# Impact of Microcredit on Poverty Alleviation in Nigeria: A Vector Autoregressive Approach

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***Abstract:*** *This paper examined the impact of microcredit in alleviating poverty in Nigeria using annualized data from 1999-2018. The vector autoregressive (VAR) technique was employed to estimate our model. The results showed that microcredit had negative and insignificant impact on poverty alleviation in Nigeria over the coverage period. Interest rate on the other hand exerted negative influence on poverty level. It was observed that 1 percent increase in microcredit led to 2.6 percent increase in poverty level. We concluded that microcredit has not had the desired impact on the wellbeing of the people. We recommended that government should ensure that entrepreneurs and skilled individuals have access to microcredit at a low cost. This will increase their chances of active participation in the economic system, which would lead to reduction in poverty level.*

***Keywords:*** *Microcredit, Poverty alleviation, Vector autoregressive, Nigeria.*

## 1. INTRODUCTION:

Poverty is common in rural areas due to factors such as poor access to social services and inequitable social service delivery, non-mechanized farming method, older people who have retired to rural areas, lack of gainful employment, lack of infrastructural facilities such as health care centers, absence of good road/transportation system, lack of electricity, lack of access to bank credits as a result of conditionalities to credit extension, low literate level, environmental degradation, low social class and poor conditions of living of the populace. In identification of the degree of poverty and its devastating effect worldwide, the year 1996 was declared international year for eradication of poverty by the United Nations. According to the United Nations Development Programme (UNDP) and the World Bank, poverty accounts for over a billion people or one-fifth of the world's population, a situation critical to human sustainability and long-term survival. This rekindled the interest of the international community on poverty alleviation.

However, it is not possible to improve living condition of people necessary for economic advancement without putting in place effective programmes to alleviate poverty by means of assisting people to increase their access to factors of production by granting them credit. As such, it has been that no government, both present and past can do without introducing one kind of poverty alleviation strategy or the other (Alfa, Otaida and Audu, 2014). Attempts towards alleviation of poverty in Nigeria include introduction of some programmes such as; Family Economic Advancement Programme (FEAP), Directorate of Food, Roads and Rural Infrastructures (DFRRI), National Directorate of Employment (NDE), Community Action Programme for Poverty Alleviation (CAPPA), National Poverty Eradication Programme (NAPEP) and some others. In addition to these, lots of efforts were made by various administrations to accelerate food production and reduce heavy dependent on oil by introducing programmes such as; 1976 Operation Feed the Nation, 1979 Green Revolution aimed at reducing food importation.

The increasing prevalence of poverty in the country in spite of its numerous resources and efforts exerted on poverty-related programmes and scheme implies that the programmes and schemes were unsuccessful and unimpressive. Notwithstanding these attempts undertaken by the government to reduce the level of poverty in the country, over 70% of Nigerians still live in abject poverty (Sanusi, 2010) and ranked the world's 25 poorest nations by World Bank, a clear picture that all these strategies employed to fight poverty in the past have failed. However, more hopeful strategy to fight poverty was adopted in way of informal savings and credit unions alongside some formal micro credit institutions. For instance, rural banking system was established in 1977 with the aim of mobilizing rural savings and allocates credit among productive activities; the People's Bank of Nigeria (PBN), commissioned in 1989 was designed to meet the credit needs of the special small-scale enterprises such as artisans and petty traders and the community bank established in 1990 with a view of providing effective financial services for the rural areas as well as micro-enterprises in the urban areas.

## 2. LITERATURE REVIEW:

A lot of questions have risen in literature in defining poverty, what amounts to poverty and who the poor are. While some scholars associate poverty with lack of basic material needs, others link poverty with reduction in individual ill- being or achieving wider set of needs that allows well- being, using income as a base. For instance, Alfa, et al (2014) see poverty as a condition in which an individual or a group of individuals or community are incapable of getting their basic material needs such as foods, clothing, shelter, potable water, basic health care, education, inability to partake in the general social standard of living, self-esteem and having restricted chance of improving their utmost well-being. Gibbon & Meehan (1999) used a country's poverty line to explaining who the poor are. According to him, the poor are those living below the poverty line of a country while the poorest families are those who lie in households with incomes that place them in the bottom 50% of the poverty.

