

Microfinance Operations and Women Empowerment in Nigeria

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Abstract: *This study examined the effect of microfinance operations on women empowerment in Nigeria from 1999 to 2020. Specifically the study examined the effect of microfinance bank loans, microfinance bank deposits, microfinance bank assets, and microfinance bank investments on women empowerment. The independent variable is microfinance bank operations measured by microfinance bank loan, deposits, assets, and investment. The dependent variable is women empowerment measured by proportion of microfinance credit to numbers of women able to access bank loans. The data for the study was sourced from Central Bank of Nigerian Statistical Bulletin (2020) and the World Bank Data Base (2020) with respect to both the study variables and the time scope. Meanwhile, the study adopted the Autoregressive Distributed Lag Model through the instrumentality of Econometric Views Version 9.0. The study found that microfinance bank loans, microfinance bank deposits, and microfinance bank assets have positive significant effect on women empowerment both on the short and long run. However, microfinance bank investments have positive insignificant effect on women empowerment both on the short and long run. Hence, the study concludes that microfinance banks' operations are instrumental to women empowerments in Nigeria both on the short and long run. As such, efforts should be made at increasing women access to microfinance so as to aid their personal development.*

Keywords: microfinance operations, bank deposit, bank loans, bank assets, women empowerment,

I. Introduction

Basically, microfinance banks all over the world play critical roles in reducing poverty rates particularly in rural areas wherein most of her population (amongst whom are women) are unable to access banking services. Thus, the primary goal of microfinance bank programs is to enable those that are under-privileged to gain access to banking services in order to engage in income-generating activities, resulting in economic empowerment for the majority of impoverished youths and women. Put differently, Josephat, Fulment, and Matunga (2017) contend that the major focus of microfinance banks' programmes is to empower youths and women by providing them with better accessibility to business and monetary resources, a larger social network, and also more purchasing power.

According to Kumar (2020), Nigeria's microfinance business has reached a tipping point. Its main goal is to showcase all four of the industry's most well-known models. As stated by Rahman and Khanam (2017), there were 160 registered microfinance institutions (MFIs) in Nigeria in 2001, with total savings of N99.4 million and absolutely stellar credit of N649.6 million, indicating significant business transactions in the sector. More so, as at 2011, the Central Bank of Nigeria (CBN) registered 820 microfinance banks (MFBs).

An instance of women empowerment programme in Nigeria is the establishment of Peoples Bank and Community Bank from 1985 to 1993. This is an attempt at validating the assumption of whether women are economically and socially empowered through access to micro credit from Micro Finance Bank. Since then, underprivileged Nigerians especially women living in the villages have received financial assistance from microfinance banks to start enterprises (Ananwude, Anyanwu, & Andrew, 2018).

As reported by Hameed and Imtiaz (2018), one of the benefits of the various women empowerment programme in Nigeria put in place thus far is that women empowerment improves one's self-confidence, leads to better management judgment and thus, improve decision making process (Ali, & Zakuan, 2018). This will also enhance taking responsibilities for one's action and also reduces gender-bias.

1.2. Statement of the Problem

In recent times, there has been controversy if actually micro finance banks operations truly empowers women in most developing nations particularly in terms of provision of financial services or not. This is adjudged on the fact that most microfinance banks in Africa and in Nigeria in particular are confronted with issues of self-sustainability and restricted reach (Khin, Bernard, & Kevin, 2017). For example, there have been various complaints from females entrepreneurs in Nigeria regarding insufficient microfinance lending facilities. Even with the various programmes round out by microfinance banks in Nigeria, there still cases of female under-representation in terms of empowerments in Nigeria.

Thorough investigation into extant studies revealed that few studies have looked into women's participation in microfinance programs but none have gone in details into women's empowerment (Ejiogu & Vilano, 2020). Other studies like the studies of Bernard, Kevin, and Khin (2017) place a greater emphasis on borrowing and saving. More so, recent research has looked into why women leave microfinance programs (Bernard, Kevin, & Khin, 2017). In view of the light of the above gaps, the present study examined the effect of microfinance banks' operations on women empowerment in Nigeria.

