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IMPACT OF MICROFINANCE INSTITUTIONS ON ECONOMIC DEVELOPMENT IN NIGERIA

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Abstract

This paper employed autoregressive distributed lag (ARDL) technique for cointegration to empirically examine the impact of microfinance institutions on economic development in Nigeria, using time series data covering the period of 1991-2020. The paper found a cointegration relationship between microfinance institutions and economic development in Nigeria. The findings also showed that microfinance deposit, loan and investment have positive and significant impact on economic development in Nigeria in the long-run. Base on the findings, the paper recommends that, microfinance institutions should expand their financial services to meet the financial requirements of the poor, low-income groups and micro-entrepreneurs. The Central Bank of Nigeria (CBN) should also continue its effort of introducing appropriate microfinance policy which is critical to the development of sustainable microfinance institutions.

Keywords: Microfinance Institutions, Deposit, Loan, Investment, Economic Development, ARDL, Nigeria.

JEL Codes: C22, G21, O16.

1. Introduction

Microfinance institutions refers to the specialized commercial banks licenced by the Central Bank of Nigeria (CBN) to provide financial services to the low-income earners who often do not have access to financial services offer by conventional banks due to high transaction cost, high risk involved in extending credit to them, as well as holding little or no tangible assets as collateral for credit (Apere, 2016). The failure of conventional banking in Nigeria to meet the socio-economic complexities (needs) of the unbanked urban dwellers and rural communities that consequently experience rapid growth and changes as well as government desire to reach rural areas with development gave rise to the emergence of community banks (now microfinance banks) as a way of providing financial services to the low income earners so as to finance and improve their income generation and productive activities (Barguellil & Bettayeb, 2020).

Hence, in recent times, the growing awareness of the potentials of microfinance in poverty reduction, economic growth and development, coupled with the increasing number of microfinance institutions has effectively put the issue of microfinance a top agenda in most developing countries. In Nigeria, the CBN is spearheading this campaign and act as the supervisory and regulatory body for this sub-sector. The financing of the real sector which is one of the major objectives of Nigerian policy makers cannot be overemphasized. For any program on poverty alleviation to be successful, the economy needs a viable real sector that can cushion the economic and production process in the country. In most developing countries of Asia, Africa, South America and the rest, poverty reduction is anchored on the development of small and medium scale enterprises. This is due to the low technological capacity of these nations; majority of people in these nations engage in low productive activity. As a result, economic development in these regions to a large extent depends on how well the small and medium enterprises flourish. The inaccessibility of the poor to financing options has hindered the progress and survival of most of these enterprises thereby worsening the poverty

incidence in these economies. Enhancement of small-scale production plays important role in development process of a developing economy. Apart from increasing the per capita output and expenditure, it enhances regional economic balances through industrial dispersal and promotes effective allocation of resources (Awojobi, 2011).

There are increasing agreements in economic literature and among policy makers that, microfinance institutions play an important role in stimulating economic growth and achieving inclusive development in developing countries. This is so because microfinance institutions have the capacity to identify and administer financial services to the low-income groups and micro-entrepreneurs who often do not have access to financial services offer by conventional banks (Ochonogor, 2020).

Available statistics showed that, the number of licenced microfinance institutions (then, community banks) in Nigeria, is 66 in 1991, peaked at 1355 in 1995 but felt drastically to 769 in the year 2002, and after community banks transformed into microfinance banks in December 2006 it further reduced to 750. The number however, increased to 916 as at the end of 2020. The total assets of these banks grew from ₦568 billion in December 2019 to ₦1.010 trillion in December 2020 (CBN, 2020). These banks provide essential financial services (such as savings, lending, domestic transfer and so on) to low income-earners, financial excluded groups like market women and unemployed youths.