The World Bank defined poverty as an economic situation where a household income is not enough to meet the minimum nutritional need for growth and continual survival. The United Nations Development Programme (UNDP) classified poverty into, relative, absolute and material. Individual or group is in relative poverty when resources are deficient compared with that of other members of the society and in absolute poverty when resources necessary for subsistence is lacking. Material poverty is when physical assets are lacking such as cash-crop trees, land, and animal husbandry. Describing poverty as low level of household yearly income provides that poverty can be minimized by increasing the level of income.

Poverty derives from lack of income-producing employment is passed on from generation to generation un-end. The persistent of poverty in Nigeria is due to income inequality, ethnic and religious conflict, and instability. Specifically, poverty is more in rural area than urban area as a result of the composition of Nigeria's economy, especially the oil and agricultural sectors. Oil exports contribute much to government revenues and about 15% of GDP, despite the fact that only a tiny fraction of the population is gainfully employed. Agriculture on the other hand contributes about 45% of GDP, and gainfully employed close to 90% of the rural populace (Nwagwu, 2014). This is more compounded by the fact that oil revenue is poorly distributed among the citizens while government, on the other hand, spends relatively higher in urban areas than the rural axis.

Microfinance is a lending approach where by capital is extended in small amounts to poor people who are traditionally considered unbankable to enable them invest in self-employment (Kasim and Jayasooria, 2001 as cited in Abur and Torruam 2012). Micro credit on the other hand is referred to as a method by which poor families borrow certain amounts of money at a given time and repay the amount in a stream of small, manageable payments over a reasonable time period using social collateral in the short term and institutional credit history in the long-run (World Bank, 2006). Udoka (2014) sees micro-credit as the granting of small loans to people mainly the poor for self-employment projects that generate income. He elaborate that micro-credit is such that are specifically packaged to suit the financial needs of the poor since they do not have the needed collateral usually demanded by deposit money banks.

The major essence of development is to achieve satisfactory standard of living of the people within the existing institutional framework with the aim of positively transforming the wellbeing of citizens and better the human living conditions. This is achievable via high income per capita. Nigeria is a wealthy country with majority of its population living below the poverty line. The rural dwellers are gripped in poverty in a rich country endowed with natural resources. Skill acquisition centers and agricultural development scheme for job creation is lacking. The alarming population growth requires faster economic growth rate proportionate to the teeming population. The weak connection between economic growth, population growth and poverty alleviation underscores economic development and other economic indicators which serve as the standard upon which the economic status of a sovereign nation is being measured. In other to reduce poverty, economic advancement must surpass nation's population growth in an improving manner.

### 2.1 Theoretical framework

The study adopted Restriction of Opportunities Theory of Poverty (ROPTP) which postulates that the cause of poverty is unsteady environmental position and absence of social and economic resources. The theory assumes that environment shape people's life and as such individual's daily actions are assessed on what is or what is not in the environment (Chakravarti, 2006). The theory holds that illiteracy is one of the factors that lead to poverty. This implies that, an individual who is poor lack enough capacities with which to alter his/her position. The theory therefore holds that, the better one is placed in his/her environment, the more chances he/she has desire to fulfill his/her aspiration.

On the opposing side is Elite Theory which linked poverty alleviation strategies and governance. Elite theory postulate that the extent to which poverty is distributed among the citizenry is determined by political power arrangement. In view of the fact that power is in the hands of the few ruling elites, distribution of wealth and income are discriminately and oppressively done. Elite theory assumes that people are not poor because they are lazy to work but that poverty is inflicted on them by socioeconomic structure arising from the decision made by political influence of the minority of the population.

