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## **ROLE OF FINANCIAL INCLUSION IN ECONOMIC GROWTH AND POVERTY REDUCTION IN A DEVELOPING ECONOMY**

**Harley Tega Williams<sup>1</sup>,**

Department of Financial Studies, Redeemer's University, Ede Osun State, Nigeria.

**Adetoso J. Adegoke<sup>2</sup>,**

Department of Financial Studies, Redeemer's University, Ede Osun State, Nigeria.

**Adegbola Dare<sup>3</sup>**

Department of Financial Studies, Redeemer's University, Ede Osun State, Nigeria.

### **ABSTRACT**

This study is to empirically investigate the role of financial inclusion in poverty reduction and economic growth in a developing economy using panel data analysis ranges from 2006 to 2015 within a log linear model specification framework. The methodology applied to the study is distilled from the literatures. From our regression result, the numbers of active ATM, bank branches and government expenditures selected from three Africa countries were the most robust predictors for financial inclusion on poverty reduction in a developing economy. One percent increase on ratio of active ATM will leads to about 0.0082 percent increase in the gross domestic product and a reduction of poverty in developing economy, this however does not perfectly corroborate with Sarma (2008). An indicator shows that most of the ATM in developing economy are obsolete and thus required a technological upgrade to have a significant impact in rural areas. The coefficient of determination was very high. It shows that about 92 percent of the total variations in real growth rate of gross domestic product are explained by all the independent variables in the model. Consequently, the study recommends that Government should focus on poverty reduction through focus on infrastructural development that will enhance banking services.

**Keywords:** financial inclusion, poverty, regression, ATM, bank branches, government expenditures.

### **1.0 Introduction**

One of the origin of financial inclusions and poverty reduction history can be traced to the developing Asia's success stories is its sustained economic expansion which lifted millions out of poverty. However, it becomes obvious that poverty remains a stubborn challenge in most developing economy. Financial inclusion is critical as increasing the poor's access to financial services is often considered as an effective tool that can help reduce poverty and lower income inequality.

Sarma (2008), financial inclusion is the process that ensures the ease of access, availability, and usage of formal financial system for all members of an economy. Financial inclusions can be voluntary versus involuntary exclusion and it is however important to distinguish between voluntary versus

involuntary exclusion. The theoretical framework and empirical analysis of this research is limited to involuntary exclusion as opined by Sarma (2008). This is because involuntary exclusion addressed appropriate economic programs and policies which can be designed to increase income levels and correct market failures and imperfections and thus suitable for policy and research.

The World Bank (2014) defines voluntary exclusion as a condition where the segment of the population or firms choose not to use financial services either because they have no need for them or due to cultural or religious reasons. In contrast, involuntary exclusion arises from insufficient income and high risk profile or due to discrimination and market letdowns and limitations.

The issue of access to financial services for the rural dwellers in every country in terms of development, poverty reduction, decent work and economic empowerment has received growing attention from scholars and policy makers as it concern financial inclusion. In Banking and Finance area, financial inclusion can be seen as the delivery of financial services at affordable costs to some disadvantages and low income segment of the economy, in contrast to financial exclusion where those services are not available or affordable. However, one of the biggest achievement of the financial sector in Africa (Nigeria) was the reform of the banking sector with increase in capital above 1000 percent. It was an exercise that resulted in the reduction of the country motley group of mainly anemic 89 banks to 25 bigger, stronger and more resilient financial institutions. The reforms engineered a revolution in the financial services industry leading to an increase both in the quality of service and quantity of financial products available to rural dwellers. (Harleytega 2011).

Sarma (2008), specify that financial inclusion indicator are measures in terms of automated teller machines (ATM), Commercial Bank Branches per 100,000 adults, borrowers from commercial banks per 1,000 adults, depositors with commercial banks per 1,000 adults, and domestic credit to GDP ratio.

