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EDITORIAL

The Ilorin Journal of Management Sciences is a bi-annual publication of the Faculty of Management Sciences, University of Ilorin, Ilorin, Nigeria. In this Volume 6, Number 1, all the eight articles published covered issues in management and social sciences with contributors from the South-West, South-South and North-Central Geo-political zones in Nigeria. The journal will continue to provide a platform for national spread in her subsequent editions.

Some of the topics covered in this edition includes pension funding gaps; decision-usefulness of non-financial information; customer relationship management; strategic choices in small and medium scale enterprises; turnaround strategies and recoveries; gender diversity and accounting conservatism; and enterprise survival of family businesses.

I wish to commend the efforts of our various anonymous reviewers for doing excellent job and proffering constructive advice on the development of the original manuscripts for this edition. I hope our review will continue to improve in order to rank our journal among the best in the world. I also appreciate the unflinching support from all the Editorial members, Ilorin Journal of Management Sciences. I thank the Dean of the Faculty of Management Sciences, University of Ilorin, Prof. M. A. Ijaiya for being a tremendous motivator and a pillar of success in producing this edition. I look forward to receiving useful comments and suggestions from our audiences that will further add value to this Journal. Thank you and happy reading.

T. O. Fagbemi (Ph.D., ACA)
Editor-in-Chief
Ilorin Journal of Management Sciences

ABOUT THE JOURNAL

Ilorin Journal of Management Sciences is published bi-annually (June and December) by the Faculty of Management Sciences, University of Ilorin, Ilorin, Nigeria. The journal publishes well researched and well-articulated papers/articles on all issues in management, social sciences and other related disciplines. It also considers the conduct of research and inquiry in theoretical, empirical and experimental studies. The editors invite submission of manuscripts from contributors for publication. Manuscripts are subjected to rigorous blind peers review, and those that are accepted are published in the following issue of the journal.

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EFFECTS OF FINANCIAL INCLUSION ON PER CAPITAL INCOME IN NIGERIA

¹KOLAWOLE, Kayode David, ²AJAYI, Olu Ezekiel, ³MUSTAPHA, Abdulkadri & ⁴IBRAHIM, Rahji Ohize³

Abstract

Financial accessibility is an important strategy used for stimulating economic growth and efficiently allocate financial resources for productivity. Yet, Nigerians do not have adequate access to formal finance and are forced to rely on risky and expensive informal services thereby limiting their contribution to economic growth. Hence, the need to examine the effects of financial inclusion on per capital income in Nigeria. In line with this objective, the study employed time series data covering the period of 1987 to 2019. The method of data analysis used in the study was Autoregressive Distributed Lag Model. The study revealed that financial inclusion has significant impact on per capital income in Nigeria at 1% significance level with coefficient value of 6.528999. The study also revealed that interest rates negatively impact on per capital income in Nigeria at 1% significance level with coefficient value of -4.035544. The study concluded that financial inclusion is a significant determinant of per capital income in Nigeria. The study recommends that management of banks should managed interest rates in such a way that will encourage the usage of financial services.

Introduction

Financial inclusion facilitates the flow of financial resources from the surplus to the deficit sector units of an economy. It promotes easy accessibility and utilization of formal financial services by all individuals in an economy (Onaolapo, 2015). Despite the knowledge of the huge benefits from financial inclusion, about 60% of the adult population of Nigeria remained unbanked with continuous reduction in the usage of banks products and services (EFINA (2018). Consequently, the unbanked don't have access to formal financial services and are compelled to depend on some risky and costly informal financial services which affect their ability to fully take part in economic activities so as to increase their income and contribute to economic development. Financial Access Initiative (FAI) has estimated that 2.5 billion adults in the world don't

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use formal financial services to save or borrow while, sixty two percent (62%) of the adults living in Asia, Africa, Latin Africa and Middle East are un-served. However, Nigeria is not an exception with over 60 million Nigerians are financially un-served as at 2020 (Central Bank of Nigeria, 2020).

