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FINANCIAL INSTITUTIONS DEVELOPMENT AND PER CAPITA INCOME IN SUB-SAHARAN
AFRICA: A DYNAMIC PANEL GMM APPROACH

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Abstract

This study investigates the effect of financial institutions development on per capita income in Sub-Saharan Africa using the dynamic panel GMM approach. Financial institutions development is measured by three dimensions of financial institution development: access, depth and efficiency, while per capita income is measured in real terms. The data used were collected at yearly interval and have a panel structure, comprising all 48 countries in the Sub-Saharan African region over the period from 2000 to 2017. The empirical analysis is based on the Arellano-Bond first difference approach using lagged levels of the endogenous variables to control the endogeneity problem associated with dynamic panel models. The results from the empirical analysis show that all the dimensions of financial institution development are positively related to per capital income, with both their individual and collective impacts being highly statistically significant. The results also show that per capita income in Sub-Saharan African countries is persistent being significantly determined by its one-period lagged value. Thus, improving financial institutions in terms of access, depth and efficiency would lead to higher per capita income, a prerequisite for economic development in Sub-Saharan Africa.

Keywords: Financial institutions development, per capita income, dynamic panel GMM

Introduction

Development economists have long postulated that the development of the financial system and economic development are closely intertwined (Demirguc, Kunt & Levine, 2001). A necessary condition for the economic development in any economy is truly a well-developed, efficient, organized and viable financial system. Hence, the financial sector

occupied an important position in performing the development activities and acted as a catalyst to economic growth.

The importance of the financial sector development contribution towards economic development has been extensively discussed in the literature more than decades ago starting from earlier works of Mills (1871), Bagehot (1873), Schumpeter (1911), Gurley and Shaw (1955), Goldsmith (1969), McKinnon (1973) and Shaw (1973), who emphasised the role of the financial sector in economic development. The evidence becomes stronger and even more convincing after studies by Levine (1997), Levine and Zervos (1996), Leven (2003), Demetriates and Andrianaivo (2004) and Beck (2006) that find the level of financial development as a good determinant for future economic growth, capital accumulation and technological change.

Schumpeter (1911) discovers a well-functioning financial system that provides various services; mobilizing savings, evaluating projects, managing risks, monitoring managers and facilitating transactions and promoting technological innovations, all of which lead to economic growth. Schumpeter (1911) further argued that the importance of financial intermediaries in extending credits facilities to entrepreneurs as a key point in promoting economic growth since it can begin to stimulate other financial activities and innovations that eventually encourage economic circulations. Therefore, since investment is assumed to be financed by the creation of bank credit, it increases income and prices and this help to create an expansion throughout the economy thereby encouraging economic development (Schumpeter, 1911).

Meanwhile, there is consensus in literature that financial development has a robust positive relationship to economic development. Higher level of financial development suggests that well-functioning financial sectors are efficient in allocating capital to its most productive use. Beck et al., (2000) contend that development of the banking sector and the stock market were highly correlated with the economic development and both exerted an important impact on development of a country. Accordingly, Levine (1997) posits that countries with developed banking sector and dynamic stock markets grow faster over the period compared with the countries with lagged financial system. Goldsmith (1969) argued that the observed positive correlation between the size of the financial system and economic growth is driven by financial intermediation improving the efficiency rather than increasing the volume of investment. Furthermore, Demirgüç-Kunt and Levine (1996) find that countries with a well-developed stock market also have well-developed banks and non-bank financial intermediaries. This suggests that intermediaries and markets are complements in providing growth-promoting financial services.

In contrast, Rajan and Zingales (2003) argued that the structure of the financial system might experience large reversals when a political majority decides to change the legal system underlying corporate financing and governance. Accordingly, Tadesse (2001) finds that the difference between bank-based and market-based financial systems is important in explaining economic growth. Also, the result shows that in countries with an underdeveloped financial system, bank-based systems outperform market-based systems. However, in countries with developed financial systems, market-based systems outperform bank-based systems. He reported that a lack of fit between the country's financial system architecture and its legal institutions can restrain economic performance.