The Central Bank of Nigeria (CBN) as the regulatory and supervisory authority in the financial sector has over the years performs some major development finance functions primarily focused on improving and sustaining the activities of microfinance institutions in Nigeria. Recently, the CBN had initiated the recapitalization of the microfinance banks, which gives banks a timeline to attain certain minimum capital requirements. According to CBN, tier 1unit microfinance banks must meet ₦100 million capital threshold by April 2020 and ₦200 million by April 2021. Tier 2unit microfinance banks must meet a ₦35 million capital threshold by April 2020 and ₦150 million by April 2021. Also, state microfinance banks must increase their capital to ₦500 million by April 2020 and ₦1 billion by April 2021. While national microfinance banks must hold capital of ₦3.5 billion by April 2020 and ₦5 billion by April 2021. However, due to the outbreak of COVID-19 the apex bank extended the timeline to 2022.These policy measures aim to improve the performance of the microfinance institutions so as to contribute efficiently to economic growth and development in Nigeria (CBN, 2020). Thus, the objective of this paper is to empirically examine the impact of microfinance institutions on economic development in Nigeria by considering the three financial services of microfinance institutions (microfinance deposit, loan and investment) and using human development index as proxy for economic development. After this introduction, the rest of the paper is structured as follows: the second section is on the review of related empirical literature. The third section presents the methodology of the paper. The fourth part presented and discussed the empirical results. The last section summarized the main findings, conclusion and provides policy recommendations.

2. Literature Review

2.1 Theoretical Review

Theoretically, there are conflicting views on financial institutions-economic development nexus. This resulted in the formation of four major theories regarding this relationship. These are: supply-leading hypothesis pioneered by Schumpeter (1911); demand-following hypothesis proposed by Robinson (1952); feedback hypothesis championed by Patrick (1966); and neutral hypotheses supported by Lucas (1988).

According to the supply-leading hypothesis, the existence of financial institutions and the supply of their financial assets, liabilities and related financial services in advance of demand for them would provide efficient allocation of resources from surplus units to deficit units, thereby leading the other economic sectors in their growth process and development. In contrast to supply-leading hypothesis, Robinson (1952) contends that where enterprise leads, finance simply follows, suggesting that it is economic growth and development which creates the demand for

financial institutions and their services and not vice versa. According to this view, economic development creates demands for particular types of financial arrangements, and the financial system responds automatically to these demands.

Patrick (1966) asserts that the relationship between financial institutions and economic development could vary over time. In particular, at the initial stage, the services provide by financial institutions will lead to economic growth and development; however as real growth takes place in the economy, this link becomes of lesser importance and growth will induce the demand for greater financial services. Thus, this hypothesis is a combination of the supply-leading and demand-following hypotheses which is try to balance the two view points above. However, some economists just do not believe that the financial institutions-economic development relationship is important. Lucas (1988) declares that economists badly over-stress the role of financial institutions on economic development. According to this view, the relationship between financial institutions and economic development is not important. Hence financial institutions and economic development are causally independent.

2.2 Empirical Review

Generally, the impact of financial institutions on economic growth and development has attracted the attention of researchers who empirically examined the relationship using various econometrics techniques. For instance, Zayyana and Salisu (2021) employed Zivot-Andrews (1991) and Perron (1997) unit root tests that endogenously detect structural breaks and Pesaran et al. (2001) autoregressive distributed lag (ARDL) cointegration approach to examine the impact of bank credit to private sector on economic growth in Nigeria over a period of 1986-2019. After accounting for structural breaks in the series, the study found a cointegration relationship between bank credit to private sector and economic growth in Nigeria. The findings also revealed that bank credit to private sector has positive and significant effect on economic growth in Nigeria both in the short-run and in the long-run.

Similarly, Ochonogor (2020) examined the nexus between microfinance institutions activities and economic growth using gross domestic product (GDP) as indicator for economic performance. The author re-examined the performance of microfinance institutions (MFIs) and their impact in promoting economic development in Nigeria using ordinary least square (OLS). The study found a positive relationship between microfinance loan and human development index (a proxy for economic development). The findings also suggest that microfinance institutions promote economic growth and social capital formation in Nigeria. Barguellil and Bettayeb (2020) applied VAR estimation technique to examine the impact of microfinance on economic growth in Tunisia during the period of 1995-2017. The result revealed that microfinance contributes more effectively to economic growth in Tunisia through its financial performance.

Murad and Idewele (2017) also explored the impact of microfinance institution on economic growth in Nigeria using time series secondary data for the period 1992-2012The study employs the multiple regression analysis. The findings of the study show that microfinance loans have a significant positive impact on the short run economic performance in Nigeria. Microfinance loans enhanced consumption per capita in short run with an impressive coefficient, although these banks 'loans do not have a significant impact on economic growth in the long run. Microfinance investment however, has a significant impact on economic performance in Nigeria in the long run. Puatwoe and Piabuo (2017) used ARDL-bounds testing approach to investigate the long-run relationship between bank credit to private sector and economic growth in Cameroon from 1980-2014. The results showed that bank credit to private sector has positive and significant effect on economic growth.