II. Review of Related Literature

2.1. Conceptual Review

2.1.1. Concept of Microfinance Banks

Within the Nigerian concept, microfinance banks are institutions licensed to carry on the business of providing microfinance services such as micro credit loans, insurance, money transfer services and other non-financial services that are needed by the poor as well as the small holder or micro enterprises (Rahman & Khanam, 2017). In other words, microfinance banks are licensed to operate as a unit to meet the financial needs of clients who supposed to be mostly the poor and the low income earners in a particular community. As a matter of fact, microfinance banks are supposed to be community/rural oriented but what we are seeing in Nigeria today is a sort of misdirected location target from community to macro settings as most of them are located in the urban cities without having a particular community as a target. Currently, micro finance banks are of two forms, as all licensed community banks in Nigeria that met CBN guidelines have been transformed to microfinance banks. The first category is the microfinance banks that are hitherto community banks licensed to operate branchless network with cash centers subject to meeting the prescribed prudential requirements and availability of free funds for opening such cash centers. The minimum paid-up capital for this category of banks is N20 million for each autonomous center (Addai, 2017).

The next category is microfinance banks licensed to operate at state levels which are authorized to operate in all parts of the state including the federal capital territory in which they are registered subject to meeting the prescribed prudent requirements and availability of free funds for opening cash centers. The minimum paid-up capital for this category of banks shall be N1.0 billion (Oleka, Maduagwu, and Igwenagu, 2016).

Zhiri (2017) submitted that, diversification of ownership is encouraged to enhance good cooperate governance of licensed MFB, hence, microfinance institutions can be established by individuals, groups of individual, churches, community development associations, private corporate entities, missionaries and foreign investors. Kumar (2020) added that, major participants in the microfinance activities in Nigeria are Universal banks, Community banks and Non-governmental Organization (NGO).

Rahman and Khanam (2017) noted that the government can also partner with the microfinance banks to raise bulk loans to be disbursed to the beneficiaries who supposed to be mainly the less privileged in the society. In this context, the microfinance banks comprise both some of the commercial banks that want to venture into such and the hitherto the community banks. These institutions are licensed by the regulatory authority to offer credit facilities to small and medium scale enterprises (SMEs) in Nigeria. By so doing, the banks are increasing and sustaining the sizeable number of people that venture into small and medium-scale businesses (Rahman & Khanam, 2017).

Taiwo, Agwu, Adetiloye, and Afolabi (2016) are supporters of the school of thinking that micro-credits economically empower women. The premise is that after six months of saving in a microfinance institution, women get access to loans. They use the loans to expand their business, resulting in increased profits. However, not everyone who uses their loans to start a business will be able to 'break even' (profit maximization). The savings and revenues from their enterprise provide money to the women, allowing them to become economically independent. They may use the profit and savings to expand their firm in some situations.

2.1.2 Concept of Women Empowerment

The term "empowerment" has been defined in a variety of ways. Empowerment, according to Kumar (2020), is "a complex and interconnected process of change in power relations." Ijanada, inusa, and shika (2020) define women's empowerment as "the process of enhancing women's capacity to make decisions and translate those decisions into desired actions and outcomes." Women's empowerment is divided by the United Nations (UN) into five constructs: "right to make decisions," "right to always access to resources," "right to manage their respective lives," and "feeling of self-worth and the potential to establish a social and economic order."

Some academics have developed measures to quantify the effects of microcredit on women in order to link microfinance to women's empowerment. Srimoyee and Tarak (2017) investigate the impact of women's empowerment by creating an empowerment index that measures women's economic security, family structure, and political knowledge. Josephat, Fulment, and Matunga (2017) created an index of minimal influence to assess how women use their loans for financial transactions,

Women empowerment, according to Ejiogu and Vilano (2020), is a state in which under-privileged women who lack influence become aware of their own strength. According to Ijanada, Inusa, and Shika (2020), empowerment does not occur unless a person is aware of his or her authority. Some feminist theorists divide women's power into four categories: "power with," "authority within," "authority to," and "authority over." The acquisition of 'authority over' with the goal of empowering women via amount of equity has not occurred.

2.2. Theoretical Review

The Feminist Empowerment theory was used to underpin this study. The major focus of this theory is based on the fact that Women empowerment remains the surest way to bridge the socio-cultural backgrounds gaps which exist between men and women within a society. Hence, the core assumptions of this model were to ensure adequate supply of goods and services among men and women as well as to break the patriarchal society ideology that denied women from being respected in the human society (Kumar, 2020). This theory further stress that, if women empowerment leads to effective control over resources and income, increased mobility and occupations from outside home, greater self-efficacy, and microfinance institutions enhancing female participation in micro-credit services resources (condition).