The major challenge observed from all related empirical literature is that the broad measures of financial development capture only partially the various functions of finance, such as its ability to pool savings, allocate capital to productive investment, facilitate risk

management, exert corporate control, and facilitate exchange of goods (Levine 2005). This study addresses the challenge by relying on a broad set of indicators to develop a more comprehensive index of financial development and economic development in general and SSA countries in particular.

Prior studies employed either banks or stock market variables in their analysis of the relationship between financial system development and economic growth and development in both developed and developing countries without considering insurance companies, pension and mutual funds, etc. thus, policy implementation from such findings cannot assist the developing economies to attain economic developmental goal are economic developmental goals are tackled with developmental indicators. Hence, on data coverage, this study contributes significantly to knowledge by adopting more comprehensive measure of financial system development (financial institutions and markets access, depth and efficiency) on economic development (per capita income, education, through a mix of combined gross enrolment ratio and adult literacy rate; health (longevity), through life expectancy at birth; and decent standard of living) to investigate relationship between financial and economic development in SSA countries.

Accordingly, it can be concluded that economic development as captured by its dimensions depends largely on the size of country's financial sector development (ability of financial sector to mobilize productive savings, allocate resources efficiently, smooth volatility and increase growth) and this to a large extent explains the disparity in growth and development rates across countries. It is within this context that this study seeks to investigate empirically the impact of financial institution development on per capita income in all 48 Saharan African SSA countries within the econometric framework of dynamic panel GMM using the Arellano-Bond first difference approach. We consider the three dimensions of financial institution development: access, depth and efficiency, focusing on the extent to which each of these dimensions affects per capital income using a sample that covers from 2000 to 2017.

The rest of this paper is structured into four sections. In section 2, we present the literature review on financing decisions and the market value of firms in Nigeria. Section 3 is data issues and methodology. Sections 4 and 5 contain empirical analysis and conclusions respectively.

Literature Review

Financial Intermediation Theory

Financial intermediation involves the process of matching lenders with excess funds (savings) with borrowers who need the money through a third-party agent such as a bank. The theory of financial intermediation was first formalized by Goldsmith (1969). The intermediation theory is built on models of resource allocation that are based on perfect and complete markets. According to Goldsmith, the differences in economic growth as witnessed in different countries was a function of the quality and quantity of services provided by their financial institutions, as they have the ability to influence more efficient use of capital (Levine, 2004). The basis of complete perfect markets which this theory is based on comes from the basic assumptions of the neoclassical model that include lack of competitive advantages and little or no transaction costs in getting information as it is freely available to all participants in the market.

These assumptions are however not realized in the real world due to various market imperfections such as asymmetric information which increases transaction costs and result

in other having a competitive edge over others. Financial intermediaries, therefore, exist to remove these imperfections and they do it in many ways. Intermediaries remove transaction costs by sharing or diversifying the evaluation of assets fixed costs, something individuals find difficult to do. This means that business is diversified by financial intermediaries such as banks and with that costs are able to be reduced through economies of scale.

Asymmetric information is removed through intermediaries as they act as delegated monitors for the lenders through collecting information on the borrower and also doing a number of screenings (for banks they look at credit worthiness of borrowers). Financial intermediaries also signal an informed position by investing in the assets they have particular knowledge of as they do extensive research about the market that some individuals can not readily and actively do. Intermediaries like banks also provide commitments to long term relationships with customers and thereby creating a relationship with the customer, removing the problem of adverse selection and moral hazard (Gwilym, 2008). The intermediation theory however only recognizes the importance of financial intermediaries in the economy for the role of removing transaction costs and asymmetric information.

Empirical Review

Using ordinary least regression (OLS) method, Ndebbio (2004) studied the relationship between financial deepening and economic growth and development using selected sub-Saharan African countries for just one decade (from 1980-1989). He used M2/GDP and growth rate of per capita real money balances (PCRMB) to represent financial deepening and other control variables which affect economic growth such as the rate of inflation, human capital and the growth rate of labour as explanatory variables as against real per capita GDP which is the dependent variable. His regression results showed that financial deepening does positively affect per capita growth of output in these selected SSA countries, even though his parameter estimate of the variable of financial deepening was insignificant in one of his equations and he attributed this to shallow finance and the absence of well-functioning capital market in most SSA countries.

