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Original Paper

Independent Generated Revenue of Three Tiers of Government and Money Supply in Nigeria

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Abstract

Aim/Purpose: *The purpose of this study is to provide empirical evidence on the impact of independent generated revenue of the three tiers of government on money supply in Nigeria.*

Design/methodology/approach: *The study employs ex post facto research design and makes use of annual time series data spanning from 1981 to 2017. The data have been sourced from CBN Statistical Bulletin 2017 edition and CBN Annual Reports while Ordinary Least Squares method is used to carry out the analysis with the aid of Statistical Package for Social Sciences (SPSS) version 20.*

Findings: *The results of the study indicate that Federal Government Independent Revenue (FGIR) and State government Independent Revenue (SGIR) influence money supply positively and significantly. On the contrary, the Local Government Independent Revenue has an insignificant negative impact on money supply.*

Research implications/Limitations: *The implication of this finding is that if independent generated revenue under the jurisdiction of Local Government Councils in Nigeria is not properly regulated by the Monetary Authority in the country through a well-structured monetary policy measures, it will adversely affect the money supply.*

Originality/value/contribution: *this study has been able to establish the influence of independent revenue of each tier of government in Nigeria on money supply. Most importantly, the study finds evidence that independent generated revenue of local government councils in Nigeria does not have positive influence on money supply in the country. Therefore, the study suggests that monetary policies in the country should incorporate local government optimal management of revenue to avoid unfavorable economic situations such as inflation which is prompted by too much money circulating in an economy.*

Keywords

Money supply, independent generated revenue, three tiers of government

JEL Classifications: E51, H71, H77

1. Introduction

Money refers to something that is largely acceptable as a medium of exchange in a nation, thus, money supply is understood as the total currency in the custody of people in an economy and the deposits in the banks that can be easily used for transactions. In other words, the money supply is the total amount of monetary assets obtainable in an economy at a definite time. This can be more explained to include currency in circulations and demand deposits of financial institutions. Agarwal (2018) defines currency as coins and paper money issued by the government and the banks, while effective money consists of currency and demand deposits. According to Chen (2018), money supply is the whole stock of currency and other liquid instruments circulating in a country's economy at a specific time, which includes cash, coins and balances held in checking and savings accounts. Money supply in Nigeria comprises narrow money (M1) and broad money (M2). Narrow money is the total of money in circulation and the amount of money lodged in Deposit Money Banks in the country. Broad money includes narrow money and foreign denominated deposits (CBN, 2006).

Money supply in many nations is being analyzed and published by central banks. For instance, the Federal Reserve in the United States measures and publishes the total amount of M1 and M2 money supply online and in newspapers, on a weekly and monthly basis (Chen, 2018). Money supply (M2) in Pakistan is recorded, reported, analyzed and published by the State Bank of Pakistan (Ihsan & Anjum, 2013). In Nigeria, the Central Bank of Nigeria (CBN) publishes a quarterly economic report that provides the breakdown of M1 and M2 status as part of its monetary policy report. However, the amount of money in circulation in a country influences the amount of public revenue from national budgets (Bunescu, Mihaiu, & Comaniciu, 2011).

The purpose of monetary policy is to maintain price and exchange rate stability in the country. The policy instruments deployed by the CBN to realize this objective are the Monetary Policy Rate (MPR) and interventions such as: open market operations (OMO), discount window operations, cash reserve ratio (CRR), liquidity ratio (LR) and foreign exchange Net Open Position (NOP) limit (CBN, 2018). MPR is the major tool used by CBN to regulate the course of interest rates and anchor inflation anticipations in the economy. OMO helps in liquidity management through the sale of CBN bills to the public while discount window operations serve as a liquidity management instrument used by the CBN to guarantee optimum levels of money in circulation. These tools are supplemented with prudential requirements which include: cash reserve requirement (CRR), liquidity ratio (LR) and foreign exchange Net Open Position (NOP) which helps to provide restriction for Deposit Money Banks in Nigeria. However, monetary management in Nigeria is not done in isolation with primary market transactions in government securities and foreign exchange market interventions (CBN, 2018).