Furthermore, most of financial transactions in Nigeria occurs in informal financial markets, despite governments efforts towards channelling financial services to more productive activities through the banking sector. In Nigeria, there are several reasons for lack of access to financial services especially by the rural dwellers. More so, interest rates on loans charged by financial institutions have been excessively high and it has impaired the efforts of financial regulators in improving the financial inclusion in Nigeria. Economic growth in Nigeria whether as a result of financial inclusion or other growth factors has been fluctuating over the last decade with growth rate as low as 10.5% in 2003, 7.67% in 2013 and 1.9% in 2018 (Aye, 2015; African Development Bank, 2019). However, the Nigerian economy has remained underperforming, following the steep Gross Domestic Product (GDP) contraction in year 2020.

Furthermore, according to World Bank (2020), 40 percent of Nigerians (83 million individuals) live below the poverty line, while another 25% (53 million) are helpless and it is expected that the number of helpless Nigerians will increase by 2 million people because of COVID-19. Several studies such as Nwafor and Yomi (2018); Adetos, *et. al.* (2017) carried out research on the impact of financial inclusion on economic growth in Nigeria using variables such as savings mobilization, and loans and advances. However, this study uniquely constructed an index of financial inclusion by unifying the dimensions of financial inclusion which helps to understand and give a comprehensive picture of the level of financial inclusion. There is also the need to examine the impact of financial inclusion on per capital income while considering other variables that influence financial inclusion such as exchange rates and interest rates. Finally, the previous studies (Ekong and Okon, 2016 and John and Nwekemezie, 2019) concentrated on growth of gross domestic product while nothing much has been done on impact of financial inclusion on per capital income in Nigeria. Hence, the need to examine the effect of financial inclusion on per capital income in Nigeria.

Literature Review and Hypotheses Development

Several studies such as Onaolapo and Odetayo (2012); Omojolaibi (2017); Nwafor and Yomi (2018); Enueshike and Okpebru (2020) have examined financial inclusion on economic growth using credit to private sector and money supply as independent variables, while real GDP growth rate and unemployment rate were used as dependent variables. The study revealed that financial inclusion have significant impact on overall economic growth. In addition, studies such as Wakdok (2018) examined financial inclusion and economic growth using finance-growth theory, the study revealed that financial inclusion has significant impact on economic growth in Nigeria through financial deepening variables such as broad money, credit to private sector, loan deposit of the rural area and liquidity ratio of commercial banks. However, other studies such as Okoye, Adetiloye, Erin and Modebe (2017); John and Nwekemezie (2019) revealed that financial inclusion do not really contributes positively to the development of the economy.

Furthermore, Evans and Lawanson (2017) investigated the causal links between financial inclusion and economic growth in Nigeria. The study established that there is bi-directional causality between financial inclusion and the aggregate economy and that financial inclusion is a potent accelerator of economic growth. However, Evans and Lawanson (2017) considered variables such as loans and exchange rates while neglecting savings mobilization and interest rates.

Mohammed, Mensah and Gyeke-Dako (2017) examined financial inclusion and poverty reduction in Sub-Saharan Africa. Employing the Treatment Effects version of the Heckman Sample Selection Model and Propensity Score Matching (PSM) for robustness checks, the results of the probit models showed that financial inclusion (thus the use of accounts, savings, withdrawals and access to credit) significantly reduces poverty. The study of Omojolaibi (2017); Adetoso, Adegbola and Williams (2017) revealed that the numbers of active ATM, bank branches and government expenditures were the most robust predictors for financial inclusion on poverty reduction. These studies (Omojolaibi (2017); Adetoso, Adegbola and Williams (2017)) neglected per capital income as an important economic growth variable. In view of this, the study contributes to the existing knowledge by filling the identified gap.

Methodology

This study examined the effects of financial inclusion on per capital income in Nigeria. The secondary data used in this study were sourced from the Central Bank of Nigeria Statistical Bulletin within the time frame of 1987-2019. 1987 was chosen because it was the year that commenced the structural adjustment programme which is the major economic reforms in Nigeria. To analyse the obtained data, the study employed Autoregressive distributed lag model (ARDL). Autoregressive distributed lags model (ARDL) is the most appropriate because of the presence of lagged values of the dependent variable and also the presence of long-run relationships that exist between the economic time-series, hence the standard Ordinary Least Square estimator produces biased and incorrect regression estimates which may mislead the researcher to incorrect conclusions.