2.3. Empirical Review

Kaushal Singla Jain and Ghalawat (2021) examined the impact of Microfinance Institutions (MFI) and Women Empowerment. To examine the research happenings that have engaged a place on this issue, bibliometrics and network analysis (NA) were done on 395 publications recovered from the Scopus database. After monitoring the different perspectives of the study, such as initial data constructions, bibliometric analysis, and network analysis, the study will serve as a foundational basis for analyzing the theory of MFI and Women Empowerment, its recent footprints, and the direction in which the research is progressing.

Kumar (2020) examined the factors contributing to the empowerment of women through microfinance initiatives. This empirical study relies on data gathered through structured questionnaires, which were chosen purely for their ability to describe the various characteristics of women's empowerment. The article's findings also point to a more effective work for microfinance efforts among personality team members. Participation in politics, mobility and independence, economic rewards, self-confidence and respect, significance of education, protest about social problems, and monetary planning and control highlighted as the most important variables contributing to the empowering of women SHG members.

Ijanada, Inusa and Shika (2020) examined the effect of Microfinance bank services on empowering women businesses in Sabon Gari Local Government area of Kaduna State. A cross-sectional survey research design was used in this study. The survey included 20,000 registered female entrepreneurs as participants. The stratified sampling strategy was used to choose 392 women. The data was analyzed with the help of SmartPLS3 Software and Partial Least Square Structural Equation Modeling (PLS-SEM). Microfinance savings, micro - finance loans, and financial interference have a substantial and good impact on empowerment women enterprises in Sabon Gari local government, according to the conclusions of the investigation.

Using the Autoregressive Distributed Lag (ARDL) approach, Onyele, and Onyekachi-Onyele (2020) examined the impact of microfinance banks (MFBs) on poverty reduction in Nigeria from 1992 to 2018. The ARDL bounds test found that the poverty rate and MFB activities were bound by a long-run relationship with a VAR lag order of two. The MFB's loans-to-deposit ratio and liquidity ratio reduced poverty on the long run. The short-run estimates, on the other hand, showed that the MFBs were unable to reduce poverty in a short amount of time, despite the fact that all of the variables had significant coefficients within a year.

Ejiogu and Vilano (2020) examined the impact of microfinance services on empowered rural farmers in Anambra State of Nigeria, especially the financial sustainability of women and youth. The 80 people that were chosen and interviewed were those who have used microfinance programs. Using descriptive statistics and content analysis, the data was presented and examined. The findings demonstrated that microfinance services aided in the creation of jobs, increased income, and enhanced the participants' standard of life and overall well-being.

Tijani, Salih, Kutu and Isah (2020) discussed the impact of microfinance empowering female entrepreneurs in Nigeria. The study was examined, and data was gathered from supplementary sources such as journals, books, the internet, periodicals, magazines, and a variety of other second-hand sources. The study's findings found that applying for a loan and processing a refund can be cumbersome, lowering microfinance bank efficiency and potentially leading to the industry's demise.

Josephat, Fulment, and Matunga (2017) examined the effect of women's empowerment on microfinance with evidence from Kondoa District. The data was acquired from 415 women, 214 of whom were members of MFIs and 201 of whom were not. Women's empowerment in MFIs was examined across five dimensions: legal, commercial, psychological, household, and political. Women were encouraged in economic, interpersonal, and familial domains, according to the study's findings.

Rathirane and Semasinghe (2017) studied the effect of Microfinance interventions on empowerment of women entrepreneurs in Sri Lankas. The study uses a causal survey research methodology in which 337 women entrepreneur clients of microfinance institutions (MFIs) in the Northeastern Province study region were recruited using simple random sampling technique and data was collected using a questionnaire form. The variables on microfinance intervention and women empowerment were reduced using factor analysis. Using SPSS, the impact of MFI intervention on women empowerment was determined using linear multiple regression. Since this study only included females from Sri Lanka's Northern Province, the results cannot be generalized.