Revenue inflows into the public and private sectors in Nigeria tend to have a multiplier effect on the economy. When there are inflows, transaction demand for money heightens as a result, the volume of money in circulation increases (Oluseyi, Olasehinde, & Eweke, 2017). This increase has the propensity to depreciate the worth of money rapidly, thereby, increasing cost of living while dwindling foreign and domestic investments in businesses (Ditimi, Keji, & Emma, 2018). This is evidenced by the swift relocation of businesses to other countries from Nigeria in the recent times. The Manufacturers Association of Nigeria (MAN) recorded about 272 firms that were forced out of business, though majorly due to foreign exchange restriction order in the country. However, Ihsan and Anjum (2013) submit that increase in the money supply lead to decline in interest rates and growth in investment. Considering Pakistan economic environment, they argued that businesses flourish when there is more money in circulation as well as increase in demand for labor and capital goods.

This study is focused on Nigeria's economic environment and the target is to determine the impact of independent generated revenue of the three tiers of government on money supply in Nigeria. Previous studies in this area considered money supply and economic growth (Ihsan & Anjum, 2013; Kipkirui, 2014; Aslam, 2016; Hussain & Haque, 2017; Olusey et al., 2017), other scholars who attempted studies on the relationship between money supply and government revenue failed did not put into consideration the effect of fiscal decentralized revenue of different levels of government on money supply. Based on this premise, this study has been prompted to provide an empirical evidence in this research area.

2. Theoretical Framework

The theory underpinning this study is the Fiscal Federation Theory pioneered by Musgrave (1959) and Arrow (1974). The role of government in the smooth running of an economy Musgrave's (1959) is occasioned by the various undertakings of the public and private sectors Arrow (1974). Within this framework, there are three roles anticipated from the government sector which include: the role of government in amending various forms of market failures, the role of ensuring equitable distribution of income and the role of maintaining stability in the macro economy through stabilization of prices of goods and services. This study advocates the role of the government in making sure there is a fair sharing of income and sustaining of price stability. This could be achieved through adequate support of all monetary policies aimed at maintaining the proper relationship between money supply and productive activities (CBN, 2016). Government strong backing of all monetary policies will help to keep money supply at equilibrium while ensuring that independent revenues generated by the three tiers of government in the country do not overflow in the economy to trigger inflation. When there is too much money in circulation, it ignites inflation and many businesses are affected in the process.

3. Empirical Review

3.1 Money Supply and Economic Growth

Ihsan and Anjum (2013) used three economic pointers which included inflation rate, interest rate and consumer price index (CPI) to measure the impact of money supply on economic growth in Pakistan from 2000 to 2011. The regression result showed that the interest rate and the CPI had significant impact on money supply while inflation rate had an insignificant negative impact on economic growth of Pakistan. Kipkirui (2014) did a comprehensive research on the influence of money supply on the gross domestic product (GDP) in Kenya from 1970-2012 using Engle and Granger co-integration test. The correlation breakdown disclosed that at the 5% level of significance money supply had a negative impact on economic growth.

Aslam (2016) applied multivariate econometric method to study the impact of money supply on economic growth in Sri Lanka from 1959-2013. The study revealed that the money supply had a significant positive influence on Sri Lanka economic growth. Dingela and Khobai (2017) tested the influence of money supply on economic growth in South Africa using autoregressive distributed lag technique and time series data from 1980-2016. The study found a robust positive association between money supply and economic growth in both short run and long run test. Oluseyi et al. (2017) used Autoregressive Distributed Lag (ARDL) to examine the impact of money supply on the economy of Nigeria from 1981-2015. The findings indicated that the impact of money supply on economic growth is significant and positive.

Hussain and Haque (2017) considered the relationship between money supply and per capita GDP growth rate in Bangladesh from 1972-2014. The outcomes showed the presence of a significant positive correlation between money supply and economic growth in Bangladesh. Ditimi et al. (2018) employed co-integration test and error correction approach to investigate the impact of money supply on inflation in Nigeria from 1970-2016. The negative effect of the rise in prices of goods and services in the economy and general welfare of the people in Nigeria inspired the study and the statistical results indicated that money supply is not one of the macroeconomic variables that lead to inflation in Nigeria.