### 2.2 Empirical review

Empirical studies on the impact of micro credit on poverty alleviation show mix results. The study of Idris and Agbim (2015) in Nigeria found that micro-credit has significant effect on self-employment, education, training and skills acquisition, and economic empowerment. It was found that micro-credit has significant effect on the self-employment most women entrepreneurs.

The study of Agba, Ocheni and Nkpoyen (2014) on the effect of microfinance credit scheme on poverty alleviation among low-income workers in Nigeria revealed that microfinance credit scheme increases low incomes workers access to credit facilities and promote their engagement in small and medium enterprises as well as enhance their ability to savings. Data obtained through primary sources was analyzed using Pearson product moment correlation. Similarly, Oluyole (2012) examined the impact of micro-credit projects on poverty alleviation among farming households in Nigeria. Socio-economic characteristics of the respondents as well as the level of income of the beneficiaries before and after the micro-credit projects were collected through structured questionnaires. Using descriptive statistics for analysis, results revealed that there was a significant variation in the mean of the income of the beneficiaries before and after the micro-credit project, hence, micro-credit projects increased the income of the beneficiaries.

Ilegbinosa and Opara (2014) explored the relationship between micro finance and poverty alleviation in Nigeria using primary data obtained through field survey from the selected microfinance banks. The results obtained showed that microfinance has the potential of alleviating poverty by ensuring wealth creation and its attendant self-sufficiency. There is a positive relationship between microfinance and improved standard of living of the recipients of micro credits. In a related study, Mazumde and Wencong (2013) revealed that positive impact exists between income, assets endowment, standard of living and poverty reduction in Bangladesh. A sample of 360 micro-credit recipients and another set of 60 non-credit beneficiary respondents were also taken as a control group to compare the impact of micro credit on poverty reduction in Bangladesh. In the Nigerian context, Appah, John and Soreh (2012) examined the relationship between microfinance and poverty reduction in Nigeria. Chi-Square and ANOVA were employed to analyse the data. The findings revealed that a significant relationship exists between microfinance and poverty reduction. They argued that microfinance alone cannot reduce poverty in any society where basic infrastructures are virtually not available

The study of Ofoegbu (2013) on the impact of micro finance in alleviation of poverty among rural dwellers in Nigeria Employing multiple OLS regression analysis, show that micro finance credit does not have significant impact on alleviating poverty compared to credits obtained from corporative societies, as their effect on poverty was found to have an insignificant effect in the improvement of the welfare and alleviation of poverty due to the high interest rate charges which the respondent customers report to be on the high side.

Agbeze and Onwuka (2014) examined the effect of micro-credit on poverty alleviation in Nigeria. The Spearman Ranking Order Correlation was adopted to estimate the formulated hypothesis while Pearson Correlation, One sample T-Test and One way ANOVA were employed to test for robustness of the correlation. Results showed that access to micro-credit has positive but insignificant impact on poverty alleviation among the rural people. Poverty level is still high among the rural populace; but those that have access to micro-credit are better-off compared to those who do not have access to micro-credit.

## 3. METHODOLOGY AND DATA:

Annualised data for this paper were collated from the Central Bank of Nigeria statistical bulletin and the World Bank Database over the period, 1999 – 2018. The period selected for the study was based on availability of data. Dependent variables comprise of poverty index. On the other hand, micro credit is the independent variable, and constitutes total credit of micro finance bank to Small and Medium scale Enterprises (SMEs)

The general form of the model is one in which *Y*, the dependent variable, is the function of *X*, the independent variables. The VAR model for the study can be expressed as;

$$PI_t = \beta_0 PI_{t-1} + \beta_2 logMCR_{t-1} + \beta_3 INTR_{t-1} + \varepsilon_{t-1} ----------(1)$$

Where, t-1 denotes a period lag, and

*PI* = *poverty index*
*MCR* = *total credit of micro finance banks*
*INTR* = *real interest rate.*
$\varepsilon$ = *error term*