Model Specification

Following the in-depth review of literature; particularly the supply leading hypothesis and classical theory of interest rate, where developed financial sector offers critical services to reduce transaction, information and monitoring costs and improve per capital income in Nigeria. Therefore, the study modelled the effect of financial inclusion on per capital income in Nigeria as follows:

$$PCI = f(FI, INT, INFL, EXCR) \dots \dots \dots (i)$$

Economically, the model can be stated as follows:

$$PCI_t = \beta_0 + \beta_1 FI_t + \beta_2 INT_t + \beta_3 INFL_t + \beta_4 EXCR_t + \mu_t \dots \dots \dots (ii)$$

The model can be transformed into ARDL-ECM form as:

$$\Delta \text{PCI}_t = \beta_0 + \beta_1 \Delta \text{PCI}_{t-1} + \beta_2 \Delta \text{FI}_t + \beta_3 \Delta \text{FI}_{t-1} + \beta_4 \Delta \ln \text{INT}_t + \beta_5 \Delta \ln \text{INT}_{t-1} + \beta_6 \Delta \ln \text{INFL}_t + \beta_7 \Delta \ln \text{INFL}_{t-1} + \beta_8 \Delta \ln \text{EXCR}_t + \beta_9 \Delta \ln \text{EXCR}_{t-1} + \beta_{10} \text{ECM}_{t-1} + \mu_t$$

.....(iii)

Where:

PCI= Per Capital Income

FI= Financial Inclusion

INT= Interest Rates

INFL= Inflation

EXCR= Exchange Rates

μ_t = Error term

t = Time.

α_0 and β_1 are the coefficients to be estimated

Results Presentation and Analysis

Non-stationarity is a common feature of time series data. The problem with non-stationary or trended data is that the standard Ordinary Least Square (OLS) estimator produces biased and incorrect regression estimates which mislead the researcher to incorrect conclusions. In other words, the application of OLS on non-stationary series leads to spurious regression results. It is vital therefore, to perform unit root test to examine the order of integration of the series and avoid spurious regression. Therefore, Augmented Dickey Fuller test and Philips-Perron unit root tests were conducted in this study and the result is presented in Table 1. The result of the Augmented Dickey Fuller test and Philips-Perron test revealed that INFL is stationary at level. That is, integrated of order zero [I(0)] while FINC, EXCR, INT and PCI are stationary at first difference which mean that they are integrated of order one, that is I(1).

Table 1: Result of Unit Root (Stationarity) Test

Variables	Augmented Dickey-fuller (ADF)	5% critical level	Philip-Perron (PP)	5% critical level	Order of integration	
					ADF	PP
FINC	-5.990685	-3.562882	-6.351723	-3.562882	I(1)	I(1)
INFL	-3.807809	-3.562882	-8.267473	-3.562882	I(0)	I(0)
INT	-7.279346	-3.562882	-7.475697	-3.562882	I(1)	I(1)
EXCR	-3.856591	-3.562882	-3.881881	-3.562882	I(1)	I(1)
PCI	-3.680112	-3.562882	-3.678841	-3.562882	I(1)	I(1)

Source: Author's computation (2021)

The result of the unit root tests show that a variable is integrated of order one I(1) while others are stationary at level I(0). So, the most appropriate test of cointegration is the

Autoregressive Distributive Lag (ARDL) Bound test. This is employed for the model (PCI model) estimated in this study. The result is contained in Table 2. The null hypothesis of the test is that, there is no long-run relationship (no cointegration) between the variables. The decision rule is to reject the null hypothesis when F-statistics of the test is greater than the Critical Value of upper bound at a chosen level of significance (5% in this study). On the other hand, the null hypothesis is not rejected when the F-statistics is less than that of the Critical Value of the lower bound. When the F-statistics falls between the upper and the lower bound, the test is inconclusive.

