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The Effects of Economic and Financial Development on Financial Inclusion in Africa

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Abstract

This study provides empirical evidence on the effects of economic and financial development on financial inclusion in Africa, using panel FMOLS for the 2005-2014 period. The study shows that economic growth has a significant positive impact on financial inclusion, meaning that African countries with higher economic growth have more inclusive financial systems. GDP per capita has a significant positive impact on financial inclusion. That is, income is an important factor in explaining the level of financial inclusion in Africa. It is, as well, established in this study, that although both economic and financial development promote financial inclusion, though the effects of economic development are much stronger. Also, inflation is negatively linked to financial inclusion, and as well insignificant across all specifications. Deposit interest rate is positively linked to financial inclusion, though insignificant. The low deposit interest rates in African countries do not encourage inclusive financial systems. Population, though positive, is insignificant. Internet has positive significant impact on financial inclusion, meaning that internet access is indispensable in a fast-moving and digital African economy. Literacy is also statistically significant, meaning that adult literacy is an important factor in explaining the level of financial inclusion in Africa. As well, Islamic banking presence and activity are associated with higher financial inclusion.

Keywords: Financial inclusion; financial development; economic development; panel FMOLS

JEL: E62, F30, D14, G21

1. Introduction

Do economic and financial development affect financial inclusion? If they do, then what are the signs and magnitudes of the effects on financial inclusion in Africa? Which effects are much stronger? This study answers these questions.

Development economics suggest that increased provision of financial services leads to the development of all levels of society. The supply-leading hypothesis suggests that financial development spurs growth, boosting overall economic efficiency, liquidity, savings, capital accumulation, and entrepreneurship. In contrast, the demand-following view suggests a lagged response to economic growth, implying growth creates demand for financial products. In other words, as the economy advances, economic growth generates increased demand for financial services, leading to higher financial development and thus financial inclusion. According to Mohan (2006, p. 5), one of the key features of financial development is that “it accelerates economic growth through the expansion of access to those who do not have adequate finance themselves... It is this availability of external finance to budding entrepreneurs and small firms that enables new entry, while also providing competition to incumbents and consequently encouraging entrepreneurship and productivity”.

However, policy emphasis has shifted away from financial development towards the development of inclusive financial systems (Johnson & Arnold, 2012). Policy interest in financial inclusion has increased in importance over the past decade, as a result of concern for lack of financial inclusion by the G20 and other international forums. In recent years, most African countries have set up formal targets for achieving universal financial access by 2020 (i.e. Lesotho, Nigeria, Rwanda). Apart from the policy interest, financial inclusion plays “a critical role in reducing poverty and promoting growth in all fundamental development theories. Conceptually, access to finance enables poor people to save and borrow, allows them to build assets, invest in education, and enables small and medium sized enterprises to take advantage of promising growth opportunities. Hence the ability to access financial services, particularly credit, is very important in promoting growth and welfare” (Demirgüç-Kunt, 2014, p. 349-350).

Despite the knowledge of the huge benefits from financial inclusion, only 23% of the adult population in Africa has a bank account. In sub-Saharan Africa, over 40% of the population saves or sets money aside regularly, but only half of these population have a formal financial service provider at their disposal. While formal financial services penetration is mostly low in Central and North Africa, it is much greater in Southern Africa and on the rise in Eastern and Western Africa. The population of adults having an account with a formal financial service is highest in Mauritius (80%) and South Africa (54%), followed by Angola, Mozambique, Kenya, Zimbabwe, and Morocco (all about 40%). Kenya particularly has a successful financial inclusion policy, with mobile banking leading the way. Additionally, there are 14 African countries with less than 10% of the adult population having a bank account (i.e. Egypt, Niger, and Congo). For example, in Kinshasa, the Central African Republic, Guinea and Congo, less than 5% of adults have access to formal financial services. In Niger, only 2% of the population has a bank account (Demirgüç-Kunt & Klapper, 2012).

There are many motivations for this study. The African economy, riding on its growth momentum, is facing rapidly rising incomes, as a result of expansion of economic activities and corporate profitability. Accordingly, the demand for financial services has increased. Moreover, the burst of entrepreneurship is growing across the continent, spanning rural and urban areas: this has to be fostered and financed. While there is evidence of increased financial development, in the recent decade, the breadth and coverage of formal finance is far lower than that of other continents and thus inadequate. Deepening the financial system and broadening its reach is important, considering the current stage of development of the continent. There are, for that reason, significant benefits in examining the role of economic and financial development on financial inclusion in Africa. Additionally, existing studies in the literature have explored various determinants of financial inclusion, to the disregard of the importance of economic and financial development. This study fills that gap in the literature. Moreover, Africa has 34 of the current 48 Less Developed Countries, making the continent a splendid context for the evaluation of the effects of economic and financial development on financial inclusion. This study therefore employs panel FMOLS to examine the impact of economic and financial development on financial inclusion in Africa.

