Effects of microfinance banks and economic growth in Nigeria.

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Abstract

The study seeks to examine the impact of microfinance institution on economic growth of Nigeria, using per capita Income as a measure of Economic Growth. The study is for the period covering 1992-2016. microfinance bank credit growth, deposit growth, investment growth and asset growth were used as predictor variables. The research estimated the specified models using the Cochran-orcutt regression model applied on time series annual data from the central bank of Nigeria statistical bulletin and annual reports 2017 edition and World Bank national account data. The study employed both descriptive and inferential statistic data in analyzing the time series data. The results garnered from the data analysis indicated among other things that a very strong but negative relationship was also found between microfinance bank credit growth and per capita income. But for microfinance bank deposit growth and per capita income, it was discovered that it is a positive and significant relationship, investment and per capita income didn't have any relationship at all. The study found a very strong positive and significant relationship between microfinance bank asset growth and per capita income, we therefore recommend that credits advanced must be granted to productive areas of the economy that will enhance productivity and ultimately lead to increase in income of participants.

Introduction

Microfinance banking as seen today in Nigeria and the world over as an instrument or strategy to alleviating poverty through the provision of Micro Credit and other financial services to low-income household and to other economically active individuals, or groups with the intention of helping them increase their income, operate viable business, reduce vulnerability to shocks and create jobs [1,2].

The existence of Micro Finance is culturally rooted and dates to decades. The informal microfinance institution offers access to credit for the urban and rural poor and low-income households. These are mainly the informal self-help groups (SHGs) or rotating savings and credit association. (ROSCAs) [3].

Hence the essence of micro-finance is to reach the overwhelming population of the poor to assist in the drive of poverty alleviation and reduction, because of the failure of the existing financial institutional arrangement to adequately address the financial need of the poor and low-income groups [4].

Hulme and Mosley [5] postulates that investment in business are important determinants of economic growth, they started that there is a strong and positive correlation between microcredit and improved production thereby leading to economic growth.

Researchers have studied microfinance in various ways

including its relationship with poverty alleviation, empowerment, economic growth and development, increase in household income through engagement in income generating economic enterprises. There are also studies on the effect of microfinance on the income of the poor; notable among them is a study in Asia by Remenyi and Quinones [6]. The study concludes that income of families with access to credit is significantly higher than households without access to credits. In the same study in Indonesia, it revealed that, those who had access to credit, had a 12.9 percent increase in income, while only 3 percent rise was reported from non-borrowers. In Bangladesh, 29.3 percent rise in household income was recorded and 22 percent increase in income from non-borrowers. In Sri-lanka, the same study reported that a 15.6 percent rise in household income from borrowers of microfinance institutions, as against 9 percent rise from non-borrowers. Similarly, the study in India found that 46 percent annual rise in income was among those who had access to microcreditas against 24 percent increase that was reported from non-borrowers.

Dunn [7] study of microfinance customers in Lima Peru documented that 28% of customers who lived below poverty level, where able to come off the poverty line compared to 41 percent of those who didn't have credit. She also found that the average income of household that took credit from microfinance is 50 percent higher than the income of non-participating households.

The study by Khandker [8] found that microfinance

participants do better than non-participants in both 1991/1992 and 1998/1999 in per capita income, per capita expenditure and household net worth. The incidence of poverty among participating households was lower in 1991/1992 than 1988/1989 when they had access to credit. A study conducted in Vietnam in 1996 by United Nations Children Fund established that 97% of borrowers significantly increased their household income in 1994 and 1996 respectively. Generally, there is strong evidence showing that microfinance is an instrument to increasing household income, smoothing consumption and helping the poor come off poverty.

Microfinance can lift families out of poverty. Swope [9] opined that microfinance has proved to improve the standard of living of many families to such a degree that they are completely lifted out of impoverished situation. Khandker, [8] investigated the percentage of families who were able to lift themselves and their families out of poverty through access to micro credit in Bangladesh. The study reported that "microfinance reduces poverty by increasing per capital consumption among programme participant and their families. The estimation of poverty reduction based on consumption impacts of credit reveals that about 5% of program partakers took their families out of poverty each year by participating and borrowing from microfinance institutions [8]. This was corroborated by the United Nations Human Development Report that stated that 5% estimated participants of microfinance programme can raise their families out of poverty yearly.