The result of the test indicates that the F-statistic of per capital income model 26.83 with Critical Values of lower and upper bound are 2.86 and 4.01 respectively. This shows that the F-statistic of the model is higher than the Critical Value of the Upper Bound in the model. It implies the rejection of the null hypothesis. Hence, the test shows that there is cointegration in the model. In short, the ARDL bound test of cointegration shows that there is long-run equilibrium relationship between the variables in all the model. This leads to the modelling of long-run relationship using autoregressive distributed lags (ARDL).

Table 2: Cointegration Test (Bound Testing Approach)

Model	F-statistic	Lower Bound (at 5%)	Upper bound (at 5%)	Remarks
PCI	26.83	2.86	4.01	Significant

Source: Authors computation (2021)

Table 3 shows the results of autoregressive distributed lags (ARDL) model which was estimated to evaluate the effect of financial inclusion on per capital income. The R-squared of 0.779 indicates that the model is of good fit. This implies that 78% of systematic variations in per capital income were accounted by financial inclusion (FINC), interest rates (INT), exchange rates (EXCR) and inflation (INFL).

Also, as indicated in the table, the coefficient of error correction term (CointEq(-1)) is - 7.190813. Given the t-statistic of -4.198962, the value is statistically significant at 5%. Since it is negative and significant, it is implied that per capital income (PCI) responds to shocks from financial inclusion (FINC), interest rates (INT), exchange rates (EXCR) and inflation (INFL). This means that PCI is getting adjusted at a speed of 7.19 from state of disequilibrium in the short run to the state of equilibrium in the long run.

The result shows that all the variables except INT and EXCR are negatively related to PCI. This implies that PCI reduces as a result of a unit increase in interest rate (INT) and exchange rates (EXCR) in Nigeria. While a unit increase in financial inclusion will increase per capital income in Nigeria. However, the coefficients of financial inclusion, interest rates and exchange rates are indicated to be statistically significant. This is shown by the standard error, t-statistics and the P-values of the coefficients. On the basis of the standard error, coefficient of a variable is said to be significant when half of the coefficient is greater than the standard error of the coefficient. In Table 3, the coefficients of FINC, INT and EXCR are 6.528999, 4.035544 and 1.159640 while the standard errors of the coefficients are 0.730346, 0.435351 and 0.391854 respectively. Since half of each coefficient is greater than its standard errors, the variables FINC, INTR and EXCR are

statistically significant. This is also, shown by the P-values of their coefficients which is less than five percent (5%) level of significance. By magnitude, a unit increase in FINC will lead to increase of 6.528999 in per capital income while a unit increase in the INT and EXCR will lead to 4.035544 and 1.159640 decrease in per capital income in Nigeria. Therefore, FINC, INTR and EXCR have enormous significant impact on per capital income in Nigeria.

Table 3: Regression Result of Per Capital Income (PCI) model

PCI	Coefficient	Std. Error	t-Statistic	Prob.
C	256.978892	64.904478	3.959340	0.0107
FINC	6.528999	0.730346	8.939592	0.0003
INT	-4.035544	0.435351	-9.269633	0.0002
EXCR	-1.159640	0.391854	-2.959367	0.0315
INFR	0.777250	1.433067	0.542368	0.6109
CointEq(-1)	-7.190813	1.712521	-4.198962	0.0085
R-squared	0.779214	F-statistic		136.1977
Adjusted R-squared	0.695346	Prob(F-statistic)		0.000016
Log likelihood	-156.8975	Durbin-Watson stat		2.049390

Source: Author's Computation (2021)

Breusch-Pagan-Godfrey test of Heteroscedasticity and Breusch-Godfrey Serial Correlation LM test were conducted for the model in this study and the results are presented in Table 4. Heteroscedasticity test is usually conducted to test the presence or otherwise of heteroscedasticity (variability of variance of the series) in the model. The null hypothesis of the test is that the series are homoscedastic (there is no heteroscedasticity). The null hypothesis is rejected when the probability value of the F-statistics of the test is less than a chosen level of significance (usually 5%). In this case, the result of the Breusch-Pagan-Godfrey test of heteroscedasticity presented in table 4.6 shows that the F-statistics of test is 0.569940 with p-value 0.8359 for the model. Since, all the P-values are greater than 5%, the null hypothesis is not rejected. So, the test shows that there is no heteroscedasticity in the model.