Enisan and Olufisayo (2009) through autoregressive distributed lag (ARDL), evaluate the long-run relationship between stock market development and economic growth in seven of the Sub-Saharan African countries. The results indicate that stock market has a positive and significant impact on growth. Causality results indicate unidirectional causality from stock market development to economic growth for both South Africa and Egypt. While Cote D'Ivoire, Kenya, Morocco and Zimbabwe indicate bidirectional causality, Nigeria on the other hand shows weak evidence that growth causes finance.

Sunde (2012) investigates the nexus between financial sector development and economic growth in South Africa. The study makes use of the neoclassical growth model that was used by King and Levine (1993) on cross sectional data for 77 countries and Kilimani (2009) in their researches on financial development and economic growth. Utilizing real GDP, broad money as a percentage of GDP, inflation rate, real interest rate, trade openness, dummy for political instability, population and total credit as a percentage of GDP as variables and cointegration, error correction model and the Granger causality to test for the direction of causality for the period 1977 to 2009, the results of the study show that economic growth is explained by the financial sector variables and control variables such as inflation, exchange rate, and real interest rates in South Africa. The Granger causality test

results show that there is generally a bidirectional relationship between economic growth and financial sector development which implies that if the economy grows the financial services sector also grows and vice versa.

Saqib (2013) analyses the impact of development and efficiency of financial sector on economic growth of a group of selected developing countries using a cross-country data averaged over the period 2005-2009. The variables used are investment to GDP ratio, enrolment, M2 to GDP ratio, private credit to GDP ratio, spread (lending rate minus deposit rate), Trade Openness, Inflation, FDI to GDP ratio, real GDP growth and real per capita income growth. Using Autoregressive Distribution Lag (ARDL) technique, the results show that the impact of financial sector efficiency on economic growth is significantly positive for developing countries.

Rashti, Araghi, and Shayeste (2014) study the influence of financial development on economic growth. Variables used as indicators of financial development consisting of the ratio of the banking system credits to GDP, the ratio of services provided by the banking system to the private sector to GDP and the stock exchange to GDP, and variables of effective economy such as the ratio of investment to GDP and the openness of the economy and the dummy variable of 2008 financial crisis. The study focused on developed countries members of the OECD, high average income countries and low average income countries. The results of the models estimated using generalized methods of moments demonstrate that the financial crisis has had the most influence on developing countries with high average income and its effect has been less on developed countries and developing countries with low and middle average income. Moreover, indexes of financial development considered in banking sector have had negative effect on all supposed countries, but capital market shows positive effect on economic growth during 1990-2010 in the countries with low average income and negative effect on developed and high average income countries.

Alimi (2015) empirically investigating financial deepening and economic growth in 7 Sub-Saharan African: applying GMM panel data estimator for the period of 1981 to 2013. The study employed both static and dynamic panel data approach, to investigate the relationship between financial development and economic growth. Using real GDP as dependent variable and domestic credit to the private sector as a proxy for financial development, the study found that financial development has not contributed to economic growth in the panel of the selected countries, therefore thus lending support for the independent hypothesis which postulates that financial development and economic growth are causally independent. Also, using two macroeconomic control variables: real interest rate and foreign direct investment proxies by ratio of foreign direct investment inflows to GDP, the study reported that only interest rate suggested positive effect on economic growth out of the two determinants of growth considered in the estimated model.

Research Methodology

Data Description

Data used in this study consist of panel observations on all 48 countries in the Sub-Saharan African region for 18 years from 2000 to 2018. The variables are per capita income (PCI) and three indices of financial institution development: Financial Institution Access Index (FIAI), Financial Institutions Depth Index (FIDI) and Financial Institutions Efficiency Index (FIEI). While per capita income data were obtained from the World Indicators Database, all financial institutions development data were sourced from the IMF database.