A survey by the United Nations Development Programme and the World Bank on the performance of microfinance institutions all over the world shows that in China, microfinance programmes have been able to lift 150 million people out of poverty since 1998. In Bangladesh, two third of women who participants in microfinance programmes (BRAC) have been freed of their previous levels of poverty. (Reducing Poverty 2004). Also, in Bangladesh 48% of household with access to microcredit rose above the poverty level (Yearof Microcredit 2005 and Swope [9-13]. Therefore, there is overwhelming evidences that microfinance can be used as a means not only to increase household income but to completely raise poor families out of poverty.

Most children of the indigent do not have the opportunity to obtain a higher education due to their parent's inability to send them to school. According to Swope [9] the cost of educational materials and transportation are high for the families to meet. Microfinance, by bringing about an increase in household income and better financial stability, enables poor families to bear the costs of sending children to school.

In summary, a change in per capita income is also a measure of the performance of the economy, it is used as a dependent variable, it is expected that if the economy is growing it should impact the population positively by increasing their income. In the light of the foregoing debates, it is therefore the intent of this study to critically review the effect of microfinance banking credit, deposit, investment and assets affect or cause changes in the nation's per capita income.

Methodology

Data collection method

In carrying out this study, secondary data was used for estimation from the central bank of Nigeria statistical bulletin gotten from various issues, the national policy framework for microfinance in Nigeria, World Bank data for various years and issues, World Bank national accounts data, OECD National Accounts data, CBN annual reports and statement of accounts for various years.

Thus, the data for the empirical study are the annual time series data ranging from 1992 to 2016. The data were converted from their absolute value to rate of changes data. The data consist of yearly data of the independent variables and dependent variables.

Model specifications

Time series regression model

$$PCI = \beta_0 + \beta_1 MFBCG + \beta_2 MFBDG + \beta_3 MFBIG + \beta_4 MFBAG + \epsilon_t \qquad (3.4)$$

Discussion

Discussion of findings

Findings from unit root test: The Unit root test on the transformed data of the variables under study found that Per Capita Income, showed a unit root without significant deterministic trend coefficient at level. However, stationarity was achieved after first difference. The test was conducted at different lag while the choice of appropriate model was made using the lag with minimum Akaike Information Criteria (AIC) and Durbin- Watson (D.W) that is approximately 2 which signifies uncorrelated error term for the test (Tables 1-3).

Findings from regression analysis: Regressing Per Capita income on microfinance bank credit growth (MFBCG), microfinance bank deposit growth, (MFBDG), microfinance bank investment growth (MFBIG) and microfinance bank asset growth (MFBAG) produced the estimate of the model displayed on Table 4. The result contains estimate using the Cointegrating regression approach, Error correction model (short term cointegrating regression model) as well as the Cochran-Orcutt time series regression model.

From the result of the analysis, the F- values of the estimate of the cointegrating and error models were found not to be significant as displayed in column 2 and 3 of Table 4. Based on this shortcoming of the model, cointegrating model may not be the best to describe the study data.

To remedy this, the Cochran-Orcutt approach to time series regression model which result is displayed in column 3 of Table 4 needed to be used. The result of the estimate of the model at intercept of 0.7308 which was observed to be insignificant (p>0.05) at α=0.05 level of significance indicates the level of Per Capita Income (PCI) when microfinance bank credit growth (MFBCG), microfinance bank deposit growth, (MFBDG), microfinance bank investment growth (MFBIG) and microfinance bank asset growth (MFBAG) are zero which is given by is ($e^{0.7308}$= 2.08).