Bernard, Kevin and Khin (2017) studied the impact of microfinance services on the entrepreneurial success of users of such services. An empirical study was conducted on a group of 464 women who received microfinance services, who were chosen using a simple random sampling method. Face-to-face interviews were used to collect data using a standardized questionnaire. The connection between these microfinance services and entrepreneurial performance was investigated using the Statistical Package for Social Sciences (SPSS) Version 21. Only women entrepreneurship from Non-Bank Financial Institutions (NBFIs) registered with the Central Bank of Sri Lanka are included in the study's sample. Microcredit and micro-savings have a positive link with women's entrepreneurial performance, according to the study, whereas

Srimoyee and Tarak (2017) investigated the impact of microfinance on women empowerment with evidence from west Bengal. They came to the conclusion that economic empowerment, particularly for women, is critical. It drew on primary data from 220 borrowers, which was gathered through a structured questionnaire and personal observations in the target area. The findings reveal that there is a change in respondents' expenditure levels before and after taking out a loan, since the value is significantly positive at the 1% level.

Taiwo, Agwu, Adetiloye and Afolabi (2016) studied the effect of financing women entrepreneurs and employment generation- a case study of micro finance banks. The operation of small and medium-sized businesses was measured in percentages. According to the study, funding female entrepreneurs has a cumulative effect on employment generations, and whose efforts result in massive advances in their company activities, resulting in an increase in the number of self-employed people in the country.

Adams and Olajumoke (2016) investigated the effect of microfinance intervention on the empowerment of women entrepreneurs in Jaffna. Both inferential and descriptive statistics were used to analyze the data. Clients of the Sanasa Development Bank in Jaffna district were chosen for the study. The impact of microfinance interventions on women's empowerment was studied using multiple linear regression analysis. The findings suggest that microcredit has a considerable and favorable impact on women entrepreneurs' empowerment.

III. Methodology

3.1. Nature and Source Data

Data for the study was sourced from Central Bank of Nigerian Statistical Bulletin (2020) and the World Bank Data Base (2020) with respect to both the study variables and the time scope. To ensure that the model is well-specified attained the classical assumptions of the Autoregressive Lag Model. Meanwhile, we subjected were first subjected to Heteroskedasticity Test. This is adjudged based on the fact that it is feasible for studies of this nature.

3.2. Model Specification

The model for the study was adopted from the empirical findings of Onyele, and Onyekachi-Onyele (2020). Our model is stated thus:

WMEP = Women Empowerment measured by proportion of microfinance credit to numbers of women able to access bank loan

MLOA = Microfinance bank loans

MDEP = Microfinance bank deposits

MASS = Microfinance bank assets

MINV = Microfinance bank investment

Uit = Stochastic Disturbance Term

β_0 = Constant

β_1 - β_4 = Coefficient of independent variables

To avoid spurious regression result, all the independent variables were logged. We expect that a positive relationship should exist among microfinance banks' operations proxies and women empowerment proxy. Hence, it is mathematically stated as: $\beta_1, \beta_2, \beta_3, \beta_4 > 0$

IV. Data Presentation and Analysis

4.1. The Data Analysis and Descriptive Statistics

Presented below is the descriptive statistics of the data set collected for this study. These data were keyed into the E- views statistical package which generated the result as presented in Table 4.1 below:

Table 4.1: Summary of Descriptive Statistics

	WEMP	MLOA	MASS	MINV	MDEP
Mean	2.322612	9405.059	160257.2	7564.108	918370.0
Median	0.435443	3278.435	120312.9	4214.230	60472.00
Maximum	10.42725	38167.35	516540.6	59475.10	18640586
Minimum	0.065138	11.95000	1010.220	304.3000	114.0589
Std. Dev.	3.378671	13298.29	153422.1	12498.61	3958926.
Observations	22	22	22	22	22

Source: Econometric Views Version 9.0 (2020)

Table 1 shows the result of the descriptive statistics. From the result, it could be observed that the mean values of the women empowerment, Microfinance bank loan, Microfinance investments, Microfinance bank asset and Microfinance bank Deposits are 2.322612, 9405.059, 160257.2, 7564.108 and 918370.0 with their standard deviation of 3.378671, 13298.29, 153422.1, 12498.61 and 3958926 ranging respectively from 0.065138 to 10.42725, 11.95000 to 38167.35, 1010.220 to 516540.6, 304.3000 to 59475.10 and 114.0589 to 18640586.