The rest of this study is organized as follows. Section 2 provides the theory and empirical review of literature. Section 3 describes the data and econometric methodology. Section 4 presents the findings and discuss their implications for the debate on financial inclusion. Section 5 concludes.

2. Theory and Review of Literature

Financial inclusion means availability, accessibility and use of formal financial service for all (Kumar & Mohanty, 2011). It implies provision of “access to payments and remittance facilities, affordable financial services, savings, loans and insurance services by formal financial system” (Nagadevara, 2009, as cited in Unnikrishnan & Jagannathan, 2014, p. 20). Recent theoretical and empirical contributions show how the financial system marshals savings, apportions resources, diversifies risks, and contributes to the economic system (King & Levine, 1993; De Gregorio & Guidotti, 1995; Demetriades & Hussein, 1996; Levine, 1997; Khan & Semlali, 2000; Al-Yousif, 2002; Calderón & Liu, 2003; Rajan & Zingales, 2003; Omran & Bolbol, 2003; Christopoulos & Tsionas, 2004; Gupta, Pattillo & Wagh, 2009; Mirdala, 2011; Sassi & Goaid, 2013; Aizenman, Jinjarak & Park, 2015; Echchabi & Azouzi, 2015).

Similarly, an increasing number of studies suggests that financial inclusion is a precondition for economic growth (Mohan, 2006; Chibba, 2009; Manji, 2010; Kpodar & Andrianaivo, 2011; Unnikrishnan & Jagannathan, 2014). For example, Sarma & Pais (2011), in a cross country analysis, found that income, income inequality, adult literacy, telephone and internet usage and urbanisation is an important factor in explaining the level of financial inclusion in a country. They argued that financial exclusion is a reflection of social exclusion, as countries with low GDP per capita have relatively lower rates of literacy, poorer connectivity and lower urbanisation seem to be less financially inclusive.

In China, Fungáčová & Weill (2015) found that higher income and better education are associated with greater use of formal accounts and formal credit. In Argentina, Tuesta, Sorensen, Haring & Camara, (2015) showed that education and income are all important variables for financial inclusion. In India, Chithra & Selvam (2013) showed that socio-economic factors such as income, literacy, population, deposit and credit penetration have significant association with the level of financial inclusion. As well, Kumar (2013) showed the importance of socio-economic and

environmental structure in shaping the banking habits of the masses in India. In Peru, Camara, Peña & Tuesta (2014) found that education and income levels stand out as significant factors for financial inclusion.

In Africa, Allen et al. (2014) found that population density is more important for financial development and financial inclusion than elsewhere. Moreover, they show evidence that mobile banking improves financial access. In Kenya, Dupas and Robinson (2009) found that financial inclusion has a positive impact on investment. It has also been shown that a positive and significant relationship exists between the usage of credit and the evolution of enterprises, mostly for smaller companies (Carpenter & Petersen, 2002).

3. Materials and Methods

3.1 Data

This study employs annual data on number of depositors with commercial banks (per 1,000 adults), deposit interest rates, GDP per capita, economic growth, inflation, money supply (% of GDP), number of internet users, population, credit to the private sector (% of GDP) and adult literacy rate. The study covers the 2005-2014 period. The dataset is collected from the World Development Indicators. Consistent with the literature, the number of depositors with commercial banks (per 1,000 adults) is used as a proxy for financial inclusion (See Varman, 2005; Sarma, 2012; Čihák, Demirgüç-Kunt, Feyen & Levine, 2012; Mbutor & Uba, 2013; Naceur, Barajas & Massara, 2015).

Unavoidably, the need to obtain adequate data on the variables narrows down the attention of the empirical analysis to 44 African economies, namely, Algeria, Angola, Benin, Botswana, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Democratic Republic of the Congo, Egypt, Equatorial Guinea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Ivory Coast, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Republic of the Congo (Brazzaville), Senegal, Sierra Leone, South Africa, Sudan, Swaziland, Tanzania, Togo, Tunisia, Uganda, Zambia and Zimbabwe.