Ahmed and Bashir (2016) investigated the relationship between bank credit to private sector and economic growth in 6 countries of South Asian Association for Regional Cooperation (SAARC) over the period of 1980-2013. The study employed pooled ordinary least square (OLS); two stages least square (TSLS) and panel TSLS fixed-effect. The findings revealed that domestic credit to private sector by banks exert positive and significant effect on economic

growth in all regression models with alternative estimation methods. In the same vein, Mahlangu and Matsvai (2016) employed Pedroni and Kao Cointegration Tests as well as Panel Dynamic Ordinary Least Squares estimation techniques to investigate the relationship between banking sector development and economic growth in 13 selected countries of Southern African Development Community (SADC) region for the period 2005-2015. The results showed that domestic credit to private sector by banks has positive and significant effect on economic growth for all the 13 selected SADC countries. Apere (2016) also examined the impact of microfinance banks activities on economic growth in Nigeria over the period of 1992-2013. This study made use of ordinary least square (OLS) and the empirical finding from the study has shown that the activities of microfinance banks have the capacity to influence the entire economy if it is well coordinated. The results of the study also indicate that microfinance bank loans and domestic investment significantly and positively affect the growth of the Nigeria's economy based on the magnitude and the level of significance of the coefficient and p-value and, there is a long-run relationship between microfinance bank loans, investment and economic growth in Nigeria.

Shahid et al. (2015) also employed Johansen cointegration and Granger causality tests to investigate the nexus between bank credit to private sector and economic growth in Pakistan from 1980-2012. The results revealed that bank credit to private sector has positive and significant effect on economic growth, and the causality result showed the bidirectional causal relationship between banking sector credit and economic growth.

Petkovski and Kjosevski (2014) used generalized method of moments (GMM) dynamic panel method to examine the nexus between bank credit to private sector and economic growth across sample of 16 transition countries in Central and South Eastern Europe from 1991-2011. The results showed that bank credit to private sector and interest rate margin are negatively related to economic growth. The authors attributed this negative relationship as a consequence of the large stock of non-performing loans due to banking sector crises experienced by these economies at the beginning of their transition period, and 2008 global financial crisis.

Tripathy and Pradhan (2014) used Johansen cointegration and Granger causality tests to examine the relationship between bank credit to private sector and economic growth of India for the period of 1960 to 2011. The results indicated that bank credit to private sector positively affects economic growth, and there is strong evidence of unidirectional causality running from banking sector credit to economic growth. Similarly, Ayodele and Arogundade (2014) also investigated the impact of microfinance loans and advances on economic growth in Nigeria. The authors used Gross Domestic Product (GDP) as a proxy for economic growth. Using secondary data and applying ordinary least square of multiple regressions, it was revealed from the findings that microfinance loans and advanceshavepositive and significant impact on economic growth in Nigeria.

The gap identified in the above previous studies is that, although many studies have empirically examined the impact of microfinance institutionson economic growthin Nigeria, however, these studies limited the activities of microfinance institutions to only credit (loan), while neglecting the two other activities of microfinance institutions (i.e.: microfinance deposit and investment). The studies alsoused standard metric of economic growth (i.e.: GDP) and failed to considered human development index (HDI) which is all-encompassing measure of a nation's development. The only exception is Ochonogor (2020); although the author used human development index (HDI) to measure economic development, however, he has not accommodated all the three major activities of microfinance institutions. And also, he failed to use autoregressive distributed lag (ARDL) technique of estimation which is more robust than OLS. Hence, this study aims to fill this gap by employing the ARDL cointegration test to examine the impact of microfinance deposit, loan and investment on economic development in Nigeria during the period of 1991-2020.