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All analysis is done in EXCEL and EViews. Figures 1 to 4 show a graphical description of the data.

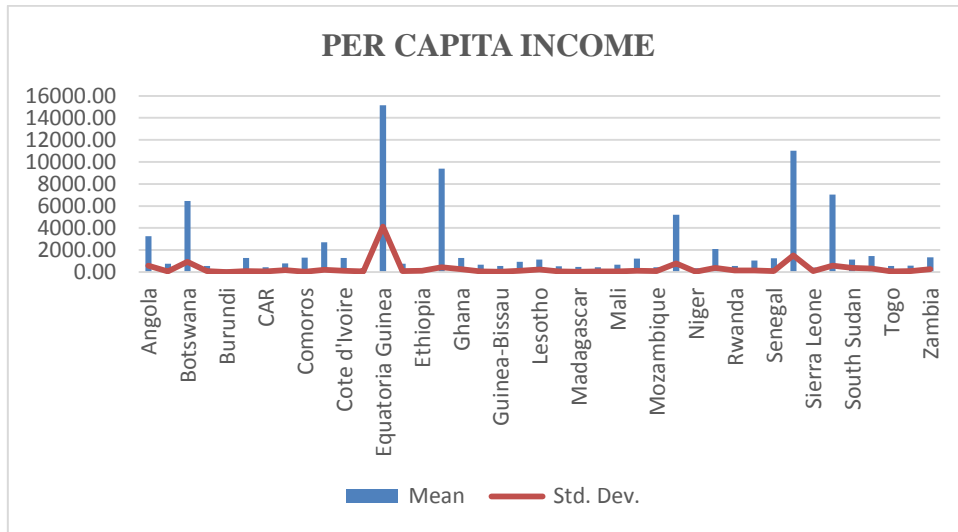


Figure 1: Mean and Standard Deviation for Per Capita Income

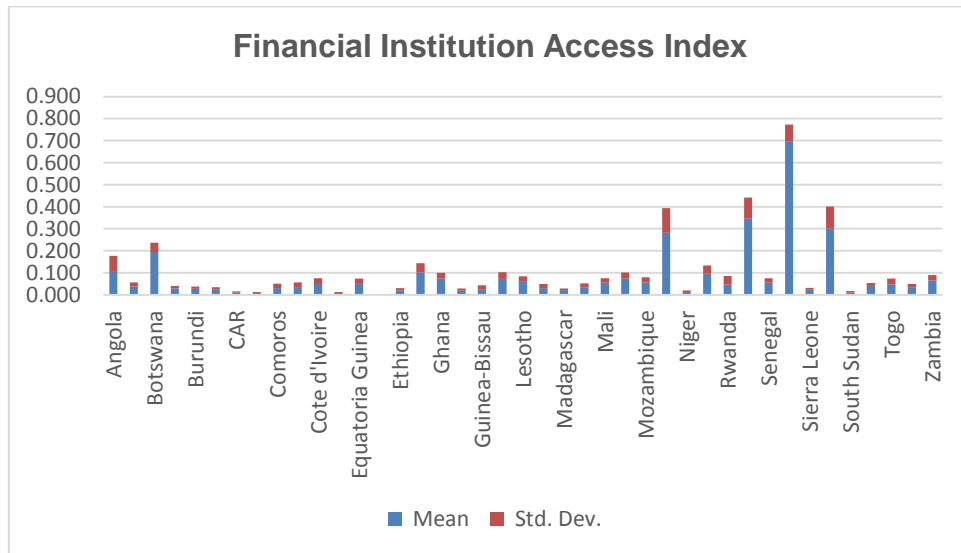


Figure 2: Mean and Standard Deviation for FIAI

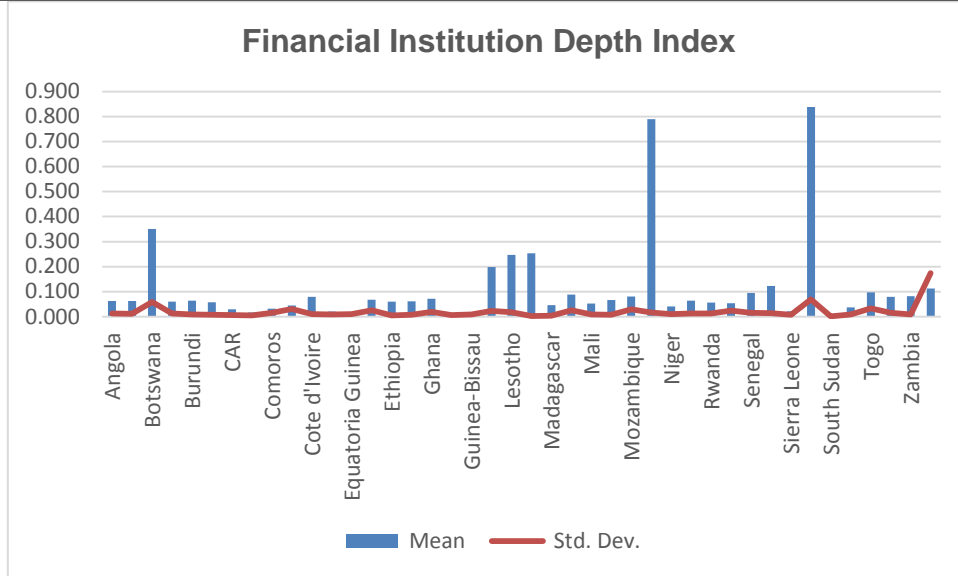


Figure 3: Mean and Standard Deviation for FIDI

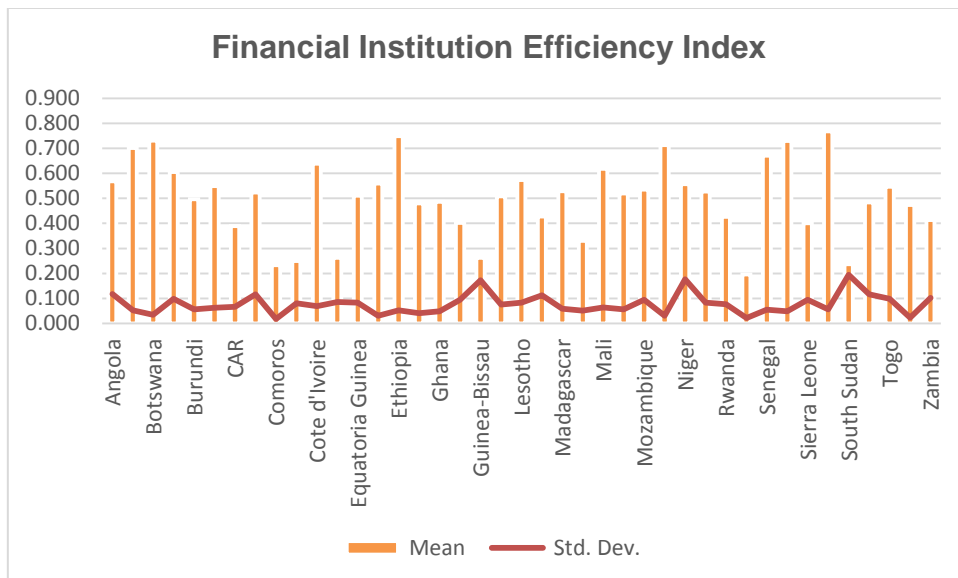


Figure 4: Mean and Standard Deviation for FIEI

Model Specification

To empirically test the effect of financial institution development on per capita income, we employed the dynamic panel GMM based on the first difference Arellano and Bond (1991) approach. This framework, which is based on instrumental variables, is particularly used because of the large body of evidence suggesting that it is suitable for controlling the possible endogeneity bias arising from the possibility that the causal link from financial institutions development and economic development can be reversed. Consistent with the main study objective, we specify the Arellano and Bond’s (1991) first difference dynamic Panel GMM model linking per capita income to the three financial institutions development proxies; *FIAI*, *FIDI* and, *FIEI* as follows:

The econometric model for the relationship between dimensions of financial development and per capita income is given as follows:

$$\Delta PCI_{it} = \gamma_0 + \gamma_1 \Delta PCI_{it-1} + \gamma_2 \Delta FIAI_{it} + \gamma_3 \Delta FIDI_{it} + \gamma_4 \Delta FIEI_{it} + e_{it}(1)$$

Where:

PCI = Per capita Income

FIAI = Financial Institutions Access Index

FIDI = Financial Institutions Depth Index

FIEI = Financial Institutions Efficiency Index

Where Δ is the first difference operator, γ_0 is the regression intercept, and e_{it} is the error term. Also, γ_1 captures the effect of past innovation in per capita income. The slope parameters, γ_2, γ_3 and γ_4 , capture the effects on per capita income on financial institutions access, financial institutions depth and financial institutions efficiency. The subscript i represents the cross-sectional dimension of the panel data while the subscript t represents the time index.

Empirical Analysis

Model Estimation and Results

For our empirical model, log of per capita income is specified to depend on the three dimensions of financial institution development; namely, financial institution access, financial institution depth and financial institution efficiency. Tables 1 and 2 show the estimation results for the dynamic panel GMM methods. Whereas Table 1 shows the model parameter estimates, Table 2 shows the model fit statistics and diagnostic tests. To control for endogeneity problem associated with dynamic panel GMM estimation, lags of the dependent variable (LPCI) from 2 to 5 as instruments for each period.

Table 1: Panel GMM Results for Model 1

Variable	Coefficient	p-value
LPCI(-1)(γ_1)	0.8040	0.0000
FIAI (γ_2)	0.2314	0.0000
FIDI(γ_3)	0.3673	0.0000
FIEI (γ_4)	0.0791	0.0000
Wald ($\gamma_2 = \gamma_3 = \gamma_4 = 0$)	17768.27	0.0000

Source: EViews output

Table 2: Model Diagnostic Tests

Statistic	Value
Instrument rank	41
J-statistic	38.789
Prob(J-statistic)	0.3889
AR(1)	-2.6046 (0.0092)
AR(2)	-1.5669 (0.1171)

Source: EViews output

From Table 1, we can see that like the case of financial market variables, γ_1 , which is the autoregressive coefficient in the LPCI model, has an estimate of 0.8040 with a p-value of 0.0000, indicating that lagged per capita income has a positive and highly significant effect on current per capita income. Again, this shows that *ceteris paribus*, an increase in the current period per capital income would lead to an increase in the next period per capita income in sub-Saharan Africa. Further, all the estimated financial institution variables; FIAI ($\gamma_2 = 0.2314$), FIDI ($\gamma_3 = 0.3673$) and FIEI ($\gamma_4 = 0.0791$), have positive coefficients,

indicating that they all move in the same direction with per capita income in sub-Saharan Africa. Also, FIAI (p-value = 0.0000), FIDI (p-value = 0.0000) and FIEI (p-value = 0.0000) all are associated with a zero probability, indicating that all their individual effects on LPCI are highly statistically significant. The Wald statistic (p-value = 0.0000) is also associated with a zero probability, indicating that the combined effect of FIAI, FIDI and FIEI on LPCI is also highly statistically significant.

From Table 2, the instrument rank is 41, which is greater than the number of the model coefficients, suggesting that our GMM model is over identified. However, the J-statistic, which tests the validity of the included instruments, has a p-value of 0.3889, indicating that the Sargan validity test is statistically insignificant. Thus, at all conventional significant levels, there is no evidence to reject the null hypothesis of valid over identifying restrictions, implying that our fitted GMM model for per capita income is well specified. Further, the first order Arellano-Bond statistic (AR(-1) = -2.6046, p-value = 0.0092) has the expected negative sign and is highly statistically, whereas the second order statistic (AR(-2) = -1.5669, p-value = 0.1171) is statistically insignificant. Therefore, we conclude that the model residuals have no serial correlation in levels, which further validates our GMM results.