3.2 Model

Consistent with the literature, (Marshall, 2004; Sarma & Pais, 2011; Laha, Kuri & Kumar, 2011; Mehrotra & Yetman, 2015), the functional model for this study is therefore stated as,

$$FINC = f(GROWTH, GDPC, M2GDP, CREDIT/GDP, INTEREST, INFLATION, POPULATION, INTERNET, LITERACY, ISLAMIC) \quad (1)$$

Where GDP per capita and economic growth are the proxies for economic development (Lucas, 1988; Mankiw, Romer & Weil, 1990; Gallup, Sachs & Mellinger, 1999). Money supply (% of GDP) as well as credit to the private sector (% of GDP) are the proxies for financial development (Garcia & Liu, 1999; Nzotta & Okereke, 2009; Wolde-Rufael, 2009). Deposit interest rates, inflation, number of internet users, population, credit to the private sector and adult literacy rate are included as control variables. They are the most important variables affecting financial inclusion (Marshall, 2004; Sarma & Pais, 2011; Laha, Kuri & Kumar, 2011; Mehrotra & Yetman, 2015). This is, as well, in order to preclude the omitted variable bias. Therefore, the econometric model for the study is given as

$$FINC_t = \tau_0 + \tau_1 GROWTH_t + \tau_2 GDPC_t + \tau_3 M2GDP_t + \tau_4 CREDIT_t + \tau_5 INTEREST_t + \tau_6 INFLATION_t + \tau_7 LITERACY_t + \tau_8 INTERNET_t + \tau_9 POPULATION_t + \tau_{10} ISLAMIC_t + \xi_t \quad (2)$$

Where FINC is financial inclusion (number of depositors with commercial banks per 1,000 adults); GDPC is GDP per capita, and GROWTH is economic growth. M2GDP is money supply (% of GDP) and CREDIT/GDP is the credit to the private sector (% of GDP). INFLATION is headline inflation, INTERNET is the number of internet users, LITERACY is adult literacy rate, and POPULATION is the population. INTEREST is the deposit interest rate; and ξ_t are the residuals. ISLAMIC is a dummy variable which takes 1 if the country has Islamic banking presence and activity, and 0 otherwise. Islamic banking provides no-interest lending, which is an important factor for financial inclusion (See Mohieldin, Iqbal, Rostom & Fu, 2011; Demircuc-Kunt, Klapper & Randall, 2014; Naceur, Barajas & Massara, 2015).

3.3 Econometric Techniques

Since the application of the standard Pooled OLS techniques to non-stationary data may yield spurious results, this study employs the Panel fully modified Least Squares (Panel FMOLS) which

is capable of providing optimal estimates of cointegrating regressions. The panel FMOLS is appropriate for this study because, in order to achieve asymptotic efficiency, panel FMOLS modifies the least squares for endogeneity of the regressors and serial correlation, which are due to cointegrating relations (Phillip & Hansen, 1990; Hansen & Kim, 1995).

Although panel FMOLS is a nonparametric approach, capable of dealing with nuisance parameters, it may sometimes have problems, especially in small samples. To prevent these problems in the usage of panel FMOLS for estimation of long-run parameters, a cointegrating relation must be established among the set of I(1) variables. Thus, we test for unit root and cointegration.

The Im, Pesaran and Shin W-stat, ADF - Fisher Chi-square and PP - Fisher Chi-square are used to test for the order of integration. The three unit root tests are appropriate because the alternative hypothesis assumes that at least one individual cross section is stationary. The Engle-Granger based Pedroni cointegration test is used to check for cointegration among the variables. The Pedroni (1995, 1999) residual cointegration test is suitable for this study because the sample of countries used is heterogeneous (Camarero & Tamarit, 2002).

The FMOLS estimator employs the initial estimates of the symmetric and one-sided long run covariance matrices of the residuals (Phillips & Hansen, 1990; Phillips & Moon, 1999; Pedroni 1995, 2000)

Assuming an n+1 dimensional time series vector process (y, X), with the cointegrating equation,

$$y_t = X_t' \beta + D_t' \gamma_1 + \hat{\mu}_{1t} \quad (3)$$

Where X_t' are the n stochastic regressors, $D_t = (D_{1t}', D_{2t}')$ are the deterministic trend regressors and $\hat{\mu}_{1t}$ are the residuals.