In spite of the importance of financial inclusions in any economy, financial inclusions, poverty reduction and economy growth modeling has been in the mainstream of econometric research in developing economy. Discussions in some previous studies have, for instance, suggested a number of factors that may influence economy growth. There has been no model designed to determine the relative impact of financial inclusions, poverty reduction, population and economy growth and their possible linkages with the real or productive sector of the economy. Since the global financial meltdown of 2008, no consensus has been reached by scholars as regards the impacts of financial inclusions and poverty in developing economy. Therefore, there is the need for empirical work to be done in this area. Moreover, in this study, the methods of analysis employed most have been overlooked by any existing studies. Although financial inclusion has become topical on the global policy agenda for sustainable development, economic literature on financial inclusion is still in its infancy. Most studies have looked into the appropriate measures of financial inclusion both at household and country levels, while some academic scholars focused on the role of financial access in lowering poverty and income inequality. Other researchers have dealt with varying levels of financial inclusion both in advanced and emerging economies. However, is of little that has been said about financial inclusions and poverty reduction in developing economy, thus more work needs to be done by developing economy scholars.

Burgess and Pande (2005) has cited by Haniffa, R. & Hudaib, M. (2006), found that state-led expansion of rural bank branches in India has helped reduce poverty. Specifically, the authors found robust evidence that opening bank branches in rural unbanked locations in India was associated with reduction in rural poverty rates in those areas. Similarly, Brune et al. (2011) found that increased financial access through commitment saving account in rural Malawi improves the well-being of poor households as it provides access to their savings for agricultural input use.

Allen et al. (2013) found that by tapping underprivileged households, commercial banks can help improve financial access of the poor in Kenya.

Honohan (2007) tested the significance of his financial access indicator in reducing income equality. His results show that higher financial access significantly reduces income inequality as measured by the Gini coefficient. However, the link between the two variables depends on which specification is used, i.e., when the access variable is included on its own and/or includes financial depth measure, the results are significant, but the same does not hold when per capita income and dummy variables are included.

Rojas-Suarez (2010), test the significance of various macroeconomic and country characteristics for a group of emerging economies, including some from developing Asia. The results show that economic volatility, weak rule of law, higher income inequality, and social underdevelopment and regulatory constraints significantly lower financial access. In addition, various country grouping dummy variables were also found to be significant especially for large emerging economies.

Honohan (2007 and 2008) constructed a financial access indicator which captures the fraction of adult population in a given economy with access to formal financial intermediaries. The composite financial access indicator was constructed using household survey data for economies with available data on financial access. For those without household survey on financial access, the indicator was derived using information on bank account numbers and GDP per capita. The Data set was constructed as a cross-section series using the most recent data as the reference year, which varies across economies. However, Honohan's (2007 and 2008) measure provides a snapshot of financial inclusion and might not be applicable for understanding changes over time and across economies.

Amidžić, Massara, and Mialou (2014) constructed a financial inclusion indicator as a composite indicator of variables pertaining to its dimensions, outreach (geographic and demographic penetration), usage (deposit and lending), and quality (disclosure requirement, dispute resolution, and aggregated using statistical weights. The aggregation technique follows the sequence of weighted geometric mean. A drawback from this approach is that it uses factor analysis method to determine which variables are to be included for each dimension. Therefore, it does not fully utilize all available data for each country. Furthermore, it assigns various weights for each dimension, which implies the importance of one measure versus another.

## 1.1 Materials And Method

In order to account for the impacts of role of financial inclusion in economic growth and poverty reduction in developing economy, the model for the study is hereby specified as follows and an extraction of data from Nigeria.

### 1.1.2 The models for this study is stated below:

RGDP= F (ATM, CBB, BCB, DCB, DC, GOV)

$\text{Log}(\text{GDP}) = \beta_0 + \beta_1 \log(\text{ATM}) + \beta_2 \log(\text{CBB}) + \beta_3 \log(\text{BCB}) + \beta_4 \log(\text{DCB}) + \beta_5 \log(\text{DC}) + \beta_6 \log(\text{GOV}) + \mu$

Where:

RGDP= Real Gross Domestic Product

GOV= Government Impact Peroxide as control variable

ATM= Automated Teller Machines

CBB= Commercial Bank Branches

BCB = Borrowers from Commercial Banks

DCB= Depositors with Commercial Banks

DC= Domestic Credit to GDP

$\alpha_0$  = Intercept Parameter

$\mu$  = Stochastic Error Term

### 1.1.3 A priori Expectations:

RGDP= F (ATM, CBB, BCB, DCB, DC, GOV)

$f^i(\text{RGDP}) > 0$

It is expected that increase in financial inclusion should have a positive impact on gross domestic product

$f^i(\text{ATM}) > 0$

It is expected that increase in active ATMs will have a positive impact in reducing poverty for rural dwellers.