Discussion of Findings

Financial Institutions Access and Per Capita Income

World Bank, (2014) report indicates that the SSA region has the least per capital income when compared with other regions. For instance, East and Pacific Asia per capital income is 5,536USD, Europe and Central Asia 7,086USD, Latin America and the Caribbean 9,314USD, Middle and East and North America 4,453USD and South Asia 1,474USD (World Bank, 2014). However, the study result reports that financial institutions access has a positive and highly significant effect on per capita income in the study SSA countries. The positive coefficient of 0.2314 on FIAI (γ_2) shows that financial institutions access moves in the same direction with per capita income in the region. The attested positive result may be attributed to the robust activity observed through reformation of the financial sector, increased in the number of commercial bank branches, increased number of ATMS and POS and others fund transfer media. The study results agree with that of Ngongan (2015) but it is contrary to that of Rafindadi and Yusof (2013).

Financial Institution Depth and Per Capita Income

The study result shows that financial institutions depth is positive and highly significant with per capita income in sub-Saharan African countries. The positive coefficient of 0.3673 on FIDI (γ_3) indicates that financial institutions depth move in the same direction with per capita income in SSA countries confirming the long-run positive relationship between financial development and growth as predicted in the majority of theoretical models. This is also consistent with the argument that well-developed domestic financial sector contributes significantly to an increase in economic growth (Levine, 2005).

Empirically, the result is consistent with the previous result of Sunde (2012), which found a positive and statistically significant relationship between the measure of financial development and economic growth. The finding also agrees with Akinlo and Egbe tunde (2010) who applied vector error correction model (VECM) and found that financial development co-integrated with economic growth in the selected ten SSA countries. The study, however, is at variance with the empirical studies of Alimi (2015) and Ngongang (2015). One plausible reason might be through the variables of private sector credit to GDP,

pension fund asset to GDP, mutual fund assets to GDP, and life and non-life insurance to GDP used by this study.

Financial Institution Efficiency and Per Capita Income

From the theoretical point of view, the positive relationship between financial development and economic growth (which manifests itself in the growth of per capita income and a higher level of well-being), is beyond any doubt. According to Levine (2005), financial development occurs when financial instruments financiers, markets and financial intermediaries reduce, without necessarily eliminating them, the costs of obtaining information, the costs of executing contracts and the costs of transaction, and as a consequence, do a better job by offering financial functions. The study result concludes that financial institutions efficiency has a positive and highly significant effect on per capita income in sub-Saharan African countries. With the coefficient of 0.0791 on FIEI (γ_4), financial institutions efficiency moves in a similar direction with per capita income in the study sub-Saharan African countries.

This means that the increase in financial institutions efficiency has marginally led to growth in per capita income. Empirically, the study is consistent with the finding of Pantaleo (2008). The result also agrees with the finding of Saqib(2013) who applied Autoregressive Distributed Lag (ARDL) technique on investment to GDP, enrolment, M2 to GDP, private credit to GDP, and real per capita income growth and found that financial sector efficiency on economic growth is significantly positive for developing countries over the period 2005 to 2009.

Conclusions

Consistent with financial intermediation theory, there is evidence that financial institutions development positively and significantly affects per capita income. Thus, improving financial institutions in terms of access, depth and efficiency would lead to higher per capita income, a prerequisite for economic development in Sub-Saharan Africa.

References

- Akinlo, A. E., & Egbetunde, T. (2010). Financial development and economic growth: The experience of 10 sub-Saharan African countries revisited. *The review of finance and banking*, 2(1).
- Alimi, R.S. (2015). Financial deepening and economic growth in 7 sub-Saharan Africa: An application of system GMM panel analysis. *Journal of Empirical Economics*, 4(5), 244-252.
- Beck, T., Levine, R. & Loayza, N. (2000). Finance and the sources of growth. *Journal of Financial Economics*, 58(1–2), 261-300.
- Beck, T. (2006). Creating and efficient financial system: Challenges in a global economy. *World Bank Research Working Paper* 3856 (Washington: The World Bank).
- Bagehot, W. (1873). *Lombard street: A description of the money market*. New York: Scribner, Armstrong & Co.
- Demirguc-Kunt, A., & Levine, R. (2001). Financial structure and economic growth: Perspectives and lessons. *Financial structure and economic growth: A cross-country comparison of banks, markets, and development*, 3-14.