The $\hat{\mu}_{2t}$ is obtained as $\hat{\mu}_{2t} = \Delta \hat{\varepsilon}_{2t}$ from the levels regressions

$$X_t = \hat{\Gamma}_1' D_{1t} + \hat{\Gamma}_2' D_{2t} + \hat{\varepsilon}_{2t} \quad (4)$$

Alternatively, from the difference regressions

$$\Delta X_t = \hat{\Gamma}_1' \Delta D_{1t} + \hat{\Gamma}_2' \Delta D_{2t} + \hat{\mu}_{2t} \quad (5)$$

Let Ω and λ be the long run covariance matrices which can be calculated by means of the residuals

$\hat{\mu}_{2t} = (\hat{\mu}_{1t}, \hat{\mu}_{2t})'$. Then the modified data can be defined as

$$y_t^+ = y_t - \hat{\omega}_{12} \Omega_{22}^{-1} \hat{\mu}_{2t} \quad (6)$$

Then the estimated bias correction terms is

$$\lambda_t^+ = \hat{\lambda}_{12} - \hat{\omega}_{12} \Omega_{22}^{-1} \hat{\lambda}_{22} \quad (7)$$

The FMOLS estimator is thus

$$\theta = \begin{bmatrix} \beta \\ \hat{\gamma}_1 \end{bmatrix} = \left(\sum_{t=2}^T Z_t Z_t' \right)^{-1} \left(\sum_{t=2}^T Z_t y_t^+ - T \begin{bmatrix} \hat{\lambda}_{12} \\ 0 \end{bmatrix} \right) \quad (8)$$

Where $Z_t = (X_t', D_t)'$.

Note that the number of optimal lags is determined by the Akaike Information Criterion (AIC).

4. Results and Discussion

Firstly, in order to preclude spurious regression, Im, Pesaran and Shin W-stat, ADF-Fisher Chi-square and PP-Fisher Chi-square tests are used to determine the unit root properties and the order of integration of the data. As shown in Table 1, the three panel unit root results show that the variables are all I(1), thus indicating that it is appropriate to test for the existence of cointegrating relations.

Table 1. Panel Unit Root Tests

	IPS W-Stat		ADF-Fisher		PP-Fisher	
GROWTH	-1.620	-1.985**	38.192	59.398*	39.514	105.094*
FINC	-1.734	-2.059*	35.450	52.593*	38.736	90.273*

M2GDP	-1.608	-1.920**	37.079	58.621*	25.008	44.43**
INTEREST	-1.691	-1.994**	36.145	53.117*	23.089	51.148*
GDPC	2.838	-2.696*	14.973	59.966*	39.351	82.2711*
INFLATION	-1.623	-1.982**	35.951	52.229*	35.675	78.020*
POPULATION	0.453	-2.389*	23.960	55.321*	53.619	177.681*
CREDIT	0.524	-3.605*	24.55	57.119*	41.488	59.937**
CAPITAL	1.329	-2.648*	22.747	55.734*	32.319	95.363*
INTERNET	-1.430	-1.953*	35.566	51.776*	38.246	50.149*

Notes: * and ** denotes significance at 1% and 5% levels. Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. IPS assumes asymptotic normality.

Having established that all the variables are I(1), the Pedroni residual cointegration test is used to determine the cointegrating relations. As shown in Table 2, the results indicate the presence of long-run relationships among the set of variables.

Table 2. Pedroni Residual Cointegration Test

Alternative hypothesis: common AR coefs. (within-dimension)				
	<u>Statistic</u>	<u>Prob.</u>	<u>Weighted</u> <u>Statistic</u>	<u>Prob.</u>
Panel v-Statistic	-1.235	0.875	-1.670	0.961
Panel rho-Statistic	2.108	0.996	2.021	0.967
Panel PP-Statistic	-9.526	0.000	-9.724	0.000
Panel ADF-Statistic	-6.802	0.000	-7.850	0.000
Alternative hypothesis: individual AR coefs. (between-dimension)				
	<u>Statistic</u>	<u>Prob.</u>		
Group rho-Statistic	3.334	0.998		
Group PP-Statistic	-15.063	0.000		
Group ADF-Statistic	-9.452	0.000		

Note: Automatic lag length selection based on SIC. Newey-West automatic bandwidth selection and Bartlett kernel

Table 3 shows the results of the panel FMOLS. To show that the results of the panel FMOLS are robust to different specifications, the results of the Panel EGLS (Cross-section random effects) and Panel Least Squares specifications are provided in columns 2 and 3 in Table 3.

