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EFFECT OF SMEs LOANS ON INCOME INEQUALITY IN NIGERIA

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ABSTRACT: This study provides an empirical investigation into the effects of SMEs loans on income inequality in Nigeria during 1990-2018. In addition to SMEs loans, private sector credits and broad money supply were introduced into the model following their strong link in the financing of SMEs. Time series data were sourced from the World and Central Bank of Nigeria Statistical Bulletin. The econometrics tools employed for the analyses include unit root test, cointegration test and vector error correction mechanism (VECM). As observed from the results, all the variables are stationary at first difference. Thus, they are considered as being integrated at order one. The cointegration results show evidence of four cointegrating vectors. More importantly, the Vector error correction estimates reveal that SMEs loans and private sector loans have significant negative effect on income inequality in the long run. This implies that that increased funding of SMEs provides opportunity for reducing the growing income gap amongst the population. Similarly, the negative long term effect of private sector financing on income inequality is indicative that private sector funding has potentials of narrowing the growing income disparity with Nigeria. Additionally, it was observed from the pairwise correlation result that a unidirectional causality runs from SMEs loans to income inequality at 5 percent level of significance. This finding necessitates the rejection of the null hypothesis of no causality. Given the findings, it is recommended amongst others that the monetary authorities especially, the CBN should ensure that monetary policy rate is designed to increase the availability of loans to SMEs at investment friendly interest rates in order to bolters their potentials in reducing income inequality.
Keywords: **SMEs loans, Private sector credits, broad money supply, income inequality and Nigeria**

I. INTRODUCTION

It is widely believed that financing Small and Medium Enterprises (SMEs) offers opportunities for inclusive growth, economic development, deepen the financial system and offer opportunities for more equal income redistribution. More specifically, it expands poor people's access to financial services, increasing their economic opportunities and improving their lives. Taiwo, Falohun&Agwu (2016) argue that financing SMEs provides platform for reducing income inequality amongst the population. The pro-SME policy is based on three core arguments as outlined in the World Bank (2002). First, SME advocates argue that SMEs enhance competition and entrepreneurship and hence have external benefits on economy-wide efficiency, innovation, and aggregate productivity growth. From this perspective, direct government support of SMEs in the form of financing will help countries exploit the social benefits from greater competition and entrepreneurship.

Additionally, the proponents of SME support frequently claim that SMEs are generally more productive than large firms but financial market and other institutional failures impede SME development. Thus, pending financial and institutional improvements, direct government financial support to SMEs can boost economic growth and development. Others argue that SME expansion boosts employment more than large firm growth because SMEs are more labor intensive. From this perspective, adequate funding of SMEs may represent a poverty alleviation tool and more even income redistribution mechanism.

Given the great potentials of SMEs to bring about social and economic development, it is of no surprise that the performance and financing SMEs is of huge concern to the government of different countries in the world (Okpara, 2000). Despite the numerous factors that challenge the survival and growth of SMEs in both developing and developed countries, finance has been identified as one of the most important factor. It is argued that SMEs in both developing and developed countries play important roles in the process of industrialization and economic growth, by significantly contributing to employment generation, income generation and development in urban and rural areas (Hallberg, 2000).

Over the years government has enacted various policies and introduced schemes aimed at financing SMEs in Nigeria in order to drive the process of economic development. These have taken the forms of availability of various finance options involving interplay of both fiscal and monetary policy measures. Given the seminal role of SMEs to the economy of Nigeria, various regimes of government since independence in the 1960s, have focused on various programmes and spent immense amount of money with the primary goal of developing this sector. Unfortunately, these have however not yielded any significant results as evident in the present state of the SMEs in the country (Mambula, 1997). SMEs are generally very susceptible and only a certain number of them manage to survive due to several factors such as difficulty in accessing credits from banks and other financial institutions; harsh economic conditions which results from unstable government policies.

