (0.008)	0.090 (0.000)	0.000 (0.000)	0.000 (0.000)
2	4.1782 (0.892)	0.076 (0.436)	0.464 (0.986)	2.106 (0.954)	-0.009 (0.010)	0.075 (0.006)	-0.006 (0.009)	-0.024 (0.0087
4	1.116 (0.532)	0.139 (0.485)	0.076 (0.212)	0.383 (0.275)	-0.008 (0.010)	0.050 (0.007)	-0.003 (0.005)	-0.014 (0.006)

6	0.274 (0.223)	0.1160 (0.387)	0.013 (0.059)	0.072 (0.129)	-0.006 (0.008)	0.034 (0.008)	-0.002 (0.004)	-0.009 (0.004)
8	0.060 (0.080)	0.084 (0.277)	-0.000 (0.023)	0.003 (0.078)	-0.004 (0.005)	0.023 (0.007)	-0.001 (0.002)	-0.006 (0.003)
10	0.009 (0.039)	0.058 (0.191)	-0.002 (0.014)	-0.009 (0.053)	-0.002 (0.004)	0.0159 (0.006)	-0.001 (0.001)	-0.004 (0.002)
Response of financial development $\Delta(LM)$					Response of gross fixed capital formation $\Delta(LK)$			
Period	$\Delta(LPov)$	$\Delta(LY)$	$\Delta(LM)$	$\Delta(LK)$	$\Delta(LPov)$	$\Delta(LY)$	$\Delta(LM)$	$\Delta(LK)$
1	-0.304 (0.399)	0.103 (0.399)	4.315 (0.282)	0.000 (0.000)	-0.026 (0.015)	0.025 (0.015)	-0.005 (0.015)	0.169 (0.011)
2	0.652 (0.347)	0.311 (0.164)	-0.233 (0.401)	0.215 (0.392)	0.032 (0.014)	0.022 (0.007)	-0.005 (0.016)	-0.026 (0.015)
4	0.1246 (0.092)	0.213 (0.108)	-0.003 (0.033)	0.002 (0.048)	0.003 (0.004)	0.015 (0.004)	-0.001 (0.002)	-0.003 (0.002)
6	0.015 (0.041)	0.147 (0.078)	-0.006 (0.017)	-0.026 (0.027)	-0.000 (0.002)	0.0104 (0.003)	-0.001 (0.001)	-0.002 (0.001)
8	-0.007 (0.025)	0.101 (0.056)	-0.005 (0.012)	-0.024 (0.019)	-0.001 (0.002)	0.007 (0.003)	-0.000 (0.001)	-0.002 (0.001)
10	-0.009 (0.017)	0.068 (0.041)	-0.004 (0.008)	-0.018 (0.014)	-0.001 0.001	0.005 (0.002)	-0.000 (0.001)	-0.001 (0.001)

Source: Authors' computation,2018.

Cholesky Ordering: *LPov, LY, LM and LK*

The interpretation of impulse response results relies heavily on the signs than on the magnitude of the estimated coefficient because the magnitude shows the statistical influence while the signs provide the relevant information for the analysis of the impact.

From table 5 panel 1, we note that a shock to real per capita consumption expenditure $(LPov)$ creates expansionary effect on actual poverty level in period 1 to 10. The coefficients of the estimate were positively signed from period 1 until the end of the time horizon (short-, medium- and long-run).

A shock to economic growth (LY) had no immediate effect on poverty level. The estimated value was positively signed in period 2 until end of the time horizon. The implication is that, to increase real GDP, real per capita consumption expenditure would have to increase and poverty level would have to reduce. This corresponds with the findings of Boukhatem (2015), Ayyagari et al (2013) and Jeanneney and Kpodar (2008) that economic growth helps in reducing poverty level.

A shock to financial development (LM) had no immediate effect on poverty level. From period 2 to period 7, financial developments was positively signed but negatively signed later. This indicates that in the short and medium financial development had expansionary effect on poverty level while in the long runs it had contractionary effect on poverty. This is in line with the findings of

Fowowe and Abidoye (2012) that financial development does not significantly influence poverty in SSA countries.

Moreover, a shock to gross capital formation as percentage of GDP would produce no immediate effect on poverty level. The estimated coefficient had zero (0.000) value in period 1 with positive value in period 4 till period 8 and was negatively signed in period 9 and period 10. This indicates that a shock to gross capital formation would produce no effect in the short run and positive effect on poverty level in the short and medium run, but in the early long run had contractionary effect.