Table 3: The Effects of Economic and Financial Development on Financial Inclusion

Dependent Variable: FINC

	Panel FMOLS		Panel EGLS (Cross-section random effects)		Panel Least Squares	
	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
GROWTH	14.135**	2.071	5.664*	4.093	4.793*	3.312
GDP	0.330*	3.659	0.037*	2.908	0.039*	4.235
CREDIT/GDP	0.626	0.462	0.229	0.598	0.969*	3.966
M2/GDP	-1.872*	2.857	-0.170	1.008	-0.537*	4.163
INTEREST	1.423	0.886	0.654	0.162	2.983	0.679
INFLATION	-8.000	-1.484	-3.566	-1.449	-0.691	-0.266
LITERACY	12.699**	2.253	15.541	0.628	-9.764	-0.547
Ln(POPULATION)	39.903	0.720	18.341	0.545	35.167***	1.704
INTERNET	6.725*	2.736	12.599*	11.985	13.878*	13.028
ISLAMIC	89.987***	1.756	163.646**	2.460	144.726*	3.778
Adjusted R-squared	0.748		0.682		0.806	

Notes: *, **, and *** indicate significance at the 1%, 5% and 10% levels, respectively. The Panel FMOLS Long-run covariance estimates are via Quadratic-Spectral kernel, Newey-West automatic bandwidth and NW automatic lag length.

The economic development variables are statistically significant. Economic growth has a significant positive impact across all specifications. This means countries with higher economic growth have more inclusive financial systems. In addition, looking specifically at GDP per capita, it has a significant positive impact on financial inclusion. This finding is in line with such studies as Sarma & Pais (2011), Chithra & Selvam (2013), Camara et al. (2014), Fungáčová & Weill (2015) and Tuesta, et al. (2015) who showed that income is an important factor in explaining the level of financial inclusion in a country. It is, as well, established in this study, that although both economic and financial development may be able to promote financial inclusion, the effects of the economic development are much stronger.

Turning to the impact of the financial development variables, CREDIT/GDP is positive but insignificant. This is expected knowing that credit is extremely subdued in Africa, due to a host of variables such as lack of collateral and credit information. This result is in contrast with Chithra & Selvam (2013) who found that deposit and credit penetration have significant association with the level of financial inclusion in India. Additionally, M2GDP is significant, though negative across all specifications. This is not surprising, since there is too much liquidity outside the formal financial system. For example, in sub-Saharan Africa, over 40% of the population saves or sets money aside regularly, but only half of these population have a formal financial service provider at their disposal (Demirgüç-Kunt & Klapper, 2012).

Population, though positive, is insignificant. The finding that population has insignificant impact on financial inclusion conflicts with Chithra & Selvam (2013) in India and Allen et al. (2014) in Africa. This also suggests that the contribution of population to financial inclusion may have been exaggerated by these studies. Inflation is negatively linked to financial inclusion, and as well insignificant across all specifications. Deposit interest rate is positively linked with financial inclusion, though insignificant. The low deposit interest rates in African countries do not encourage inclusive financial systems.

The number of internet users have positive significant impact on financial inclusion. This result, which is similar to the one found by Sarma & Pais (2011) and Allen et al. (2014), may be an indication that internet access is indispensable in a fast-moving and digital African economy. The significance of the internet for financial inclusion is evidenced in the case of Kenya where M-Pesa, a transformative mobile phone-based platform, has undergone explosive growth in a spectrum of services including money deposit and withdrawal, bill payment, remittance delivery, and microcredit provision.

Literacy is also statistically significant. Literacy has assumed larger importance in recent years as financial markets have become increasingly complex and the uneducated finds it very difficult to make informed decisions. This finding is in line with Sarma & Pais (2011) and Chithra & Selvam (2013) who found that adult literacy is an important factor in explaining the level of financial inclusion in a country. As well, Tuesta et al (2015) and Camara et al (2014) showed that better education is a significant factor for financial inclusion.

The Islamic dummy variable has significantly positive impact on financial inclusion across all specifications. In other words, Sharia-compliant finance (*halal*, which means permitted) is an important driver of financial inclusion. This result is in line with Naceur et al (2015) who found some evidence that Islamic banking presence and activity are associated with higher financial inclusion.

5. Conclusion and Policy Implications

This study provides empirical evidence on the effects of economic and financial development on financial inclusion in Africa. Economic growth has a significant positive impact on financial inclusion, meaning that countries with higher economic growth have more inclusive financial systems. GDP per capita has a significant positive impact on financial inclusion. That is, income is an important factor in explaining the level of financial inclusion in Africa. It is, as well, established in this study, that although both economic and financial development may be able to promote financial inclusion, the effects of the former are much stronger. Turning to the impact of the financial development variables, CREDIT/GDP is positive but insignificant. This is expected knowing that credit is extremely subdued in Africa, due to a host of variables such as lack of collateral and credit information. Additionally, M2GDP is significant, though negative. This is due to too much liquidity outside the formal financial system: for example over 40% of the sub-Saharan African population saves regularly, but only half of these population use a formal financial service.