$f^i(\text{CBB}) > 0$

It is expected that increase in commercial bank branches will reduce poverty and aid economic growth.

$f^i(\text{BCB}) > 0$

It is expected that increase in the borrowers of commercial banks will reduce poverty and aid economic growth.

$f^i(\text{DCB}) > 0$

It is expected that increase in depositors fund will reduce poverty and aid economic growth.

$f^i(\text{DC}) > 0$

It is expected that an increase in domestic credit to GDP will reduce poverty and aid economic growth.

$$f^i(INF) < 0$$

It is expected that inflation will have a negative impact on GDP.

$$f^i(GOV) > 0$$

It is expected that government impact will yield positive financial inclusions and poverty reduction on the assumption that the country operates civilians' regime. This is because civilian regime has positive impact than military in shaping economic development and poverty reduction in Africa.

#### **1.1.4 Empirical Analysis of Table 1.**

##### Log Linear Model Specification

$$\text{Log(RGDP)} = \beta_0 + \beta_1 \text{log(ATM)} + \beta_2 \text{log(CBB)} + \beta_3 \text{log(BCB)} + \beta_4 \text{log(DCB)} + \beta_5 \text{log(DC)} + \beta_6 \text{log(INF)} + \beta_7 \text{log(GOV)} + \mu$$

(INSERT TABLE ONE: REGRESSION RESULT WITH LOG DATA)

Ratio of automated teller machine (ATM) shows a positive coefficient of 0.926172, this has a significant positive impact on gross domestic product. One percent increase on ATM will on the average leads to about 0.926172 percent increase in gross domestic product growth rate. There exists a significant positive relationship between commercial bank branches and real gross domestic product growth rate. One percent increase on commercial bank branches to real gross domestic product will lead on the average, to about 2.267282 percent increase in real gross domestic product. The ratio of borrowers to commercial banks has a significant positive impact on real gross domestic product. One percent increase on ratio of borrowers to commercial banks will leads to about 0.450962 percent increase in real gross domestic product.

From the results in table above, there exist a positive relationship between inflation rate of 1.005589 and real gross domestic product. One percent increase in ratio of inflation rate to gross domestic product will lead to a corresponding rise on the average of about percent increase in real gross domestic product. The domestic credit to RGDP ratio and deposit to commercial banks shows as measure of financial inclusion shows 0.032129 and -0.365316 respectively. Indicating that one percent increase in any of the coefficient will lead to a corresponding increase on gross domestic growth rate. In addition the government expenditure shows a positive impact on real gross domestic product of 2.96, one percent increases in government expenditure ratio will invariably affect real gross domestic product with the same coefficient.

We can also deduce that using a lognormal model, the  $R^2$  (coefficient of determination) is very high. It shows that about 92percent of the total variations in real gross domestic product are explained by all the independent variables in the model. The adjusted  $R^2$  also indicates that about 90.85 percent of the total variations in RGDP are explained by the model. The F-statistic is significant at 5 percent critical level. It indicates that the joint variations of the model are significant. However the Durbin Watson value of 1.2446 indicates a presence of serial autocorrelation.

### **1.3 Results**

- The empirical analysis of ATM to RGDP shows that there is still a wider gap of active ATM to ATM users in the rural area but with the passage of time and financial inclusion been critical for economy growth will be more pronounce.
- The depositors to commercial banks shows a negative relationship to RGDP. This may indicate that most of the ATM are obsolete or may not have a deposit technology.
- From our regression result, commercial bank branches to RGDP have a positive impact. This means that the more the commercial banks the more rural dwellers can access financial services. This however, corroborate with Harleytega (2011).
- Government expenditures has a significant positive impact on real gross domestic product. Government expenditures in terms of infrastructural developments will boost economic growth and development through investment in agricultures for rural dwellers.
- The inflation rates does not conform to a priori expectation with its positive coefficients of 1.005589 which may rise as a result of the log linear model.