## 4. RESULTS AND DISCUSSION:

Table1. Descriptive Satatistics

| | PI | MCR('Million) | INTR (%) |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Mean | 65.99375 | 35974.87 | 18.24375 |
| Median | 67.00000 | 22501.70 | 17.77000 |
| Maximum | 88.00000 | 91243.54 | 24.85000 |
| Minimum | 54.00000 | 1314.000 | 15.14000 |
| Std. Dev. | 11.04388 | 32783.82 | 2.409309 |
| Observations | 20 | 20 | 20 |

From Table 1, poverty index and microcredit averaged 65.99 and 35974.87. Poverty index peaked 88.0 while the maximum volume of micro credit disbursed was 91243.53. The mean value of interest rate was 18.24 percent and peaked at 24.85 percent.

Table 2. Result of VAR Estimate

| | | | | |
|---|---|---|---|---|
| Dependent Variable: PI | | | | |
| Method: Least Squares (Gauss-Newton / Marquardt steps) | | | | |
| Sample (adjusted): 2000 2018 | | | | |
| Included observations: 15 after adjustments | | | | |
| PI = C(1)*PI(-1) + C(2)*MCR(-1) + C(3)*INTR(-1) + C(4) | | | | |
| | Coefficient | Std. Error | t-Statistic | Prob. |
| C(1) | 0.789851 | 0.217190 | 3.636685 | 0.0039 |
| C(2) | -0.026466 | 0.029896 | -0.885270 | 0.3950 |
| C(3) | -0.021800 | 0.016716 | -1.304186 | 0.2188 |
| C(4) | 1.528969 | 1.028627 | 1.486417 | 0.1653 |
| R-squared | 0.618566 | Mean dependent var | | 4.169934 |
| Adjusted R-squared | 0.514539 | S.D. dependent var | | 0.169412 |
| S.E. of regression | 0.118038 | Akaike info criterion | | -1.212443 |
| Sum squared resid | 0.153262 | Schwarz criterion | | -1.023630 |
| Log likelihood | 13.09333 | Hannan-Quinn criter. | | -1.214455 |
| F-statistic | 5.946187 | Durbin-Watson stat | | 1.564787 |
| Prob(F-statistic) | 0.011573 | | | |

Table 2 presents the estimation based on VAR regression. The results show that microcredit has negative and insignificant impact on poverty alleviation. A one percent increase in microcredit is associated with 2.6 percent increase in poverty level. The regressors accounts for about 61.86 percent of the variations in the dependent variable. The overall regression is significant as indicated by the F-statistic.

**4.1 Diagnostic Tests**

Table 3. The Serial Correlation tests results

| | | |
|---|---|---|
| VAR Residual Serial Correlation LM Tests | | |
| Null Hypothesis: no serial correlation at lag order h | | |
| Date: 09/11/19 Time: 17:17 | | |
| Sample: 1999 2018 | | |
| Included observations: 19 | | |
| Lags | LM-Stat | Prob |
| 1 | 5.459231 | 0.7926 |
| 2 | 7.834820 | 0.5509 |
| 3 | 4.927306 | 0.8406 |
| 4 | 6.287309 | 0.7109 |
| 5 | 12.62409 | 0.1804 |
| 6 | 4.389527 | 0.8840 |
| 7 | 9.946726 | 0.3548 |
| 8 | 5.622439 | 0.7770 |

| | | |
|---|---|---|
| 9 | 8.122703 | 0.5218 |
| 10 | 4.761649 | 0.8546 |
| | | |
| Probs from chi-square with 9 df. | | |

Table 3 presents results of serial correlation test. The serial LM test reveals that our model has no autocorrelation problems up to 10 period lags. This outcome is indicated by the probability values of each period lag being less than 5% significance level.