Population, though positive, is insignificant. Inflation is negatively linked to financial inclusion, and as well insignificant across all specifications. Deposit interest rate is positively linked with financial inclusion, though insignificant. The low deposit interest rates in African countries do not encourage inclusive financial systems.

The number of internet users have positive significant impact on financial inclusion, meaning that internet access is indispensable in a fast-moving and digital African economy as evidenced in the case of M-Pesa in Kenya. Literacy is also statistically significant, meaning adult literacy is an important factor in explaining the level of financial inclusion in Africa. As well, Islamic banking presence and activity are associated with higher financial inclusion.

In terms of policy implications, internet technology can reduce transaction cost and increase financial security. We know that for example in Kenya, the development of mobile technology, M-Pesa has certainly boosted mobile payments. There is need for increased coverage under satellite banking, mobile banking and other new platforms. Synergy is needed between banking channels and the technology providers to enlarge reach. Application developers, as well, will need to synergize core banking with micro financial applications. This is one way that financial inclusion can be spread in Africa.

Financial literacy is a very immediate need. Financial literacy should be targeted at the segments of African populations who are poor and under-educated. This is easily achievable by leveraging social networks and providing “rule of thumb” training. The interventions will require constant reinforcements to have long-term impacts.

Credit information is poor in Africa. Africa is not supposed to be left behind the data revolution. Each African country will need a national registers of information, detailing payment defaults, bankruptcies and court judgments with respect to credit use difficulties. This will protect helpless consumers from manipulative lending and ensure the delivery of proper credit.

Correspondent banking, where supermarkets, post offices, and gas stations act as banking agents, is another important channel. This channel has been used successfully well in countries such as Brazil to develop financial inclusion in the Amazons. The old post offices in Africa (via a Post Office Card Account) will be an ideal channel of agency banking. For this to be effective, micro finance institutions, business facilitators and business correspondents will need to be strengthened.

As well, competition policy is very important. Healthy competition is necessary for consumer protection, for the reason that it increases consumer power and provides the financial institutions with incentives to serve the under-served as well as to adopt technological advances to generate new products to reach the under-served parts of the continent. Innovative product design and business models are also important for expanding financial inclusion. For example, the introduction of commitment accounts can help rural dwellers save more and thus increase their access to financial services. As well, the introduction of index insurance can have advantageous outcomes and enhance investment and productivity.

It is important for African governments to create the required legal and regulatory framework, such as regulating business conduct, protecting creditor rights, and supervising recourse mechanisms to safeguard consumers. Long term measures will include legal requirements for each and every citizen to have access to banking and payment services. An independent supervisory body will be required to enforce this mandate.

Finally, with the growing liberalization and economic growth, the importance of the banking sector will rise in the financing configuration of economic activities within the continent. To satisfy the increasing credit demand, the banking sector will need to channel credit from a broader deposit base to encompass activities yet not financed by the sector. The drift of the growing commercialization of rural activities, especially agriculture, will create greener pastures. Banks will need to explore the possible profits of the increasing penetration.

References

- Aizenman, J., Jinjarak, Y., & Park, D. (2015). *Financial development and output growth in developing Asia and Latin America: A comparative sectoral analysis* (No. w20917). National Bureau of Economic Research.
- Allen, F., Carletti, E., Cull, R., Senbet, L., & Valenzuela, P. (2014). The African financial development and financial inclusion gaps. *Journal of African economies*, eju015.
- Al-Yousif, Y. K. (2002). Financial development and economic growth: another look at the evidence from developing countries. *Review of Financial Economics*, 11(2), 131-150.
- Arya, P. K. (2014). Financial Inclusion and Economic Development. *The Brahmaputra Rhythm of The Promises*, 7(1), 41-45.
- Ben Naceur, S., Barajas, A., & Massara, A. (2015). *Can Islamic Banking Increase Financial Inclusion?* (No. 15/31). International Monetary Fund.
- Calderón, C., & Liu, L. (2003). The direction of causality between financial development and economic growth. *Journal of development economics*, 72(1), 321-334.
- Camara, N., Peña, X., & Tuesta, D. (2014). *Factors that matter for financial inclusion: Evidence from Peru* (No. 1409).
- Carpenter, R. E., and Petersen, B. C. (2002). Is the growth of small firms constrained by internal finance? *Review of Economics and Statistics*, 84(2), 298-309.
- Chibba, M. (2009). Financial inclusion, poverty reduction and the millennium development goals. *European Journal of Development Research*, 21(2), 213-230.
- Chithra, N., & Selvam, M. (2013). Determinants of financial inclusion: An empirical study on the inter-state variations in India. Available at SSRN 2296096.