Table 1. *Summary of the data collected for analysis.*

YEAR	MFBC	MFBD	MFBI	MFBA	PCI
1992	135.8	639.6	118.4	967.2	1719.787
1993	654.5	2,188.20	326.6	3,198.60	1796.384
1994	1,220.60	3,216.70	491.4	4,693.20	1848.887
1995	1,129.80	2,834.60	354.3	4,106.50	1877.957
1996	1,400.20	2,876.30	254	4,432.50	2002.549
1997	1,618.80	3,181.90	384	4,706.40	2087.287
1998	2,526.80	4,454.20	218.4	6,477.20	2159.163
1999	2,958.30	4,140.30	436.8	8,903.60	2193.223
2000	3,666.60	7,689.40	450.2	12,014.70	2351.152
2001	1,314.00	3,294.00	304.3	4,884.40	2504.941
2002	4,310.90	9,699.20	925.5	15,463.50	2645.992
2003	9,954.80	18,075.00	2,261.00	28,689.20	2938.698
2004	11,353.80	21,407.90	2,612.70	34,162.30	3196.949
2005	28,504.80	47,523.70	3,594.10	82,866.90	3490.059
2006	16,450.20	34,017.70	2,712.70	55,145.80	3792.451
2007	22,850.20	4,127.70	3,795.70	75,549.80	4132.512
2008	42,753.10	61,568.10	7,295.30	122,753.80	4429.456
2009	58,215.70	76,662.00	8,025.00	151,610.00	4733.295
2010	52,867.50	75,739.60	8,674.20	170,338.90	5127.719
2011	50,928.30	59,375.90	8,959.80	117,872.10	5342.438
2012	80,127.90	98,789.10	14,078.30	189,293.40	5519.318
2013	94,055.60	121,787.60	14,976.50	237,837.60	5745.702
2014	112,110.10	110,688.40	15,785.58	221,652.30	6031.421
2015	187,247.30	159,453.50	17,737.90	343,883.10	4859.437
2016	196,195.10	149,798.40	20,127.20	326,223.10	3487.313

Source: Central Bank of Nigeria (CBN) Statistical bulletin (2016) National Bureau of statistics (NBS) annual abstract of statistic (2016)

Where;
PCI = Per Capita Income.
MFBC = Microfinance Bank Credit.
MFBD = Microfinance Bank Deposit.
MFBA = Microfinance Bank Investment.
MFBA = Microfinance Bank Assets.

Table 2. *Data converted to growth measures.*

$\dfrac{Y2_t - Y2_{t-1}}{Y2_{t-1}}$ (PCI)	$\dfrac{Y3_t - Y3_{t-1}}{Y3_{t-1}}$ (CPC)	$\dfrac{Y4_t - Y4_{t-1}}{Y4_{t-1}}$ (AGP)	$\dfrac{X2_t - X2_{t-1}}{X2_{t-1}}$ (MFBCG)	$\dfrac{X2_t - X2_{t-1}}{X2_{t-1}}$ (MFBDG)	$\dfrac{X3_t - X3_{t-1}}{X3_{t-1}}$ (MFBIG)	$\dfrac{X4_t - X3_{t-1}}{X3_{t-1}}$ (MFBAG)
0.0445	-0.0437	0.604	3.8196	2.4212	1.7584	2.3071
0.0292	-0.0697	0.5078	0.8649	0.4700	0.5046	0.4673
0.0157	0.0359	0.7745	-0.0744	-0.1188	-0.2790	-0.1250
0.0663	0.1718	0.3548	0.2393	0.0147	-0.2831	0.0794
0.0423	-0.0584	0.1317	0.1561	0.1062	0.5118	0.0618
0.0344	-0.0177	0.107	0.5609	0.3999	-0.4313	0.3763
0.0158	-0.0833	0.0641	0.1708	-0.0705	1.0000	0.3746
0.072	-0.0068	0.0571	0.2394	0.8572	0.0307	0.3494
0.0654	0.3793	0.3361	-0.6416	-0.5716	-0.3241	-0.5935
0.0563	-0.0189	1.1095	2.2807	1.9445	2.0414	2.1659
0.1106	0.1247	0.0787	1.3092	0.8636	1.4430	0.8553
0.0879	0.0507	0.0762	0.1405	0.1844	0.1556	0.1908
0.0917	0.0642	0.2223	1.5106	1.2199	0.3756	1.4257
0.0866	-0.2084	0.2455	-0.4229	-0.2842	-0.2452	-0.3345
0.0897	0.3407	0.1382	0.3891	-0.8787	0.3992	0.3700
0.0719	-0.2148	0.1811	0.8710	13.9158	0.9220	0.6248
0.0686	0.2826	0.151	0.3617	0.2452	0.1000	0.2351
0.0833	-0.1136	0.1224	-0.0919	-0.0120	0.0809	0.1235
0.0419	-0.0561	0.0758	-0.0367	-0.2161	0.0329	-0.3080
0.0331	-0.0264	0.1267	0.5733	0.6638	0.5713	0.6059
0.041	0.1787	0.0633	0.1738	0.2328	0.0638	0.2564
0.0497	-0.0203	0.0715	0.1920	-0.0911	0.0540	-0.0681
-0.5751	-0.0125	0.0898	0.6702	0.4406	0.1237	0.5515
0.0025	-0.044	0.0989	0.0478	-0.0606	0.1347	-0.0514

Table 3. Augmented Dickey-Fuller Unit Root test for stationarity.