From panel 2, we note that a shock to poverty level had negative effect on economic growth from period 1 till the end time horizon. This indicates a contractionary effect in short run, medium and long-run, this is explained by the findings of Ravallion and Chens (2007). Also, a shock to financial development had no immediate effect on economic growth and is negatively signed from period 2 until the end of the horizon. This indicates contractionary effect of financial development on economic growth in the short-, medium- and long- runs. This is in contrast to the findings of Holden and Prokopenko (2001) and Khan et al (2005) that financial development promotes economic growth. A shock to gross capital formation as percentage of GDP would produce no immediate effect on economic growth but negatively signed from periods 2 until the end of the time horizon. Thus, this indicates an increase in gross capital formation as percentage of GDP decreased the short, medium and long runs economic growth.

A shock to economic growth would produce positive effect on economic growth in period 1 until the end of the time horizon. The implication is that an increase in economic growth would increase economic growth in the short, medium and long run.

From panel 3, we note that a shock real per capita consumption expenditure proxy for poverty level would produce negative effect in period one but positive effect in period 2 to 5. In period 6 to 10, the shock had negative effect on financial development. This indicates that in the immediate short run, there was contractionary effect while in the late short run and medium run there was expansionary effect. In the long run, however, there was contractionary effect of poverty level on financial development. Also, a shock to economic growth had positive effect on financial development in the short run, medium and long run. This is in line with the findings of Khan et al (2005) that a stable long-run relationship between economic growth and financial depth. Also, a similar result was obtained by Shan and Jianhong (2006) that financial development and economic growth exhibit a two-way causality in the long run.

A shock to financial development induced positive effect on financial development in the short run but negative effect in the medium and long run. This indicates expansionary effect in short run and contractionary effect in medium and long run. A shock to gross capital formation had no immediate effect on financial development while in the short run it had positive effect and in the medium and long run, the effect is negative.

Forecast error Variance Decompositions of financial development, economic growth and poverty level.

The results of forecast Error variance decomposition generated from the Vector Error Correction estimated for five upper-middle income countries are presented in table 6.

Table 6. *Error variance decomposition generated from the Vector Error Correction*

Variance Decomposition of $\Delta(LPov)$						Variance Decomposition of $\Delta(LY)$				
Period	S.E.	Δ(LPov)	Δ(LY)	Δ(LM)	Δ(LK)	S.E	Δ(LPov)	Δ(LY)	Δ(LM)	Δ(LK)
1	10.436	100.00	0.000	0.000	0.000	0.094	7.835	92.164	0.000	0.000
2	11.447	96.444	0.004	0.164	3.385	0.123	5.181	90.501	0.244	4.072
4	11.757	96.154	0.031	0.171	3.643	0.149	4.384	90.427	0.280	4.907
6	11.776	96.120	0.053	0.171	3.654	0.160	4.170	90.353	0.293	5.182
8	11.778	96.108	0.065	0.171	3.654	0.164	4.093	90.320	0.298	5.288
10	11.778	96.102	0.071	0.171	3.654	0.167	4.060	90.305	0.300	5.333

Variance Decomposition of $\Delta(LM)$						Variance Decomposition of $\Delta(LK)$				
Period	S.E.	Δ(LPov)	Δ(LY)	Δ(LM)	Δ(LK)	S.E	Δ(LPov)	Δ(LY)	Δ(LM)	Δ(LK)
1	4.327	0.494	0.057	99.447	0.000	0.173	2.302	2.183	0.083	95.430
2	4.399	2.680	0.555	96.523	0.239	0.179	5.395	3.542	0.169	90.891
4	4.422	3.127	1.108	95.523	0.241	0.181	5.421	5.169	0.171	89.237
6	4.428	3.132	1.376	95.243	0.246	0.182	5.377	5.925	0.172	88.525
8	4.431	3.128	1.502	95.115	0.253	0.182	5.359	6.271	0.172	88.195
10	4.433	3.127	1.560	95.054	0.257	0.182	5.353	6.430	0.173	88.042

Source: Authors' computation, 2018

Cholesky Ordering: LPov, LY, LM , LK

Table 6 panel 1 depicts the proportion of forecast error variance in per capita consumption expenditure $(LPov)$, explained by innovation to the considered endogenous variables. The magnitude of $LPov$ varied between 100 percent in period 1 and 96.10 percent in period 10. The coefficient of LY increased from 0.00 percent in period 1 to 0.71 percent in period 10. The magnitude of LM varied between 0.00 percent in period 1 to 0.17 percent in period 10 while the magnitude of LK varied from 0.00 in period 1 to 3.65 percent in period 10. Thus, Aside from real per capita consumption expenditure, gross capital formation followed by economic growth and financial development were capable of explaining variations in poverty level in the long run.