Notably, SMEs in Nigeria have not performed creditably well and hence have not played the expected vital and vibrant role in the economic growth and development of Nigeria. However, the role played by SMEs, notwithstanding their development, is everywhere constrained by inadequate funding and poor management. The unfavourable macroeconomic environment has also been identified as one of the major constraints which most times encourage financial institutions to be risk-averse in funding small and medium scale businesses (Ogujiuba*et al*., 2004). Financial systems, the world over, play fundamental roles in development and growth of the economy. The effectiveness and efficiency in performing these roles, particularly the intermediation between the surplus and deficit units of the economy, depends largely on the level of development of the financial system. This position is corroborated by other studies which identified financial support as one of the main factors responsible for small business failures in Nigeria (Abereijo&Fayomi, 2005; Okpara&Wynn, 2007).

Despite the growing expectations on the expected role, there have been controversyon actual roles of SMEs in the development process. On one hand, it is argued that SMEs foster the development process through creation of employment, income redistribution and overall growth of the economy. However, the role played by SMEs, notwithstanding their development, is everywhere constrained by inadequate funding and poor management. Ewubare and Okpani (2018) argue that economic inequality has reached an extreme level, in spite of the numerous government poverty alleviation programmes. The continued debate on the effectiveness of SMEs financing on economic development has triggered further research in this field. Thus, this study offers more insights into the empirical relationship between SMEs loans and income inequality in Nigeria during 1990-2018.

II.   LITERATURE REVIEW

2.1 Theory of Financial Intermediation

The theory of financial intermediation was first formalized in the works of Goldsmith (1959). Shaw (1973) and Mckinnon (1973) contributed significantly to the development of financial intermediation theory as they argue that financial markets play a pivotal role in economic development, attributing the differences in economic growth across countries to the quantity and quality of services provided by financial institutions. Basically, the financial intermediation theory assumes that financial institutions play intermediary roles by channeling resources from surplus spenders to deficit spenders. Thus, the theory assumes that financial sector play important roles in funding the private sector.

Goldsmith (1959) attributed the direct correlation between the level of real per capita GNP and financial development to the positive effect that financial development has on encouraging more efficient use of the capital stock. In addition, the process of growth has feedback effects on financial markets by creating incentives for further financial development. Mckinnon (1973) in his thesis argued that there is a complimentary relationship between physical capital and money that is reflected in money demand. This complimentary relationship according to Mckinnon (1973) links the demand for money directly with the process of physical capital accumulation mainly because the conditions of money supply have a first order impact on decision to save and invest.

Theoretical studies have established the relationship that exists between financial intermediation and economic growth. For instance, Schumpeter (1934), Goldsmith (1959), McKinnon (1973) and Shaw (1973), in their studies, strongly emphasized the role of financial intermediation in economic growth. In the same vein, Greenwood and Jovanovich (1990) observed that financial development can lead to rapid growth. In a related study, Bencivenga and Smith (1991) explained that development of banks and efficient financial intermediation contributes to economic growth by channeling savings to high productive activities and reduction of liquidity risks. They therefore concluded that financial intermediation leads to growth. Based on this assertion, this study examines the extent to which intermediation or credit to agricultural sector of the economy has influenced economic growth in Nigeria. This means that a financial institution can effect economic growth by efficiently carrying out its functions, among which is the provision of credit.

2.2 Empirical Literature

Brei, Ferri&Gambacorta (2018) empirically investigate the link between financial structure and income inequality. Using data for a panel of 97 economies over the period 1989-2012, we find that the relationship is not monotonic. Up to a point, more finance reduces income inequality. Beyond that point, inequality rises if finance is expanded via market-based financing, while it does not when finance grows via bank lending. These findings concur with a well-established literature indicating that deeper financial systems help reduce poverty and inequality in developing countries, but also with recent evidence of rising inequality in various financially advanced economies.