- Evans, O. (2015). The Effects of Economic and Financial Development on Financial Inclusion in Africa. *Review of Economic and Development Studies*, 1(1), 17-25
- Christopoulos, D. K., & Tsionas, E. G. (2004). Financial development and economic growth: evidence from panel unit root and cointegration tests. *Journal of development Economics*, 73(1), 55-74.
- Čihák, M., Demirgüç-Kunt, A., Feyen, E., & Levine, R. (2012). Benchmarking financial systems around the world. *World Bank Policy Research Working Paper*, (6175).
- De Gregorio, J., & Guidotti, P. E. (1995). Financial development and economic growth. *World development*, 23(3), 433-448.
- Demetriades, P. O., & Hussein, K. A. (1996). Does financial development cause economic growth? Time-series evidence from 16 countries. *Journal of development Economics*, 51(2), 387-411.
- Demirguc-Kunt, A., Klapper, L., & Randall, D. (2014). Islamic finance and financial inclusion: measuring use of and demand for formal financial services among Muslim adults. *Review of Middle East Economics and Finance*, 10(2), 177-218.
- Dupas, P., and J. Robinson. 2009. "Savings Constraints and Microenterprise Development: Evidence from a Field Experiment in Kenya." National Bureau of Economic Research Working Paper 14693
- Echchabi, A., & Azouzi, D. (2015). Islamic Finance Development and Economic Growth Nexus: The Case of the United Arab Emirates (UAE). *American Journal of Economics and Business Administration*, 7(3), 106.
- Fungáčová, Z., & Weill, L. (2015). Understanding financial inclusion in China. *China Economic Review*, 34, 196-206.
- Gallup, J. L., Sachs, J. D., & Mellinger, A. D. (1999). Geography and economic development. *International regional science review*, 22(2), 179-232.
- Garcia, V. F., & Liu, L. (1999). Macroeconomic determinants of stock market development. *Journal of Applied Economics*, 2(1), 29-59.
- Gupta, S., Pattillo, C. A., & Wagh, S. (2009). Effect of remittances on poverty and financial development in Sub-Saharan Africa. *World development*, 37(1), 104-115.
- Hansen, G., & Kim, J. R. (1995). The stability of German money demand: tests of the cointegration relation. *Weltwirtschaftliches Archiv*, 131(2), 286-301.
- Hawkins, P. (2011). Financial access: what has the crisis changed?. *Central banking in Africa: prospects in a changing world, Basel: Bank for International Settlements (BIS Working Paper 56)*, 11-20.
- Johnson, S., & Arnold, S. (2012). Inclusive financial markets: is transformation under way in Kenya?. *Development Policy Review*, 30(6), 719-748.
- Jones, P. A. (2008). From tackling poverty to achieving financial inclusion—The changing role of British credit unions in low income communities. *The Journal of Socio-Economics*, 37(6), 2141-2154.