- Enisan, A.A. & Olufisayo, A. O. (2009). Stock market development and economic growth: Evidence from seven sub- Sahara African countries. *Journal of Economics and Business* 61, 162-171.
- Goldsmith, R.W. (1969). *Financial structure and development*. New Haven, CT: Yale.
- Gurley, J. & Shaw, E. (1955). Financial aspects of economic development. *The American Econ Review*, 45(4), Nashville, Tennessee, American Economic Association, September.
- Gwilym, O. (2008). *Financial intermediation*. London, University of London International studies publications office.
- Kilimani, N. (2009, March). The link between financial development and economic growth in Uganda: A causality test. In *A paper presented at the Centre for Study of African Economies (CSAE) Conference* (pp. 22-24).
- Levine, R. (2005). Finance and growth: Theory and evidence, Handbook of economic growth, In: Aghion P, and Durlauf S. 865-934.
- Levine, R. (2003). More on finance and growth: more finance, more growth?. *Review-Federal Reserve Bank of Saint Louis*, 85(4), 31-46.
- Levine, R. (1997). Stock markets, economic development and capital control liberalization, investment company institute. *Perspective*, 3(5).
- Levine, R. & Zervos, S. (1996). Stock markets development and long –run growth. *World Bank Econ Rev*, 10(2), 323 – 339.
- McKinnon R. (1973). *Money and capital in economic development*. Brookings Institution. Washington, DC, USA.
- Mill J.S. (1871). *Principles of political economy and taxation*. Available in collected works of John Stuart Mills, 2 and 3 edited by J,M Robson, London:
- Ndebbio, J.E. (2004). Financial deepening, economic growth and development: Evidence from selected sub-Saharan Africa. *African Economic Research Consortium*, 142, 1-37.
- Ngongang, E. (2015). Financial development and economic growth in sub-Saharan Africa: A dynamic panel data analysis. *European Journal of Sustainable Development*, 4(2), 2239- 5938.
- Pantaleo, J. K. (2008). Financial sector efficiency and economic growth: The case of East Africa Community (EAC) countries. *Economic development in Africa*. CSAE Conference University of Oxford
- Rafindadi, A.A. & Yusof, Z. (2013). A startling new empirical finding on the nexus between financial development and economic growth in Kenya, Handbook on the Economic, Finance and Management Outlooks. *Proceedings book of ICEFMO, PAK publishing group, Malaysia*, 805-820.
- Rajan, R.G. & Zingales, L. (2003). The great reversals: The politics of financial development in the twentieth century. *Journal of Financial Economics*, 69, 5–50.

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- Rashti, N.A., Araghi, S.E. & Shayeste, M. (2014). Relationship between financial developments and economic growth: Evidence from financial crisis. *Asian economic and financial Review*, 4(7), 930-940
- Saqib, N. (2013). Impact of development and efficiency of financial sector on economic growth: Empirical evidence from developing countries. *Journal of Knowledge Management, Economics and Information Technology*, 3(3), 1-28.
- Schumpeter, J.A. (1911). *The theory of economic development: An inquiry into profits, capital, credit, interest and the business cycle*. Translated and Reprinted 1961, New York: Oxford University Press.
- Shaw, E.S. (1973). *Financial deepening in economic development*. Oxford University Press, New York.
- Sunde, T. (2012). Financial sector development and economic growth nexus in south Africa. *International Journal of Monetary Economic and Finance*, vol. 64-75.
- Tadesse, S. (2001). Financial architecture and economic performance: International evidence. *Journal of Financial Intermediation*, 11, 429-454.