### **1.4 Discussions**

From the result of this study, it can be concluded that financial inclusion has not effectively promoted stable financial and marketing support to the economic system in developing economy in terms of poverty reduction. Strong returns on commercial bank branches in rural area can stimulate economic growth through increase in agricultural product and risk reduction. The establishment of commodity market may solve some of the uncertainty problems, transaction costs and information problems between sellers and buyers of agricultural products and thus allow for a more efficient allocation of investments that will encourage economic growth and reduce poverty. Moreover, empirical studies have shown repeatedly that financial inclusion will drive economic development through investment if properly managed and active ATMs are implemented. Also bank lending to rural dwellers has not positively causes economic growth and poverty reduction; therefore, any attempt made by banks to fully finance agriculture in developing economy should be encouraged with attention to inflation and bank lending rates.

### **REFERENCES**

- Allen, F. E. Carletti, R. Cull, J. Qian, L. Senbet, and P. Valenzuela (2013), Resolving the African Financial Development Gap: Cross-Country Comparisons and a Within-Country Study of Kenya. *World Bank Policy Working Paper* No. 6592. Washington, DC.
- Burges and Pande (2005), Do Rural Banks Matter? Evidence from the Indian Social Banking Experiment. *American Economic Review*. Pp. 780-788.
- Gompers, Paul A., and Andrew Metrick. 2001, "Institutional Investors and Equity Prices," *Quarterly Journal of Economics*, CXIV , 229-260.
- Goran Amidžić, Alexander Massara, and André Mialou (2014). Assessing Countries' Financial Inclusion Standing-A New Composite Index. *IMF Working Paper*. Pp. 4-30.
- Gujarati, D. N. & Porter, D. C., (2009), *Basic Econometrics*. Ninth Edition. McGraw-Hill. Singapore.
- Haniffa, R. & Hudaib, M. (2006), Governance Structure and Firm Growth of Malaysian Listed Companies, *Journal of Business, Finance and Accounting*, Vol.33. No.7. pp.1034–1052

Haniffa, R.M., and Cooke, T.E. (2002), Culture, Corporate Governance and Disclosure in Malaysian Corporations, *Abacus*, Volume 38, No.3, pp.317-329.

Harleytega Williams (2011), Determinants of Capital Adequacy, Efficacy of CAMEL. *International Journal of Academic Research- Vol. 1-No. 3. PP 233-248.*

Honoham and Beck (2007), Making Finance Work for Africa. The World Bank Publication. Pp. 71-162.

Nwezeaku, N.C. (2006), Theories and Practice of Financial Management, Owerri: Springfield Publishers Ltd, Owerri.

OECD Global Development Background Papers. World Bank (2014), *Global Financial Development Report 2014: Financial Inclusion*. Washington, DC.

Rojas-Suarez, L. (2010), Access to Financial Services in Emerging Powers: Facts, Obstacles, and Policy Implications.

Sarel, M. (1997), How Macroeconomic Factors Affect Income Distribution: The Cross-Country Evidence. *International Monetary Fund Working Paper No. 97/152*. Washington, DC.

Sarma, M. (2008), Index of Financial Inclusion. *Indian Council for Research on International Economic Relations Working Paper No. 215*.

World Bank 2014, Financial Inclusions. *Global Financial Development Report*. Pp. 1-105.

## APPENDIX 1

Dependent Variable: LOGRGDP

Method: Least Squares

Date: 05/17/16 Time: 22:09

Sample: 2006 2015

Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.252912	0.119183	2.122054	0.0428
LOGATM	0.926172	0.182652	1.723526	0.1425
LOGCBB	2.267282	0.231719	1.721561	0.1310
LOGBCB	-0.365316	0.101336	-3.605001	0.0012
LOGRDCB	0.450962	0.106324	4.241385	0.0002
LOGGDC	0.032129	0.130411	0.246364	0.8072
LOGINF	1.005589	0.143799	6.992998	0.0000
LOGGOVEX	-0.005341	0.020105	-0.265669	0.7924
R-squared	0.922401	Mean dependent var		2.149980
Adjusted R-squared	0.908544	S.D. dependent var		0.425868
S.E. of regression	0.128789	Akaike info criterion		-1.102492
Sum squared resid	0.464427	Schwarz criterion		-0.833135
Log likelihood	24.74237	F-statistic		66.56621
Durbin-Watson stat	1.244624	Prob(F-statistic)		0.000000

Source: Author's computation using Eview7.