- Evans, O. (2015). The Effects of Economic and Financial Development on Financial Inclusion in Africa. *Review of Economic and Development Studies*, 1(1), 17-25
- Khan, M. M. S., & Semlali, M. A. S. (2000). *Financial development and economic growth: an overview* (No. 0-209). International Monetary Fund.
- King, R. G., & Levine, R. (1993). Finance, entrepreneurship and growth. *Journal of Monetary Economics*, 32(3), 513-542.
- Koutsoyiannis, A., 1977. *Theory of econometrics: an introductory exposition of econometric methods*. Macmillan.
- Kpodar, K., & Andrianaivo, M. (2011). *ICT, financial inclusion, and growth evidence from African countries* (No. 11-73). International Monetary Fund.
- Kumar, N. (2013) "Financial inclusion and its determinants: evidence from India", *Journal of Financial Economic Policy*, Vol. 5 Iss: 1, pp.4 – 19
- Laha, D., Kuri, D., & Kumar, P. (2011). Determinants of financial inclusion: A study of some selected Districts of West Bengal, India. *Indian Journal of Finance*, 5(8), 29-36.
- Levine, R. (1997). Financial development and economic growth: views and agenda. *Journal of economic literature*, 35(2), 688-726.
- Lucas, R. E. (1988). On the mechanics of economic development. *Journal of monetary economics*, 22(1), 3-42.
- Manji, A. (2010). Eliminating poverty? 'Financial inclusion', access to land, and gender equality in international development. *The Modern Law Review*, 73(6), 985-1004.
- Mankiw, N. G., Romer, D., & Weil, D. N. (1990). *A contribution to the empirics of economic growth* (No. w3541). National Bureau of Economic Research.
- Marshall, J. N. (2004). Financial institutions in disadvantaged areas: a comparative analysis of policies encouraging financial inclusion in Britain and the United States. *Environment and Planning A*, 36(2), 241-261.
- Mbutor, M. O., & Uba, I. A. (2013). The impact of financial inclusion on monetary policy in Nigeria. *Journal of Economics and International Finance*, 5(8), 318.
- Mehrotra, A. N., & Yetman, J. (2015). Financial inclusion-issues for central banks. *BIS Quarterly Review March*.
- Mirdala, R. (2011). Financial deepening and economic growth in the European transition economies. *Journal of Applied Economic Sciences*, 6(2), 177-194.
- Mohan, R. (2006). Economic Growth, Financial Deepening and Financial Inclusion. *Economic Developments In India: Monthly Update, Volume-108 Analysis, Reports, Policy Documents*, 41.
- Mohieldin, M., Iqbal, Z., Rostom, A. M., & Fu, X. (2011). The role of Islamic finance in enhancing financial inclusion in Organization of Islamic Cooperation (OIC) countries. *World Bank Policy Research Working Paper Series, Vol.*
- Naceur, M. S. B., Barajas, M. A., & Massara, M. A. (2015). Can Islamic Banking Increase Financial Inclusion? (No. 15-31). International Monetary Fund.

- Evans, O. (2015). The Effects of Economic and Financial Development on Financial Inclusion in Africa. *Review of Economic and Development Studies*, 1(1), 17-25
- Nzotta, S. M., & Okereke, E. J. (2009). Financial deepening and economic development of Nigeria: An Empirical Investigation. *African Journal of Accounting, Economics, Finance and Banking Research*, 5(5).
- Omran, M., & Bolbol, A. (2003). Foreign direct investment, financial development, and economic growth: evidence from the Arab countries. *Review of Middle East Economics and Finance*, 1(3), 231-249.
- Pedroni P (1995), "Panel Co-integration: Asymptotic and Unite Sample Properties of PooledTime Series Test with an Application to the PPP Hypothesis", Indiana University Working Papers in Economics No. 95-013.
- Pedroni P (2000), "Fully Modified OLS for Heterogeneous Co-integrated Panels", in BaltagiB (Ed.), *Non-Stationary Panels, Panel Co-Integration, and Dynamic Panels*, Advances in Econometrics, Vol. 15, pp. 93-130, JAI Press, Amsterdam.
- Phillips P C B and Hansen B E (1990), "Statistical Inference in Instrumental Variable Regressionwith I (1) Processes", *Rev. Econ. Studies*, Vol. 57, pp. 99-125.
- Phillips P C B and Moon H R (1999), "Linear Regression Limit Theory for Non-StationaryPanel Data", *Econometrica*, Vol. 67, pp. 1057-1111.
- Rajan, R.G. and L. Zingales (1998): "Financial Dependence and Growth", *American Economic Review* 88, 559-86.
- Sarma, M. (2012). *Index of Financial Inclusion—A measure of financial sector inclusiveness* (No. 1207). Hochschule fuer Technik und Wirtschaft, Berlin.
- Sarma, M., & Pais, J. (2008). Financial inclusion and development: A cross country analysis. *Indian Council for Research on International Economic Relations*, 1-28.
- Sarma, M., & Pais, J. (2011). Financial inclusion and development. *Journal of international development*, 23(5), 613-628.
- Sassi, S., & Goaid, M. (2013). Financial development, ICT diffusion and economic growth: Lessons from MENA region. *Telecommunications Policy*, 37(4), 252-261.
- Tuesta, D., Sorensen, G., Haring, A., & Camara, N. (2015). *Financial inclusion and its determinants: the case of Argentina* (No. 1503).
- Unnikrishnan, R., & Jagannathan, L. (2014). Unearthing global financial inclusion levels and analysis of financial inclusion as a mediating factor in global human development. *Serbian Journal of Management*, 10(1), 19-32.
- Varman, M. (2005). Impact of self-help groups on formal banking habits. *Economic and Political Weekly*, 1705-1713.
- Wolde-Rufael, Y. (2009). Re-examining the financial development and economic growth nexus in Kenya. *Economic Modelling*, 26(6), 1140-1146.