3. Methodology

3.1 Model Specification

The model used in this study followed and extended the work of Ochonogor (2020) who empirically examined the impact of microfinance loan on economic development in Nigeria. His model is specified in a functional form as follows:

$$HDI_t = f(MLOAN_t,\ SSE,\ GFC,\ GDP,) \quad (1)$$

Where: HDI = Human Development Index; MLOAN = Microfinance Loan; SSE = Secondary School Enrolment; GFC = Gross Fixed Capital Formation; and GDP = Gross Domestic Product. To make the model more encompassing and suit the study at hand, the model was modified to include the three major activities of microfinance institutions which is the study intended to achieve as specific objectives of the study for appropriate analysis. Such activities are: Microfinance Deposit (MDEPOSIT); Microfinance Loan (MLOAN); and Microfinance Investment (MINVEST). Hence, the functional specification of the model is presented as follows:

$$HDI_t = f(MDEPOSIT_t,\ MLOAN_t,\ MINVEST,) \quad (2)$$

The data cover the period of 1991 to 2020 and it was sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin (2020) and United Nations Development Reports (2020). Taking natural logarithm of equation (1) yields the baseline econometric model of the study as presented in equation (3).

$$HDI_t = \alpha_0 + \alpha_1 lnMDEPOSIT_t + \alpha_2 lnMLOAN_t + \alpha_3 lnMINVEST_t + \varepsilon_t \quad (3)$$

3.2 Model Estimation Techniques

The methodological approaches employed in this paper are in three steps. The first step involves the conduct of unit root tests to establish the stationarity property of the data. In this regard, Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root testswere utilized.

The second step is testing the existence of cointegration (long-run) relationship among the variables in the model. In this regard, Autoregressive Distributed Lag (ARDL) bound test approach by Pesaran et al. (2001) was employed. This method has been frequently applied in previous studies and preferred over other methods of cointegration tests because it does not impose restriction on the integration order of the variables being I(0) or I(1) and has flexibility to change lag lengths (Pesaran et al., 2001). It also addresses the problems of endogeneity, omitted variables and autocorrelation as well as providing efficient and unbiased estimates and valid t-statistics even with small sample size (Abubakar &Gani, 2013; Abubakar &Kassim, 2016). The ARDL model is specified in equation (4):

$$\Delta HDI_t = \alpha_0 + \alpha_1 lnMDEPOSIT_{t-1} + \alpha_2 lnMLOAN_{t-1} + \alpha_3 lnMINVEST_{t-1} + \sum_{i=1}^{p} \beta_1 \Delta lnMDEPOSIT_{t-i} + \sum_{i=0}^{q} \beta_2 \Delta lnMLOAN_{t-i} \sum_{i=0}^{r} \beta_3 \Delta lnMINVEST_{t-i} + \varepsilon_t \quad (4)$$

The third step is the estimation of the short-run coefficients of the model. In order to obtain the short-run coefficients, an error correction model (ECM) is estimated and the ARDL specification of the ECM is presented in Equation (5):

$$\Delta HDI_t = \alpha_0 + \sum_{i=1}^{p} \beta_1 \Delta lnMDEPOSIT_{t-i} + \sum_{i=0}^{q} \beta_2 \Delta lnMLOAN_{t-i} \sum_{i=0}^{r} \beta_3 \Delta lnMINVEST_{t-i} + \pi_1 ECT_t + \varepsilon_t \quad (5)$$

4. Presentation and Discussion of Results

4.1 Results of Unit Root Tests

This study employed Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests to check for stationarity status of the variables. The results of the ADF and PP unit root tests presented in Table 1 revealed that the dependent variable (HDI) has no unit root at level, hence, it is stationary and integrated of order zero, i.e. [*I(0)*]. But, all the three independent variables have unit root at their levels, which imply that they are not stationary. However, after taking the first differences, the three independent variables became stationary, therefore, they are integrated of order one [*I(1)*].

Table 1: Results of ADF and PP Unit Root Tests

	ADF		PP		
Variables	Level	1st difference	Level	1st difference	Stationarity Status
HDI	-2.7182*	_____	-4.9689***	_____	I(0)
*ln*MDEPOSIT	-0.4087	-2.4303**	-0.4087	-2.4303***	I(1)
*ln*MLOAN	-0.6606	-7.7654***	-0.2290	-10.2737***	I(1)
*ln*MINVEST	-1.4013	-5.6916***	-1.4013	-5.6916***	I(1)

Notes: ***, ** and * denote significance at 1%, 5% and 10%, respectively. ln denotes logarithm and lag length are selected based on Schwartz Information Criterion (SIC).

Source: Researcher's computation (2022)

The establishment of the mixture of I(0) and I(1) for the series provide a solid justification for the adoption of ARDL cointegration technique in this paper. Thus, after verifying the stationary status of the variables, the cointegration test was conducted using the ARDL bounds testing for cointegration.