Sharafat, Rashid & Khan (2014) utilized annual time series data has been used to examine the impact of SMEs on poverty in Pakistan for the period between 1972 and 2007. Log-linear autoregressive model has been estimated by Ordinary Least Squares (OLS) method using one year previous value of HCR as explanatory variable. The results of the study confirm a strong and negative impact of small scale industries' output on poverty levels in Pakistan. The economic policy makers must focus on the establishment of formal financial markets to overcome the financial constraints faced by the SME sector in Pakistan. Simplification of lending procedures, enforcement of credit rights, and reduction in credit costs would be helpful for the establishment of robust SME sector in Pakistan.

Beck, Demirguc-Kunt& Levine (2005) explore the relationship between the relative size of the Small and Medium Enterprise (SME) sector, economic growth, and poverty alleviation using a new database on the share of SME labor in the total manufacturing labor force. Using a sample of 45 countries, the study found a strong, positive association between the importance of SMEs and GDP per capita growth. The study does not, however, confidently support the conclusions that SMEs exert a causal impact on growth. Furthermore, the study fails to establish any empirical evidence that SMEs alleviate poverty or decrease income inequality.

Ewubare&Merenini (2018) examine the impact of population growth on poverty and income inequality in Nigeria. The study used descriptive statistics and Generalized Method of Moments(GMM) test as the estimation techniques of data analysis with time series data from CBN and NBS. The Kwiatkowski, Phillips, Schemidt and Shin, (KPSS) stationarity test results showed that the variables were stationary at first difference as their respective LM statistics are less than 5 percent critical values. The GMM results show that the coefficient of population growth is positively related with poverty and statistically significant at 5 percent level. Moreover, the coefficient of population growth is positively related with income inequality and statistically significant at 5 percent level. The study concludes that there is significant prevalence of poverty and income inequality among the Nigerian citizen. Given the findings, the study recommends for the implementation of policies with great potentials of checking the growing rate of poverty and inequality in Nigeria.

Alimi&Yinusa (2016) examines the impact of small and medium-scale enterprises (SMEs) credit financing and financial market development and their shocks on the output growth of Nigeria. The study estimated a VAR model for Nigeria using 1970-2013 annual data series. Unit root tests and cointegration are carried out. The study explores IRFs and FEVDs in a system that includes output, commercial bank loan to SMEs, domestic credit to private sector by banks, money supply, lending rate and investment. Findings suggest that shocks in commercial bank credit to SMEs have a major impact on the output changes of Nigeria. Money supply shocks also have a sizeable impact on output growth variations amidst other financial instruments.

Bello, Jibir& Ahmed (2018) examine the impact of small and medium scale enterprises on economic growth of Nigeria using time series data spanning between 1986 and 2016. The data is obtained from the statistical bulletin published yearly by the CBN. Regression analysis is employed for interpretation and analysis of the data collected for the study. The finding of the study reveals a positive and significant relationship between small and medium scale enterprises and output growth indicating that small and medium scale enterprises in Nigeria make positive contribution towards the development of Nigerian economy. The study recommends that government should formulate new economic policy to restrict massive importation of foreign goods especially those goods that the SMEs can produce locally in order to protect the local producers against competition with foreign firms.

III. MATERIALS AND METHODS

3.1Research Design

Williams (2011) asserts that research design involves a framework which guides researchers on the data required for the study, how to conduct the research and the probable results based on the nature of data used for the analysis. This study adopted ex-post facto research design. The choice of this approach emanates from its suitability in assessing the impact of multivariate explanatory variables on a single dependent variable using existing data.

3.2 Nature and Source of Data

The data required for this study are time series data. Specifically, the data on the underlying variables spanning from 1990 to 2018 were sourced from the CBN statistical Bulletin and the World Bank.