The second panel in table 6 depicts the proportion of forecast error variance in real GDP (LY) explained by innovation to the specified endogenous variables. The magnitude of $LPov$ decreased from 7.83 percent in period 1 to 4.06

percent in period 10. The coefficient of LY varied between 92.16 percent in period 1 and 90.31 percent in period 10. The magnitude of LM varied between 0.00 percent in period 1 to 0.30 percent in period 10 while the magnitude of LK increased from 0.00 in period 1 to 5.33 percent in period 10. Thus, apart from economic growth that has potential to explain own variation, poverty level also has potentials to explain variation in financial development than other endogenous variables considered.

The third panel in table 6 depicts the proportion of forecast panel error variance in broad money supply as percentage of GDP proxy for financial development (LM) explained by innovations to the endogenous variables considered. The magnitude of $LPov$ varied between 0.49 percent in period 1 to 3.13 percent in period 10.The magnitude of LY varied between 0.057 percent in period 1 to 1.56 percent in period 10.The magnitude of LM fell from 99.45 percent in period 1 to 95.05 percent in period 10. The magnitude of LK increased from 0.00 percent in period 1 to 0.25 percent in period 10. It can thus be inferred that, apart from economic growth itself, poverty level have greater potential to contribute to variations in financial development in the long run. The result of impulse response analysis reveals that financial development is a weak channel between economic growth and poverty level in five upper-middle income countries.

The results of Panel VEC Granger Causality/ Block Exogeneity Wald Tests.

The results of multivariate panel vector error correction are presented in table 7.

Table 7. *Multivariate Panel VECM Causality*

Variable	Short run				Long run ECT(-)	Joint Causality
	Δ(LPov)	Δ(LY)	Δ(LM)	Δ(LK)		
Δ(LPov)	_____	3.0567*** (0.0804)	2.3392 (0.1261)	3.8587** (0.0495)	-0.1057* 0.0041	12.3229*. (0.0064)
Δ(LY)	0.2752 (0.5998)	_____	2.6033 (0.1066)	5.42** (0.0199)	0.00131* (0.0001)	18.0781* (0.0012)
Δ(LM)	1.0086 (0.3152)	0.0456 (0.8404)	_____	11.9566* (0.0005)	0.0553* (0.0024)	15.9789* (0.0030)
Δ(LK)	0.3293 (0.5661)	8.5958* (0.0034)	10.8163* (0.0010)	_____	0.004967* (0.0000)	117.225* (0.0000)

Source: Authors' computation.

Notes: *, **, and *** indicate causality at 1%, 5%, and 10%. *LPov, LY, LM and LK represent poverty index, natural log of real GDP, natural log of broad money supply as a percentage of GDP, and natural log of gross capital formation respectively. Figures in the squared parentheses "()" represent probabilities values of the Chi-square.*

If long run relationship could be established among the variables, there must exist at least a unidirectional causality running among the variables. We, therefore, investigate the causality within the framework of Vector Error

Correction model (VECM). The results contained in table 7 show that there is unidirectional causality running from economic growth to poverty level in the short run. This pattern of relationship supports the work of Ravallion and Chen (2007). In addition, there is joint causality running among all the variables meaning that if short and long run causalities are jointly considered, there is ample evidence that there would be feedback effects running among the variables. This result appears to suggest that financial development has great potentials if well directed towards achieving real output growth in upper-income countries. The result of long run causalities is similar to that of the strong causality depicting an evidence of bi-directional causalities among financial development, economic growth and poverty level variables.

4. CONCLUSION AND POLICY IMPLICATIONS

The findings reveal that development in financial sector is not well intimately connected to economic growth, even though economic growth has enormous potentials to reduce poverty in upper middle-income countries of SSA. Thus, financial development may not be an effective and dependable mechanism that could substantially impact on economic growth to achieve a reduction in poverty level in its present state. We, therefore, recommend sound reformation of financial development institutions capable of reducing poverty level in upper-middle income SSA. It is recommended that the deposit money banks capital base could be reviewed upwards to ensure effective performance of their legitimate functions that will go a long way towards enhancing economic growth in SSA countries.