4. 2 Result of ARDL Cointegration Test

The result of ARDL bound test for cointegration presented in Table 2 revealed that, there is cointegration relationship among the variables in the model. Because, the computed F-statistic (5.6510) is greater than the upper bounds critical value [I(1)] at 1% level of significance, which imply that there is a cointegration or long-run relationship among economic development, microfinance deposit, microfinance loan and microfinance investment in Nigeria.

Table 2: Results of ARDL Bound Testing to Cointegration

Dependent Variable	Function	F-Statistics
HDI	f(*ln*MDEPOSIT, *ln*MLOAN, *ln*MINVEST)	5.6510***
Critical Values Bounds		

1%		2.50%		5%		10%	
I(0)	I(1)	I(0)	1(1)	I(0)	I(1)	I(0)	I(1)
3.42	4.84	2.87	4.16	2.45	3.63	2.01	3.1

Note: *** denotes statistical significance at 1% level; and the optimal lag-length selected by Schwartz Information Criterion (SIC) for the variables is (1, 4, 1, 4).

Source: Researcher's computation (2022)

Having confirming the cointegration (long-run) relationship among the variables in the model, the next step is to estimate the coefficients of both the long-run and short-run impact of microfinance deposit, microfinance loan and microfinance investment on economic development in Nigeria.

4.3 Results of Long-run and Short-run Estimates

Table 3presented the results of long-run and short-run estimated coefficients of the model. The results revealed that holding other factors constant, all the three activities of microfinance institutions that is, microfinance deposit (*ln*MDEPOSIT), microfinance loan (*ln*MLOAN), and microfinance investment (*ln*MINVEST) have positive and significant impact on economic development (HDI) in the long-run at 1% significance level. Specifically, a 1% increase in microfinance deposit will leads to 0.22% increase in economic development in the long-run.Thus, increasing microfinance deposit is associated with higher economic development in Nigeria, and vice versa. Similarly, a 1% increase in microfinance loan will lead to an increase in economic development by 0.13% in the long-run. Hence, increasing microfinance loan is associated with higher economic development in Nigeria. This finding lends support to the works of Murad and Idewele (2017) and Ochonogor (2020) who also found that microfinance loan has positive and significant effect on economic development in Nigeria. In addition, the findings also showed that microfinance investment has positive and significant impact on economic development (HDI) in the long-run at 1% significance level. Specifically, a 1% increase in microfinance investment will leads to 0.06% increase in economic development in the long-run. This finding is in agreement with the hypothesis of this study that microfinance institutions activities have positive influence on economic growth and development in Nigeria.

Table 3: Results of Long-run and Short-run Estimates

Panel A: Long-run Coefficients - Dependent variable is HDI				
Regressors	Coefficient	Standard Error	T-Ratio	Prob.
*ln*MDEPOSIT	0.2201	0.0360	6.1173	0.0001
*ln*MINVEST	0.0616	0.0196	3.1341	0.0106
*ln*MLOAN	0.1292	0.0256	5.0496	0.0005
Panel B: Short-run Coefficients - Dependent variable is ΔHDI				
ΔlnMDEPOSIT	0.0235	0.0272	0.8621	0.4088
$\Delta lnMDEPOSIT_{t-1}$	-0.0869	0.0402	-2.1623	0.0559
$\Delta lnMDEPOSIT_{t-2}$	-0.0580	0.0350	-1.6582	0.1283
$\Delta lnMDEPOSIT_{t-3}$	0.0376	0.0276	1.3619	0.2031
ΔlnMINVEST	-0.0054	0.0119	-0.4565	0.6578
ΔlnMLOAN	-0.0353	0.0226	-1.5664	0.1483
$\Delta lnMLOAN_{t-1}$	0.0538	0.0338	1.5899	0.1430
$\Delta lnMLOAN_{t-2}$	0.0522	0.0290	1.7985	0.1023
$\Delta lnMLOAN_{t-3}$	-0.0394	0.0208	-1.8944	0.0874
C	79.128	12.105	6.537	0.000
ECT_{t-1}	-0.5507	0.1981	-2.7799	0.0195
R^2		0.8426		
F-stat		-34.978		0.0000
D.W-stat		1.8846		

Note: Δ is the first difference operator.

Source: Researcher's computation (2022).

However, the short-run results showed that most of the estimated coefficients are statistically insignificance. This can be intuitively explained by the nature of the variables for example, microfinance loans and investment need lag of time before starting having impact on economy development.