3.3 Model Specification
This study adopted multivariate dynamic regression model anchored on the financial intermediation theory which considers DMBs in financing real sector including the SMEs. Specifically, the VECM form basis for modelling the relationship between income inequality and SMEs. The functional form of the model is specified as:

GNX = f (SML, PSC, BMS)   (1)

Where: GNX = Gini index, proxy for income inequality, SML = SMEs loans, PSC = private sector credit as a percentage of GDP, BMS = Broad money supply as a percentage of GDP
Therefore, the model is expressed in VECM format as follows:

$$\Delta GNX_t = \sum_{i=1}^{q} a_{11} \Delta GNX_{t-i} + \sum_{i=1}^{q} a_{12} \Delta SML_{t-i} + \sum_{i=1}^{q} a_{13} \Delta PSC_{t-i} + \sum_{i=1}^{q} a_{14} \Delta BMS_{t-i} + C_1 ECM_{t-1} + e_{1t}$$

(2)

$$\Delta SML_t = \sum_{i=1}^{q} a_{21} \Delta GNX_{t-i} + \sum_{i=1}^{q} a_{22} \Delta SML_{t-i} + \sum_{i=1}^{q} a_{23} \Delta PSC_{t-i} + \sum_{i=1}^{q} a_{24} \Delta BMS_{t-i} + C_2 ECM_{t-1} + e_{2t}$$

(3)

$$\Delta PSC_t = \sum_{i=1}^{q} a_{31} \Delta GNX_{t-i} + \sum_{i=1}^{q} a_{32} \Delta SML_{t-i} + \sum_{i=1}^{q} a_{33} \Delta PSC_{t-i} + \sum_{i=1}^{q} a_{34} \Delta BMS_{t-i} + C_3 ECM_{t-1} + e_{3t}$$

(4)

$$\Delta BMS_t = \sum_{i=1}^{q} a_{41} \Delta GNX_{t-i} + \sum_{i=1}^{q} a_{42} \Delta SML_{t-i} + \sum_{i=1}^{q} a_{43} \Delta PSC_{t-i} + \sum_{i=1}^{q} a_{44} \Delta BMS_{t-i} + C_{41} ECM_{t-1} + e_{4t}$$

(5)

$a_{11} - a_{54}$ = vectors of short-run parameters of the independent variables, Δ = first difference operator, q = notation for optimal lag order, C_{1t} and C_{5t} = vectors for the speed of adjustment,

e_{1t} a- e_{4t} = vectors for the stochastic error terms

3.4 Variable Description
i. Gini index: This is the most commonly measure of income inequality. It is mainly used in capturing dispersion in income distribution amongst the population of a country. Basically, the Gini index is a representation of the Gini coefficient in percentage. High Gini index indicates high inequality incidence while low value defines low incidence of inequality.
ii. SMEs Loans: This is basically concerned with funding of small and medium-sized business enterprises intending to meet their credit needs. Its approval often follows after considering the nature of business, cyclical trends and cash flow projections. Increase in SMEs loans is expected to help in reducing income inequality.
iii. Private sector credit: This refers to financial resources provided to the private sector by financial corporations through loans, purchases of non-equity securities and other accounts receivable, that establish a claim for repayment. The financial corporations include monetary authorities and deposit money banks amongst others. It is measured in this study as a percentage of GDP and it is expected to impact negatively on income inequality.
iv. Broad money supply: According to CBN (2011), broad money supply includes narrow money, savings and time savings as well as foreign denominated deposits. Increase in money supply is expected to boost SMEs financing and reduce inequality in the distribution of income.

3.5 Method of Data Analysis
This study employed vector error correction mechanism (VECM) in estimating the relationship between SMEs and income inequality. The VECM is a special case of the VAR for variables that are stationary in their differences I(1)). Again, VECM model is a restricted VAR that has cointegration restrictions built into the specification, so that it is designed for use with nonstationary series that are known to be cointegrated. The VEC specification restricts the long-run behavior of the endogenous variables to converge to their cointegrating relationships while allowing a wide range of short-run dynamics. Econometric modelling with VECM approach helps to identify the short-run and long run relationship between variables of interest (Rasiah, Hamid, Seong&Habibullah, 2015). In addition to VECM, this study also utilizes pairwise Granger causality test to capture the interactions between the variables under investigation.