Furthermore, the fact that most SSA countries experienced positive growth despite the weak impact of financial development on economic growth within the study period tends to suggest that there is the likelihood that some other inherent critical factors could have driven the growth in SSA economies. A contributor to growth in this period is the rise in petroleum oil prices which could not be sustained due largely to the volatile nature of the international prices of oil. Thus we suggest that policy makers should initiate policies and programmes with medium- and long-term focus towards achieving sustained economic growth. We suggest huge investment in the area of infrastructure and development of critical technical skills that are required for speedy economic development.

The result obtained from this study makes it pertinent for the policy makers in the upper middle-income SSA countries to restructure their financial policy strategies. Policies aimed at positioning adequately banking sector towards contributing to the enhancement of economic growth leading eventually to poverty reduction are advocated. For example, we recommend that deposit money banks' capital base should be revised upward. In addition, policy makers could initiate policies aimed at bank portfolio restructuring channelled towards improving key

sectors like manufacturing and energy in the upper middle-income SSA countries. Moreover, Central Bank's reserves could be channelled toward rescuing failed financial institutions in SSA economies to improve their ability to contribute to economic growth.

REFERENCES

Akhter, S. and Daly, K. (2009). Finance and poverty: evidence from fixed effect vector decomposition. *Emerging Markets Review 10,* 191–206.

Agrawal, P. (2008). Economic growth and poverty Reduction: Evidence from Kazakhstan. *Asian Development Review, 24*(22), 90-115.

Ayadi, R., Arbak, E., Ben, N. S. and De Groen, W. P. (2013). Determinants of financial development across the Mediterranean. *Med pro technical report no 29/February 2013. MEDPRO (www.medpro-foresight.eu) and CEPS (www.ceps.eu) websites*

Ayyagari, M., Beck, T. and Hoseini, M. (2013). Financial and poverty: Evidence from India. *Available at: https://assets.publishing.service.gov.uk/media/57a08a54e5274a27b200053f/61070_Finance_Poverty_India.pdf*

Boukhatem J. (2015). Assessing the direct effect of financial development on poverty reduction in a panel of low- and middle-income countries. *Research in International Business and Finance. Available at: http://dx.org/10.1016/j.ribaf. 2015.11.008*

Christiaensen, L., Demery L., and Paternostro S. (2003). Macro and Micro Perspectives of Growth and Poverty in Africa. *World Bank Economic Review, 17,* 317-34

Department for International Development (2004). The importance of financial sector development for growth and poverty reduction. policy *division Working paper, financial sector term, DFID, London. Available at: http:purl.umn.edu /12886*

Dollar, D. and Kraay, A. (2000). Growth is Good for the Poor. *The World Bank, Washington D.C*

Fowowe, B. and Abidoye, B. (2011). A quantitative assessment of the effect of financial development on poverty in African countries. Available at: *https://pdfs.semanticscholar.org/68ce/2c5c9b0e845bdb5c09d782b85d5e3b7d1dba.pdf*

Fulford, S. (2011). The effects of financial development in the short and long run. *Journal of Development Economics*, 104, 56-72, Available at: https://www.sciencedirect.com/science/article/pii/S0304387813000680, DOI: https://doi.org/10.1016/j.jdeveco.2013.04.005

Global Finance (2014). Mauritius financial sector overview. *Leading voice of the Financial Industry,* Available at: http://www.globalfinance.mu/files/20150929/Country-Report-Mauritius.pdf

Goodness, C. A. (2015). Causality between Financial Deepening and Economic Growth in Nigeria: Evidence from a Bootstrap Rolling Window Approach. *Journal of Economics, Business and Management, 3*(8), 795-801.

Holden, P. and Prokopenko, V. (2001). Financial development and poverty reduction issues and policy implications for developing and transition countries. *IMF Working Paper No.WP/01/160.*

Im, K. S., Pesaran, M. H. and Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics 115, 53–74.*

International Fund for Agricultural Development (2014). Investing in rural people in Angola. *Rural Poverty in Angola, Available at: http://www.ruralpovertyportal.org.*

Jeanneney, S. G. and Kpodar, K. (2008). Financial development and poverty reduction: can therebe a benefit without a cost? *International Monetary Fund, IMF Working Paper, African Department, WP/08/62.*