Figure 1. Histogram Normality Test

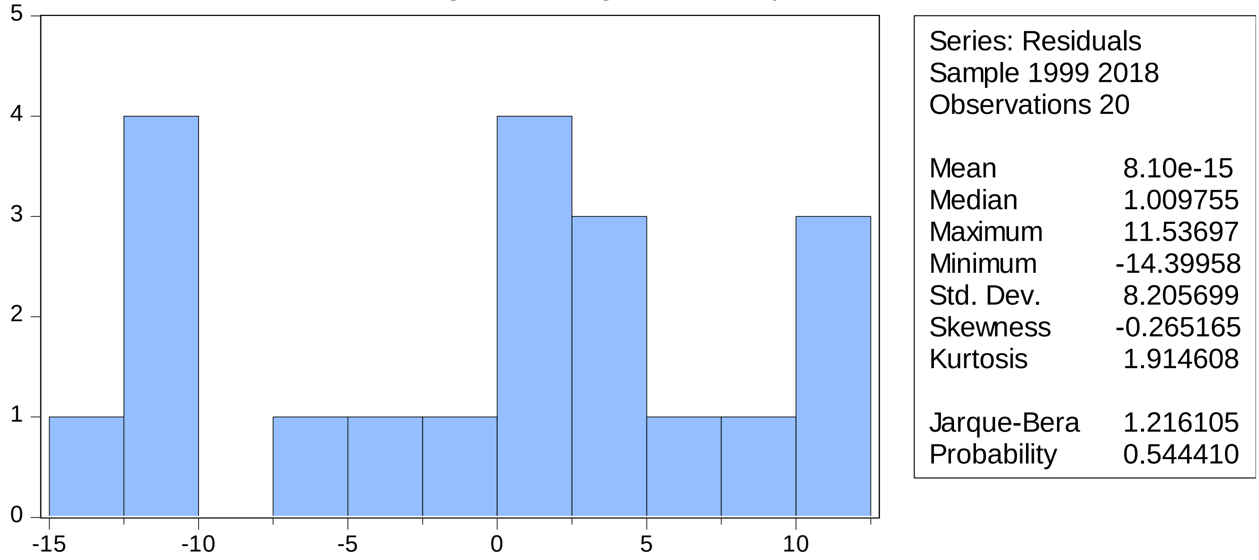


Figure 1 is a diagnostic test for normality. The result shows that our series are normally distributed with p-value of the JB-statistic greater than 5 percent. The stability of our model estimate was also confirmed by the AR inverse root polynomial result in Figure 2. The result shows that all the dots lies within the circle and indicates that our model is stable.

Figure 2. Stability diagnostic based on the AR inverse root result

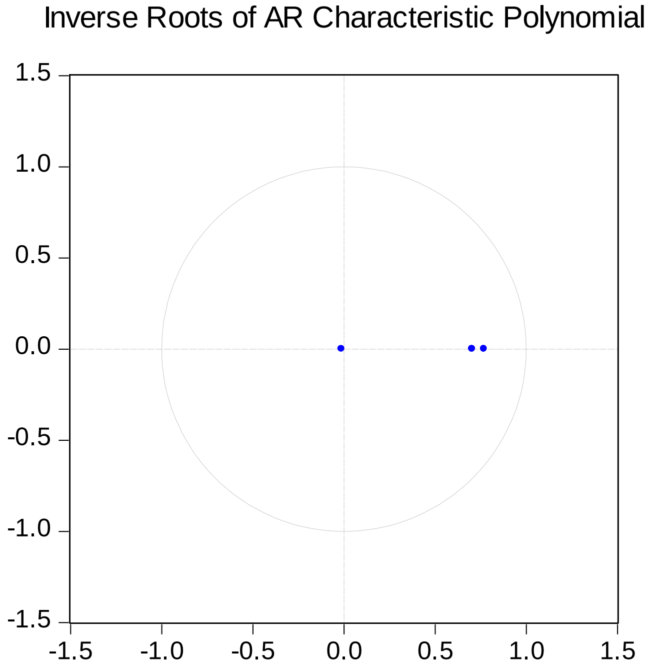


Figure 3. Stability Diagnostics based on CUSUM test Result.