This test was conducted to determine the stationarity status of each of the variables under investigation. This test is necessary in order to avoid the estimation of biased and inconsistent parameters. Thus, the ADF procedure to unit root test was applied and the general model with constant and trend is expressed below:

$$\Delta R_t = w_0 + w_1 R_{t-1} + \sum_{i=1}^{b} \beta_i \, \Delta R_{t-i} + \lambda_t \qquad (6)$$

Where: R_t= variables in the model, w_1 and β_i= parameter estimate of the variables, b = lag length, Δ= First difference operator and λ_t = Random error term

Additionally, the Johansen system of cointegrationwas applied in carrying the test for long run relationship. The Max-Eigen statistic and Trace statistic form basis for rejecting the null hypothesis of no cointegraion among the underlying variables. A lack of co- integration suggests that such variable have no long-run relationship: in principal they can wander arbitrarily far away from each other. The study employs the maximum likelihood test procedure established by Johansen and Juselius (1990). The general model for the cointegration is the form:

$$\lambda_{trace}(r) = -T \sum_{i=r+1}^{n} In\left(1 - \hat{\lambda}_i\right) \qquad (7)$$

$$\lambda_{max}(r, r+1) = -T \, In\left(1 - \hat{\lambda} \, r+1\right) \qquad (8)$$

Where $\hat{\lambda}$ denotes the estimated values of the characteristic roots and T denotes the number of observations. Basically, the trace statistic tests the null that the number of distinct cointegrating vectors is equal to or less than *r*. In this case, the critical values for both trace and Max-Eigen statistics have been calculated by Johansen and Juselius (1990). Evidence of at least one cointegrating vector at 5 percent indicates that the underlying economic time series have long run relationship.

IV.   RESULTS AND DISCUSSION

4.1 Descriptive Statistics
The descriptive statistics for the series are summarized in table 1.

Table 1: Descriptive statistics for the variables

	GNX	SML	PSC	BMS
Mean	46.22897	7.638966	12.68966	15.85172
Median	45.70000	3.620000	8.300000	13.30000
Maximum	56.00000	28.01000	23.10000	24.30000
Minimum	40.06000	0.100000	6.200000	9.200000
Std. Dev.	4.520434	8.997082	6.310668	4.806589
Jarque-Bera	2.222358	5.169156	4.147884	3.100057
Probability	0.329171	0.075428	0.125689	0.212242
Observations	29	29	29	29

Source: Computed by the Author using E-views software

The descriptive statistics show that Gini index averaged 46.23 percent whereas the average values of SMEs loans and private sector credits are 7.638 and 12.69 percent respectively. The average value of Gini index is indicative that there has been growing gap in the distribution of income over the study. It is evident from the descriptive statistics that the SMEs have not adequately assessed substantial from the DMBs given that their share of the total credit is less than 10 percent. The broad money supply averaged 15.85 percent. The standard deviation reveals that apart from SMEs loans, all the other variables converged around their respective mean values. As observed from the probability values of the JarqueBera Statistics, all the variables are normally distributed at 5 percent level of significance. This is very impressive as it provides basis for obtaining reliable outcomes from the data estimation.

4.2 Unit root Test
The results of the unit root results are summarized in table 2.

Table 2: ADF unit root test results

Variable	Levels Difference test results	First Difference test results	Order of inegration
GNX	-3.03936 (0.141)	-4.641 (0.007)	I(1)
SML	-1.649 (0.747)	-7.026 (0.000)	I(1)
PSC	-2.1756 (0.4839)	-5.639 (0.001)	I(1)
BMS	-2.255 (0.443)	-4.972 (0.002)	I(1)

Source: Computed by the Author using E-views software

Note: Figures in parenthesis are the corresponding probability values
The results of the ADF unit root test are very insightful as they reveal that all the variables are nonstationary at levels. This is observed from the corresponding probability values of the variables which are greater than 0.05. The evidence of nonstationary in each of the variables corroborates with the results of Brei, Ferri&Gambacorta (2018). Given the nonstationarity of the series, the variables were subjected to first differencing and the results indicate that the variables are stationarity at first difference. The outcome of the unit root tests reveals that each of the variables is integrated of order one I(1). Following the evidence of first difference stationarity in the series, Johansen maximum likelihood test was applied to test for evidence of cointegration in the series.