Jointly, the three independents variables in the models are adequately explaining the variations of the dependent

variable (HDI) in Nigeria. This is indicated by the high R^2 (0.8426) recorded in the model. This implies that, over 84% of all the variations in HDI, over the period (1991 to 2020), are explained by microfinance deposit, loan and investment in Nigeria. The coefficient of the error correction terms lagged by one period ($ECT_{t-1)}$ is negative and significant at 1%, and therefore meets our expectation. It implies that 55% deviation from the long-run will be corrected in 1 year.

4.4 Results of Diagnostic Tests

The results of diagnostic tests reported in Table 4 showed that the ARDL model passed all the diagnostic tests including normality, serial correlation, heteroscedasticity and functional form. Thus, the estimated relationship is free from the problems of normality and serial correlation. In addition, heteroscedasticity is not a problem and there is no omitted variable bias.

Table 4: ARDL-ECM Model Diagnostic Tests

Test Statistic	Results
Normality: Jarque-Bera	0.7728[0.6967]
Serial Correlation, Prob. F(1,9)	0.0247[0.8785]
Heteriscedasticity, Prob. F(15,9)	0.4924[0.8918]
Functional Form: Reset: Reset F-stat(1,24)	1.4820[0.1420]

Note: the values in parenthesis [ ] are probabilities

Source**:** Author`s computations (2022)

4.5 Results of Model Stability Tests

In an attempt to check the stability property of the estimated parameters, the cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of recursive residuals (CUSUMQ) tests were conducted. The plots of both CUSUM and CUSUMQ are within the boundaries (see Figure 1). These indicate that the model is stable in the long-run.

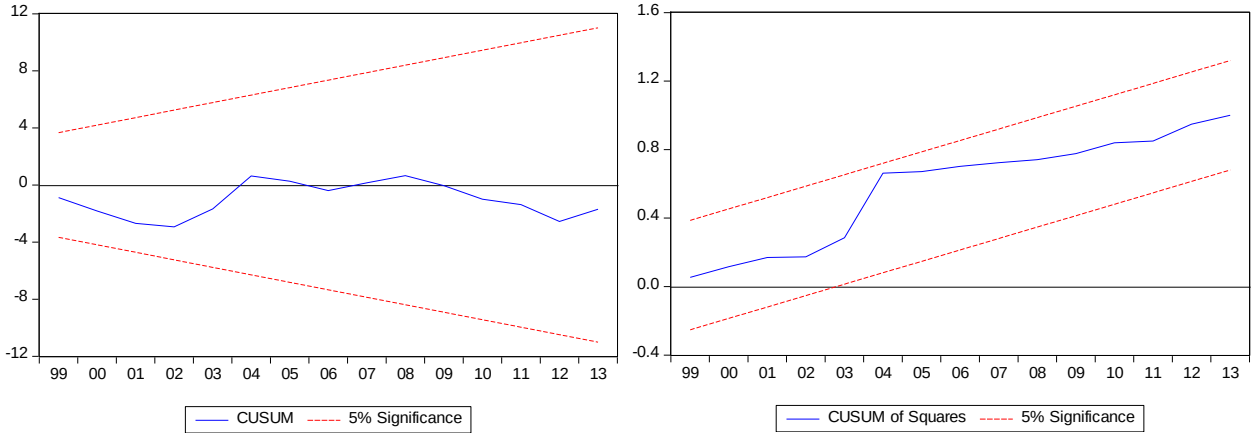

Figure 1: CUSUM and CUSUMSQ

5. Conclusion and Recommendations

This paper investigated the impact of microfinance institutions on economic development in Nigeria from 1991-2020. The paper employed autoregressive distributed lag (ARDL) estimation technique for cointegration. The empirical evidence demonstrated that there is a cointegration (long-run) relationship between microfinance institutions and economic development in Nigeria. The estimation results also revealed that high microfinance deposit, loan and investment were associated with high economic development in the long-run, and vice versa. Based on the results and discussion, it is concluded that the activities of microfinance institutions have positive and significant impact on economic development in Nigeria. Among other things, the paper recommended that, themicrofinance institutions should expand their financial

services to meet the financial requirements of the poor, low-income groups and micro-entrepreneurs. The Central Bank of Nigeria (CBN) should also continue its effort of introducing appropriate microfinance policy which is critical to the development of sustainable microfinance institutions.

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