Variable	State	ADF	P-value	Max Lag	AIC	D.W	Remark
Log(PCI)	Level	-0.3881	0.9820	1	-0.404	1.98	Non-Stationary
	First Difference	-4.8085	0.0044	1	-0.356	2.00	Stationary
Log(MFBCG)	Level	-4.7423	0.005	0	1.0102	1.75	Stationary
Log(MFBDG)	Level	-5.1841	0.002	1	1.8696	2.02	Stationary
Log(MFBIG)	Level	-2.8896	0.188	6	0.6648	1.55	Non-Stationary
	First Difference	-5.2312	0.002	2	1.2874	2.13	Stationary
Log(MFBAG)	Level	-3.5840	0.053	1	1.010	1.72	Non-Stationary
	First Difference	-6.4867	0.001	2	1.2689	2.31	Stationary
Source: Review Version 8							

Table 4. Regression Analysis of Log (PCI)on Log (MFBCG), Log (MFBDG), Log.

(MFBIG) and Log (MFBAG)			
Variable	Cointegrating Regression Model	Error Correction Model (ECM)	Cochran-Orcutt Model
Constant (C)	4.347555*** (0.007)	0.0265 (0.574)	0.7308 (0.099)
Log(MFBCG)	-0.637730*** (0.0005)	-0.1804 (0.538)	-1.9179*** (0.001)
Log(MFBDG)	0.02427* (0.0845)	0.0038 (0.949)	0.0466** (0.037)
Log(MFBIG)	-0.0582 (0.7737)	0.0894 (0.527)	-0.0918 (0.739)
Log(MFBAG)	0.9475** (0.0414)	0.1370 (0.690)	2.3766*** (0.000)
$\hat{U}_{t-1}$	-	-0.4005* (0.098)	1.323 (0.310)
F-ratio	14.34	0.76	31.09
R^2	0.71	0.17	0.90
Engle-Granger Statistic	-3.7855 (0.3081)	-	-
Hansen Statistic	0.8162 (0.0854)	-	-
Number of Iteration	-	-	3
D.W	1.26	1.53	2.23
( )- p-value, *-significant at 10%. **-significant at 5%, ***- significant at 1%, D-W= Durbin-Watson Statistic.			

The value of the coefficient of log microfinance bank credit growth (MFBCG) = -1.9179 which implies that an increase in microfinance bank credit growth (MFBCG) by 1% will produce a corresponding decrease in Per Capita Income (PCI) by about 1.9% when all other variables in the model remains the same.

The value of the coefficient of log microfinance bank deposit growth, (MFBDG) = 0.0466, log microfinance bank investment growth (MFBIG) = -0.0918 and log microfinance bank asset growth (MFBAG) = 2.3766

On the model performance, the estimate of the residual is however not significantly different from zero. The F-ratio of 31.09 is highly significant while the coefficient of determination (R2) is 90% indicating that microfinance bank credit growth (MFBCG), microfinance bank deposit growth, (MFBDG), microfinance bank investment growth (MFBIG) and microfinance bank asset growth (MFBAG) is responsible for about 90% of Per capita income (PCI). Both statistics (F-ratio and R2) clearly showed an adequate overall goodness of fit of the data using Cochran-Orcutt model. Further evidence of the goodness of fit of the model could be seen in the value of Durbin-Watson (D.W) statistic which is approximately 2 suggesting that the residual of the model is not serially correlated. The most appropriate model was achieved at 3 iterations.

Conclusion

With the findings of this research above, we therefore conclude that there exists a significant relationship between microfinance bank credit growth, microfinance bank deposit growth, microfinance bank investment growth, microfinance bank asset growth and per capita income as reported by the result from the Cochran- Orcutt regression model.

Recommendation

Since the research show a positive relationship between per capita income and microfinance activities, except with microfinance credit which was significant but negative, we therefore make the following recommendations:

1. Microfinance banks should be encouraged to continue to give credit to sectors of the economy that will enhance productivity, which will in turn lead to increased income.

2. Credit approved must be monitored to ensure that they are used for the purpose for which they are given.

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