4.3Cointegration Test
The results of the cointegration test conducted using Johansen multivariate are reported in table 3.

Table 3: Cointegration test results

Series: GNX SML PSC BMS				
Lags interval (in first differences): 1 to 3				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.834644	116.7638	47.85613	0.0000
At most 1 *	0.763112	71.77242	29.79707	0.0000
At most 2 *	0.595584	35.76818	15.49471	0.0000
At most 3 *	0.408690	13.13537	3.841466	0.0003
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.834644	44.99141	27.58434	0.0001
At most 1 *	0.763112	36.00425	21.13162	0.0002
At most 2 *	0.595584	22.63280	14.26460	0.0019
At most 3 *	0.408690	13.13537	3.841466	0.0003

Source: Computed by the Author using E-views software
Note: * denotes rejection of the hypothesis at the 0.05 level
The results of both trace and maximum likelihood tests reveal that there exists four cointegrating vectors in the model. This finding is very impressive as it provides empirical evidence for rejecting the null hypothesis of no cointegration in the model. It therefore, implies that the variables have long run relationship and as such can be modelled using vector error correction process.

4.4 Estimation of the VECM
The vector error correction (VEC) estimates which reveal both long term and short term effects of the underlying explanatory variables on income inequality are reported in table 4.

Table 4: Vector Error Correction Estimates

Dependent variable: GNX				
Long run result				
Variable	Coefficient	t-statistic		
SML(-1)	-0.505433	-3.14787		
PSC(-1)	-2.752461	-3.45715]		
BMS(-1)	3.374691	3.29392		
Short run results				
Error Correction:	D(GNX)	D(SML)	D(PSC)	D(BMS)
CointEq1	-0.285633	0.106716	0.088283	0.082581

	(0.06110)	(0.09738)	(0.10854)	(0.08731)
	[-4.67508]	[1.09582]	[0.81339]	[0.94585]
D(GNX(-1))	0.384041	-0.134519	0.315200	0.245797
	(0.13317)	(0.21226)	(0.23657)	(0.19030)
	[2.88386]	[-0.63374]	[1.33237]	[1.29163]
D(SML(-1))	0.120228	0.095498	0.234606	0.144661
	(0.13416)	(0.21384)	(0.23832)	(0.19171)
	[0.89617]	[0.44659]	[0.98440]	[0.75458]
D(PSC(-1))	-0.350647	0.066464	-0.047310	0.379792
	(0.19731)	(0.31450)	(0.35052)	(0.28196)
	[-1.77710]	[0.21133]	[-0.13497]	[1.34696]
D(BMS(-1))	0.364066	0.004425	-0.082920	-0.397828
	(0.25018)	(0.39877)	(0.44444)	(0.35751)
	[1.45521]	[0.01110]	[-0.18657]	[-1.11277]
C	0.266025	-0.911126	0.727653	0.410972
	(0.31051)	(0.49494)	(0.55162)	(0.44373)
	[0.85672]	[-1.84089]	[1.31913]	[0.92618]
R-squared	0.684695	0.135704	0.127047	0.134435
Adj. R-squared	0.609623	-0.070081	-0.080798	-0.071652
Sum sq. resids	44.47447	112.9924	140.3533	90.81961
S.E. equation	1.455277	2.319610	2.585245	2.079602
F-statistic	9.120451	0.659444	0.611258	0.652319
Log likelihood	-45.04890	-57.63637	-60.56374	-54.68736
Akaike AIC	3.781400	4.713805	4.930648	4.495360
Schwarz SC	4.069364	5.001769	5.218611	4.783324
Mean dependent	0.200000	-1.003333	0.500000	0.340741
S.D. dependent	2.329183	2.242367	2.486734	2.008876

Source: Computed by the Author using E-views software

Table 4.1: VEC Residual diagnostics tests

Type of test	Test stat.	P-value
VEC Residual Heteroskedasticity Tests:	111.7583	0.1983
VEC Residual Serial Correlation LM Tests	14.03383	0.5962