4.2. Correlation Analysis

The relationship among the study variables was analyzed using the Pearson correlation coefficient. Table 4.2 below shows the matrix of coefficients of the correlation among the variables of the study.

Table 4.2: Correlation analysis

	WEMP	MLOA	MDEP	MASS	MINV
WEMP	1.000000				
MLOA	-0.463370	1.000000			
MDEP	-0.159370	0.467919	1.000000		
MASS	0.598213	0.417145	0.366309	1.000000	
MINV	-0.234222	-0.136646	-0.044192	-0.188687	1.000000

Source: Econometric Views Version 9.0 (2021)

The correlation coefficient for all the variables of the study revealed that microfinance bank operation correlated with women empowerment. Although MDEP and MINV reported weak correlation, MLOA reported and MASS reported moderate correlation. More so, none of the independent variable exhibited high correlation since none of their coefficient values were up to 80%. This suggests the possibility of no multi-collinearity problem. As such, we further subjected the test to diagnostic test to reaffirm the claims raised by the statistical procedures.

Diagnostic Test- Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.186056	Prob. F(5,15)	0.3618
Obs*R-squared	5.950032	Prob. Chi-Square(5)	0.3111
Scaled explained SS	10.95586	Prob. Chi-Square(5)	0.0523

Source: Econometric Views Version 9.0 (2021)

4.3. Unit Root Test

The results of the Stationarity test based on the Augmented Dickey Fuller (ADF) as recommended for the more intricate set of time series data by Elliott, Rothenberg & Stock (1996) is presented in Table 4.3.

Table 4.3: Summary of Unit Root Test

AT LEVELS					
Target Variables	ADF Test Statistics	MacKinnon Critical Value @ 5%	P-value	Order of Integration	Decision
Women Empowerment(WEMP)	-2.950943	-3.012363	0.0564	1(0)	Non-Stationary
Microfinance bank loan (MLOA)	-1.553805	-3.012363	0.4876	1(0)	Non-Stationary
Microfinance Deposit(MDEP)	-4.531353	-3.012363	0.0020	1(0)	Stationary
Microfinance bank asset (MASS)	-0.715370	-3.012386	0.8209	1(0)	Non- Stationary
Microfinance bank investment (MINV)	-1.379366	-3.012363	0.5724	1(0)	Non-Stationary
AT FIRST DIFFERENCE					
Target Variables	ADF Test Statistics	MacKinnon Critical Value @ 5%	P-value	Order of Integration	Decision
Women Empowerment(WEMP)	-4.017837	-3.020686	0.0064	1(1)	Stationary
Microfinance Deposit(MDEP)	-7.366385	-3.020686	0.0000	1(1)	Stationary
Microfinance bank asset (MASS)	-4.573562	-3.020686	0.0019	1(1)	Stationary
Microfinance bank investment (MINV)	-3.912955	-3.020686	0.0415	1(1)	Stationary

Source: Econometric Views Version 9.0 (2021)

The ADF test in table 4.3 above clearly revealed microfinance only Microfinance bank deposit attained stationarity at its natural level (that is, it is integrated at order I(0)) while the rest study variables attained stationarity at their first difference (that is, they are integrated at order I(1)). This is because at its natural level, the ADF test statistics of Microfinance bank deposit was higher than its Mackinnon critical value. Hence, the study used the Autoregressive Distributed Lag model Bound cointegration test to test for the long run relationship between the independent and dependent variable.

4.4. ARDL (Bounds) Test for Long run Cointegration

The result of the Bound test aimed to examine the presence of long run (cointegration) among microfinance operations proxies (MLOA, MDEP, MASS, and MINV) and women empowerment in Nigeria proxied by Percentage of women (females) to access loan from financial institutions. If the F-statistic of bound test is higher than the lower and the upper bound critical value at 5%

significance level, the null hypothesis of no long run relationship is rejected, whereas if the F-statistic of bound test is lesser than the lower and the upper bound critical value at 5% significance level, long run relationship is accepted. The cointegration relation between microfinance operations and women empowerment of the selected sectors are presented in Table 4.4.