Another test conducted is the Breusch-Godfrey Serial Correlation LM test. Its null hypothesis is that there is no serial correlation. That is, the error terms of different periods are not correlated. The null hypothesis is rejected when the probability value of the F-statistics of the test is less than a chosen level of significance (usually 5%). In this study, the F-statistics for serial correlation tests for the model is 0.643987 with p-value 0.5852. Since the probability value of the F-statistics of the model is greater than 5% level of significance, the null hypothesis is accepted and we conclude that there is no serial

correlation in all the models. Therefore, the results of the model are free from the problem of heteroscedasticity and serial correlation (autocorrelation).

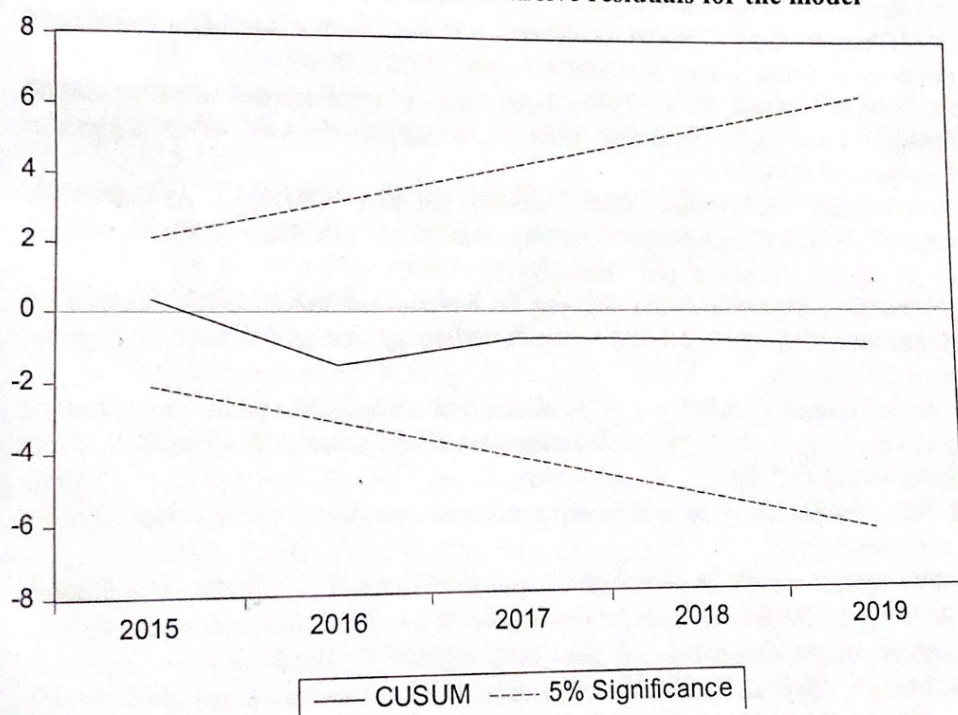
Table 4: Result of Diagnostic Test for the Model

Models	Breusch-Pagan-Godfrey Heteroscedasticity Test:		Breusch-Godfrey Serial Correlation LM Test	
	F-statistic	P- value	F-statistic	P-value
PCI model	0.569940	0.8359	0.643987	0.5852

Source: Author's computation, (2021)

The study proceeded by testing for stability of long run coefficients using the cumulative sum of recursive residuals (CUSUM) tests. The test results for cumulative sum of recursive residuals for the model is shown in Figure 1. To establish stability, it is expected that the cumulative should remain within the two critical lines at 5% significance level. Otherwise, there is problem of instability. However, it was shown in Figure 1 that the CUSUM plot is within the two critical bounds. It therefore suggests stability of parameters for the model.

Figure 1- Plot of cumulative sum of recursive residuals for the model



Conclusion and Recommendations

Based on the empirical findings of the study, the study concludes that interest rates impact on per capital income in Nigeria. The study also concludes that financial inclusion has significant relationship with per capital income in Nigeria. Finally, the study concludes that financial inclusion is a significant determinant of per capital income in

Nigeria. Based on the conclusion above, the study recommends that management of banks should managed interest rates in such a way that will encourage the usage of financial services by non-banked population.

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