Source: Computed by the Author using E-views software

The vector error correction estimates reveal that SMEs loans and private sector loans have significant negative effect on income inequality in the long run. This finding deviated from the work of Beck, Demirguc-Kunt& Levine (2005) that fails to provide any empirical evidence linking private sector credit to income inequality. This implies that increased funding of SMEs provides opportunity for reducing the growing income gap amongst the population. Similarly, the negative long term effect of private sector financing on income inequality is indicative that private sector funding has potentials of narrowing the growing income disparity with Nigeria. The result further revealed that broad money supply has significant positive effect on income inequality. This finding is in contrary to the result of Samarina and Nguyen (2019)which reveals that expansionary monetary policyintheeuroareareducesincomeinequality. This finding is insightful as indicates that increasing monetary aggregates without channeling them to critical sectors tends not to achieve intended results. The short run results reveal that the model is convergence at a speed of 28.56 percent. This is because the error correction has a negative sign and it is statistically significant at 5 percent level. The implication of the finding is that short run deviations in the system can be reconciled to achieve long run equilibrium position. As observed from the F-statistic (9.12), all the explanatory variables are jointly significantly in explaining the variations in income inequality. The implication of this finding is that the explanatory variables are important source of reduction in income inequality. More so, it was found from the adjusted coefficient of determination (0.6096) that 60.96 of the total variables in income inequality are accounted by the explanatory variables. Additionally, the residual diagnostics test results reveal that the model is free from serial correlation and

heteroscedasticity. Overall, the post-estimation tests results reveal that model can be relied upon for long term prediction.

4.5 Granger Causality Test

The Granger causality test results are summarized in table 5.

Table 5: Pairwise Granger Causality tests results

Null Hypothesis:	Obs	F-Statistic	Prob.
SML does not Granger Cause GNX	24	6.33206	0.0034
GNX does not Granger Cause SML		1.24620	0.3434
PSC does not Granger Cause GNX	24	0.87685	0.5230
GNX does not Granger Cause PSC		0.66830	0.6544
BMS does not Granger Cause GNX	24	1.31264	0.3180
GNX does not Granger Cause BMS		0.23550	0.9399
PSC does not Granger Cause SML	24	0.91482	0.5013
SML does not Granger Cause PSC		1.48308	0.2613
BMS does not Granger Cause SML	24	1.32345	0.3141
SML does not Granger Cause BMS		1.99302	0.1468
BMS does not Granger Cause PSC	24	1.21827	0.3546
PSC does not Granger Cause BMS		0.97350	0.4693

Source: Computed by the Author using E-views software

The pairwise causality tests results are very revealing as indicates the direction of causality amongst the variables. As observed from the results, a unidirectional causality runs from SMEs loans to income inequality at 5 percent level of significance. This finding necessitates the rejection of the null hypothesis of no causality. It therefore, follows that the SMEs loans have predictive power for income inequality. However, there is no causal links between private sector credit and income inequality as well as between broad money supply and income inequality. In this, the null hypothesis of no causality cannot be rejected.

V.   CONCLUSION AND RECOMMENDATIONS

Financing SMEs through provision of adequate loan facilities has been at the forefront of financial deepening efforts of government and monetary authorities. Thus, this is devoted to providing deeper insights into the empirical links between SMEs loans and income inequality in Nigeria. The findings reveal that SMEs loans are important in reducing income inequality in the long term. Private sector credit is also found to have significant negative effect on income inequality in the long run. Given the findings, this study concludes that financing SMEs through loan facilities helps in reducing inequality in the distribution of income. Another conclusion drawn from the studies is that private sector credits are important source of reduction in income inequality in Nigeria. Thus, it is recommended that monetary authorities especially, the CBN should ensure that monetary policy rate is designed to increase the availability of loans to SMEs at investment friendly interest rates in order to bolters their potentials in reducing income inequality. Again, deposit money banks should ensure that they increase their loans to SMEs in order to increase their potential to boost more equal income distributions.

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