Table 4.4: ARDL Bounds Test for Cointegration

Date: 11/01/21 Time: 17:33		
Sample: 2000 2020		
Included observations: 21		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	6.484398	4
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Source: Econometric Views Version 9.0 (2021)

From the Table 4.4 above, it can be observed that the value of the F-statistic 6.484398 is greater than the 5% critical values at I(0) and I(1) bounds; therefore we reject the null hypothesis and conclude that a long run relationship exist amongst the variables. Therefore the microfinance operation variables used in the model have long run effect on women empowerment in Nigeria.

4.5. REGRESSION RESULT

The regression result is divided into short and long run. The results are presented in the following sub-sections.

4.5.1. Short Run Estimates of the Model:

The Autoregressive distributive lag model estimates both the short and long run forms of the model. The short run estimates are summarized below:

Table 4.5: ARDL Cointegration Result

Dependent Variable: WEMP

Selected Model: ARDL(1, 1, 1, 1, 0)

Date: 11/01/21 Time: 17:35

Sample: 2000 2020

Included observations: 21

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.369765	0.159502	-2.318248	0.0350
DLOG(MLOA)	0.369765	0.159502	2.318248	0.0350
DLOG(MDEP)	0.630235	0.159502	3.951263	0.0013
DLOG(MASS)	0.270551	0.129737	-2.085387	0.0370
DLOG(MINV)	0.204177	0.224095	-0.911115	0.3837
CointEq(-1)	-0.402069	0.125621	-3.200655	0.0095

Source: Econometric Views Version 9.0 (2021)

From the table 4.5 above, Microfinance loan, Microfinance investments, Microfinance bank asset and Microfinance Deposits) have no lags. The lag selection is based on the Akaike Info criterion as specified by the ARDL model above.

Furthermore, Microfinance bank loan has a positive significant short run effect on women empowerment in Nigeria. As it increases by a unit, women empowerment increases by 0.369765 units. It therefore has direct effect on women empowerment in Nigeria.

Again, Microfinance bank deposit has a positive significant effect on the women empowerment. As it increases by a unit, women empowerment increases by 0.630235 units. It therefore has direct effect on women empowerment in Nigeria.

Microfinance bank asset also has a positive and significant effect on women empowerment. This is because a unit increase in Microfinance bank asset increases women empowerment in Nigeria by 0.270551 units. It therefore has direct effect on women empowerment in Nigeria.

Microfinance bank investment has a positive yet insignificant effect on women empowerment. As it increases by a unit, women empowerment increases by 0.204177 units. It therefore has a direct effect on women empowerment in Nigeria.

The Error Correction coefficient (cointEq-1) is estimated at -0.402069 this means that the model corrects its previous periods disequilibrium at a speed of 402.6% estimated annually. In other words, increasing the microfinance operations variables at a steady state of 402.6% annually, the women empowerment in Nigeria will improve significantly in the long run.

4.5.2. Long Run Estimates of the Model:

The long run estimates are summarized below:

Table 4.6: ARDL Long Run Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(MLOA)	0.261782	0.111134	2.355551	0.0316
LOG(MDEP)	0.580647	0.049579	11.71159	0.0000
LOG(MASS)	9.268206	3.070768	3.018205	0.0129
LOG(MINV)	0.507815	0.600413	0.845776	0.4175
C	20.13475	4.884066	4.122539	0.0007
R-squared	0.966188	Mean dependent var		1.654749
Adjusted R-squared	0.935758	S.D. dependent var		2.690411
S.E. of regression	0.681912	Akaike info criterion		2.379020
Sum squared resid	4.650036	Schwarz criterion		2.876886
Log likelihood	-13.79020	Hannan-Quinn criter.		2.476208
F-statistic	31.75074	Durbin-Watson stat		2.258936
Prob.(F-statistic)	0.000003			

Source: Econometric Views Version 9.0 (2021)

From the regression line above, the intercept of the model 20.13475 shows that women empowerment increases by 20.13475 units when the explanatory variables (Microfinance bank loan, Microfinance investments, Microfinance bank asset and Microfinance bank Deposits) are zero. This implies that in the absence of Microfinance bank loan, Microfinance bank investments, Microfinance bank asset and Microfinance Deposits women empowerment will increase by 20.13475 units.