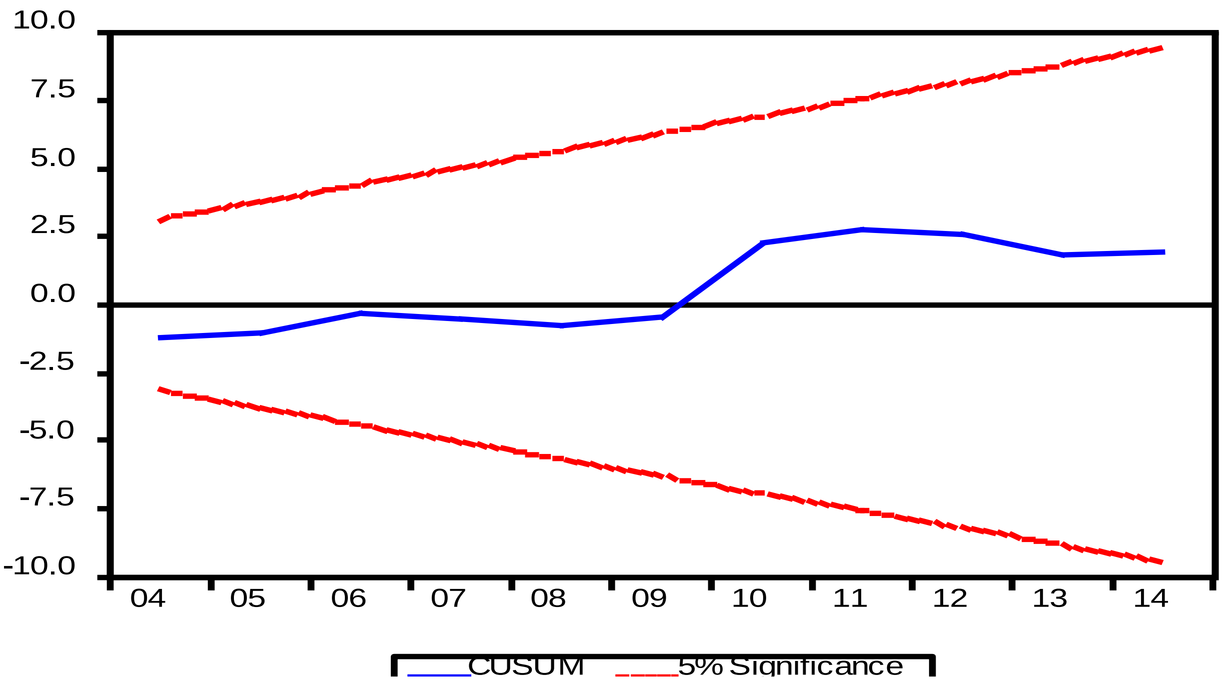


Figure 2 is a stability test. It can be observed that the blue line lies between the two red lines, and shows that our model is correctly specified. The CUSUM test uses the cumulative sum of recursive residuals. The CUSUM statistics plot is within the critical bounds of the 5% conventional level of significance level. This test shows that there is no evidence of any significant structural instability and, therefore, confirms that the result of our estimation is stable over the period of the study.

**5. CONCLUSION:**

It is indeed a fact that the gap between the rich and the poor in most developing countries is increasingly widening, and people suffer in the midst of plenty. In Nigeria for instance, a country endowed with abundant human and material resources, it is expected that the available resources ought to create opportunities and advance the course of economic and social welfare. It is against this backdrop that we examined the effectiveness of microcredit in alleviating poverty in Nigeria. The results showed that microcredit had negative and insignificant impact on poverty alleviation in Nigeria. It was observed that 1 percent increase in microcredit led to 2.6 percent increase in poverty level. We conclude that microcredit has not had the desired impact on the wellbeing of the people. We recommended that government should ensure that entrepreneurs and skilled individuals have access to microcredit at a low cost. This will increase their chances of active participation in the economic system, which would lead to reduction in poverty level in the long-run.

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