Joseph, F. (2012). Agricultural Investment, growth and Poverty reduction: What will be the outcomes of the comprehensive Africa Agricultural Development Program in Guinea-Bissau? *Journal of Development and Agricultural Economics, 4(1), 1-16.*

Kakwani, N., Khandker, S. and H. H. Son (2004). Pro-poor growth: concepts and measurement with country case studies. *IPC Centre, UNDP, IPC Working Paper No 1.*

Khan, A.D., Ahmad, I. and Jan, W. U. (2012). Financial development and poverty alleviation: time Series evidence from Pakistan. *World Applied Sciences Journal, 18,* 1576-1581

Khan, M. A., Qayyum, A., and Sheikh, S. A. (2005). Financial development and economic growth: the case of Pakistan. *The Pakistan Development Review 44(4)* Part II *(Winter 2005),* 819–837

Levine, R., Loayza, N., and Beck, T. (2000). Financial intermediation and growth causality and causes. *Journal of Monetary Economics, 46, 31–77.*

Lustig, N, Arias O. and Rigolini, J. (2002). Poverty Reduction and Economic growth: Atwo-way causality. *Sustainable Development Technical papers Series.*

McKinnon, R. I. (1973). *Money and capital in economic development*. Washington, DC: Brookings Institution

Pedroni, P. (1999). Critical values for cointegration tests in heterogeneous panel with multiple regressors. *Oxford Bulletin of Economics and Statistics 61(Special Issue),* 653-670.

Pedroni, P. (2001). Panel cointegration, asymptotic and finite sample properties of pooled time series tests with an application to the PPP hypothesis. *Econometric Theory, 20,* 597-625, DOI: 10.10170S0266466604203073

Pradhan, R. P. (2010). The nexus between finance, growth and poverty in India: the Cointegration and causality approach. *Asian Social Science, 6(9),* 114-122, Available at: https://pdfs.semanticscholar.org/b0e5/e9098e5bc09e0b5832ad4a310a0bba0c2aa6.pdf

Ravallion, M and Chen, S. (2007). Absolute poverty measures for the developing world (1981–2004). *PNAS 104, 16757–16762*

Reomer, M. and Gugerty, M. (1997). Does economic growth reduce poverty. *Technical paper Harvard Institute for International Development,* Available at: https://www.researchgate.net/profile/Mary_Kay_Gugerty/publication/237498216_DOES_ECONOMIC_GROWTH_REDUCE_POVERTY_Technical_Paper/links/57dc0dc708aeea195935bbb3/DOES-ECONOMIC-GROWTH-REDUCE-POVERTY-Technical-Paper.pdf

Rural Poverty Portal (2014). Rural poverty in Angola. *IFAD.* Available at: http://www.ruralpovertyportal.org

The Africa Wealth Report (2016). Agencies and Mail & Guardian Africa. Available at: mgafrica.com/article/2016-03-30

Sandrine, K. (2010). Banking efficiency and financial development in sub-Saharan Africa. *IMF Working paper, wp/10/136*

Sengupta, A. (2003). Poverty Eradication and Human Rights. *Paper presented at UNESCO Seminar. September 2003.* Available at: http://content-ext.undp.org/aplaws_publications/1873321/povertyreduction-humanrights0603%5B1%5D.pdf

Shan, J. and Jianhong, Q. (2006). Does financial development lead economic growth? The case of China. *Annals of Economics and Finance, 1,* 231-250.

Shaw, E. S. (1973). *Financial deepening in economic development*. New York: Oxford University Press.

Uddin, G. S., Shahbaz, M. and Arouri, M. E. (2013). Financial development and poverty reduction nexus: A cointegration and causality analysis in Bangladesh. Available at: http://mpra.ub.unimuenchen.de/49264/MPRA, *Paper No. 49264, posted 23. UTC*

Uddin, G. S., Shahbaz, M., Arouri, M. and Teulon, F. (2014). Financial development and poverty reduction nexus: A cointegration and causality analysis in Bangladesh. *Economic Modelling, 36,* 405-412.

United National Development Programme (2005). Statement on poverty. *United Nations Website accessed at http:/www.un.org/esa/socda/unvin/documents /ydiDavidGordonpoverty.pdf*

World Bank (2011) .World development report 200l: conflict, security, and development. Available at: *http://wdr 2011.worldbank.org/full text.*

World Development indicators (2016). Available at: *databank.worldbamk.org/data/reports.Aspx?Source=2&series=SI.POV. DDAY &country=WLD*