Furthermore, Microfinance bank loan has a positive significant short run effect on women empowerment in Nigeria. As it increases by a unit, women empowerment increases by 0.261782 units. It therefore has direct effect on women empowerment in Nigeria.

Again, Microfinance bank deposit has a positive significant effect on the women empowerment. As it increases by a unit, women empowerment increases by 0.580647 units. It therefore has direct effect on women empowerment in Nigeria.

Microfinance bank asset also has a positive and significant effect on women empowerment. This is because a unit increase in Microfinance bank asset increases women empowerment in Nigeria by 9.268206 units. It therefore has direct effect on women empowerment in Nigeria.

Microfinance bank investment has a positive yet insignificant effect on women empowerment. As it increases by a unit, women empowerment increases by 0.507815 units. It therefore has a direct effect on women empowerment in Nigeria.

Given the coefficient of determination as 0.995347 which is 96.61% supported by high value of adjusted R² as 93.57%, it presumes that the independent variables incorporated into this model have been able to determine the women empowerment to 93.57%. That is there is a significant relationship between dependent variable (women empowerment) and the independent variables (Microfinance loan, Microfinance investments, Microfinance bank asset and Microfinance Deposits). The F Probability statistic also confirms the significant of this model. Again, the Durbin Watson Statistics clearly revealed that the model is not serially correlated since its value is within the accepted region of acceptance.

Test of Hypothesis

The hypotheses postulated in earlier chapter (chapter one) are tested below:

Hypothesis One

H₀₁: Microfinance bank loan has no significant impact on women empowerment in Nigeria.

The regression result in table 4.5 and 4.6 above clearly revealed that Microfinance bank loan has a positive and significant short and long run effect on the women empowerment. Since the regression result reported that Microfinance bank loan exert significant short and long run effect on the women empowerment, the null hypothesis one is rejected. Hence, we conclude that Microfinance bank loan has positive significant short and long run effect on the women empowerment

Hypothesis Two

H₀₂: Microfinance bank deposit has no significant impact on women empowerment in Nigeria.

The regression result in table 4.5 and 4.6 above clearly revealed that microfinance deposit has a positive significant short and long run effect on the women empowerment. Since the regression result reported that Microfinance bank deposit exert significant short and long run effect on the women empowerment, the null hypothesis two still hold. Hence, we conclude that microfinance deposit has positive significant short and long run effect on the women empowerment.

Hypothesis Three

H₀₃: Microfinance bank asset has no significant impact on women empowerment in Nigeria.

The regression result in table 4.5 and 4.6 above clearly revealed that Microfinance bank asset has a positive statistical significant short and long run effect on the women empowerment. Since the regression result reported that Microfinance bank asset exert significant short effect on the women empowerment, null hypothesis three is rejected while the alternative hypothesis three is accepted on the short run. Hence, we conclude that Microfinance bank asset has positive and significant effect on the women empowerment on both short and long run.

Hypothesis Four

H₀₄: Microfinance bank investment has no significant impact on women empowerment in Nigeria.

The regression result in table 4.5 and 4.6 above clearly revealed that Microfinance bank investment has a positive insignificant short and long run effect on women empowerment. Since the regression result reported that Microfinance bank investment exert insignificant short and long run effect on the women empowerment, null hypothesis four is accepted while the alternative hypothesis four is rejected. Hence, we conclude that Microfinance bank investment has positive insignificant short and long run effect on women empowerment

4.6. Discussion of Regression Result

This study examined the effect of microfinance operations on women empowerment from 1999 to 2020. Specifically, the study examined the effect of microfinance bank loans; microfinance bank deposits, microfinance bank assets, and microfinance bank investments on women empowerment. Accordingly, four, research hypotheses were postulated. Hence, the individual results are discussed below:

4.6.1. Microfinance Bank Loans and Women Empowerment in Nigeria

The ARDL Cointegrating and Long Run result revealed that Microfinance bank loan has a positive significant short and long run effect on women empowerment. The positive result implies that 1% rise in Microfinance bank loan will increase the women empowerment by 0.369765 and 0.261782 on the short and long run respectively. This result supports the apriori expectation of the study. Put differently, the higher the Microfinance bank loan leads to increase of women empowerment. The plausible justification for the positive relationship is most likely due to the fact that increased in Microfinance bank loan increases the women empowerment as well. However, it passed the test of significance. This is adjudged from the fact that its p-values are less than 5% significance level. Hence, we conclude that Microfinance bank loan has positive statistical significance impact on women empowerment both on short and long run effect. This result is in tandem with the study of Balcioglu (2016); Moyo and Mafuso (2017), Ssemanda Patrick Edward, and Henry Tumwebaze Karamuriro (2019) but contradicts the findings of Albiman (2016)

4.6.2. Microfinance Bank Deposit and Women Empowerment in Nigeria

The ARDL Cointegrating and Long Run result revealed that Microfinance bank deposit has a positive significant short and long run effect on women empowerment. The positive result implies that 1% rise in Microfinance bank deposit will increase the women empowerment by 0.630235 and 0.580647 on the short and long run respectively. This result supports the apriori expectation of the study. Put differently, the higher the Microfinance bank deposit leads to increase of women empowerment. The plausible justification for the positive relationship is most likely due to the fact that increased in Microfinance bank deposit increases the women empowerment as well. However, it passed the test of significance. This is adjudged from the fact that its p-values are less than 5% significance level. Hence, we conclude that Microfinance bank deposit has positive statistical significance impact on women empowerment both on short and long run effect. This result is in tandem with the study of Balcioglu (2016); Moyo and Mafuso (2017), Ssemanda Patrick Edward, and Henry Tumwebaze Karamuriro (2019) but contradicts the findings of Albiman (2016)

4.6.3. Microfinance Bank Asset and Women Empowerment in Nigeria

The ARDL Cointegrating and Long Run result revealed that Microfinance bank asset has a positive significant short and long run effect on women empowerment. The positive result implies that 1% rise in Microfinance bank asset will increase the women empowerment by 0.270551 and 9.368201 on the short and long run respectively. This result supports the apriori expectation of the study. Put differently, the higher the Microfinance bank asset leads to increase of women empowerment. The plausible justification for the positive relationship is most likely due to the fact that increased in Microfinance bank asset increases the women empowerment as well. However, it passed the test of significance. This is adjudged from the fact that its p-values are less than 5% significance level. Hence, we conclude that Microfinance bank asset has positive statistical significance impact on women empowerment both on short and long run effect. This result is in tandem with the study of Balcioglu (2016); Moyo and Mafuso (2017), Ssemanda Patrick Edward, and Henry Tumwebaze Karamuriro (2019) but contradicts the findings of Albiman (2016)

4.6.4. Microfinance Bank Investment and Women Empowerment in Nigeria

The ARDL Cointegrating and Long Run result revealed that Microfinance bank investment has a positive insignificant short and long run effect on the women empowerment. The positive result implies that 1% rise in Microfinance bank investment will increase the women empowerment by 0.204177 and 0.507815 on the short and long run respectively. This result supports the apriori expectation of the study. Put differently, the higher the microfinance investment, the increase in women empowerment. The plausible justification for the positive relationship is most likely due to the fact that increased Microfinance bank investment increase the women empowerment. Also, the study found that Microfinance bank investment failed the test of significance. This is adjudged from the fact that its p-values are greater than 5% significance level. Hence, we conclude that Microfinance bank investment has

positive statistical insignificance impact on women empowerment. This result is in tandem with the study of Egbuwalo, M.O. & Abere, B.O. (2018), Bredino, S. Fiderikumo, B. & Adesuji. A. (2018). but contradicts the findings of Ssemenda Patrick Edward, and Henry Tumwebaze Karamuriro (2019).

V. Conclusions and Recommendations

Having thoroughly discussed the short and long run result through the instrumentality of the Autoregressive Distributed Lag model, the study therefore conclude that microfinance banks' operations are instrumental to women empowerments in Nigeria both on the short and long run. Hence, the study outlined the following policy recommendations based on the conclusion reached:

1. Efforts should be made at increasing women access to microfinance so as to aid their personal development.
2. Effort should be made to encourage various product mixes of the microfinance banks in Nigeria. this is owing to the fact that microfinance banks' deposits encourages women empowerments in Nigeria
3. Again, there is need for massive enlightenment on the benefits of investing in Micro-finance banks in Nigeria.
4. The study advocates that all efforts must be made to ensuring that microfinance assets are in good shape.

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