3.2 Government Revenue and Money Supply

Omodero and Worlu (2018) applied a pre and post effect analysis to examine the effect of money supply on oil revenue based on the monetary policy rate (MPR) in Nigeria. The study was prompted by the inquisitiveness to understand the resultant effect of the change from the minimum rediscount rate (MRR) to monetary policy rate (MPR) which was initiated in December 11, 2006. The findings revealed that when MRR was the baseline interest rate, money supply had a significant and positive influence on oil revenue, but since MPR was accepted as a replacement for MRR, oil revenue had been negatively influenced significantly by money supply.

Yakubu, Umar and Aminu (2014) scrutinized the correlation between money supply and government revenue in Nigeria. The study employed Autoregressive Distributed Lag (ARDL) co-integration and annual time series data from 1970 to 2010 to test the long run relationship, while the short run

relationship test used data for 2009 and 2010 only. The variables investigated were total government revenue and money supply. Two models were specified, thereby using both variables as dependent and independent variables in two different equations. When money supply was used as the dependent variable the results of the error correction model indicated that government revenue had a positive significant impact on money supply, both in the long run ($0.00 < 0.05$) and in the short run ($0.00 < 0.05$). On the other alternative test when government revenue was the dependent variable, there was no evidence of a long run relationship but rather a short run correlation was indicated. The study concluded that government revenue was actually a driving force for money supply in the Nigerian economy.

Bunescu et al. (2011) examined the correlation between government revenues and expenditures, population and money supply in 8 countries using data from 1980-2010. These countries include: Bangladesh, Botswana, Canada, Ethiopia, Iceland, Madagascar, Panama and Paraguay. Generally the study found that government revenue had a strong correlation with money supply, population and government expenditure in these counties. The relationship between money supply and government revenue was measured using Pearson's Coefficient, the values were between 0.707 and 0.992 for the countries sampled, thereby establishing a robust association between government revenue and money supply.

Haslag (1996) employed cross-country data of 82 countries to examine the reaction of government revenue to monetary policy in Seignorage. The data spanned from 1975 to 1993 and the variables include: revenue to GDP, real GDP per capita, inflation rate and ratio of bank reserve to deposits. The objective of the study was to establish the associations between Seignorage revenue and two monetary policy-inflation rate and reserve requirements. From the cross-country evidence, Seignorage revenue as a proportion of GDP revealed that Seignorage revenue-to-GDP was positively correlated with reserve requirements. In other words, the study indicated a positive relationship between money supply and government revenue in Seignorage.

3.3 Research Gap

The studies on money supply and economic growth have been a topical issue and scholars such as (Aslam, 2016; Hussain & Haque, 2017; Olusey et al., 2017) found evidence that the money supply had a positive effect on economic growth while the studies of other scholars such as (Ihsan & Anjum, 2013; Kipkirui, 2014) revealed that the money supply had a negative impact on economic growth. However, the literature review was also carried to establish the relationship between money supply and government revenue. Scholar such as Haslag (1996) whose work was the pioneer study in this area found that monetary policy had a strong relationship with government revenue in Seignorage. Buescu et al. (2011) used 8 countries to extend the work and also found a strong positive correlation between money supply and government revenue while Yakubu et al. (2014) did same in Nigeria and the result revealed a positive relationship between government revenue and money supply in both long and short run. All the studies reviewed generalized government revenue, but this study is specifically examining

the impact of independent generated revenue of the three tiers of government in Nigeria on money supply.

4. Methodology

This study adopts an ex-post facto research design which integrates the use of existing and secondary forms of data that cannot be manipulated by the researcher. The dependent variable is Money Supply (MSS) represented by broad money (M2) in Nigeria while the independent variables include: federal government independent generated revenue (FIGR), State governments independent generated revenue (SIGR) and local governments' independent generated revenue (LIGR). The data on FIGR were extracted from Central Bank of Nigeria (CBN) annual reports as captured under the fiscal policy while the data for SIGR and LIGR sourced from CBN Statistical Bulletin, 2017 edition. The data collected spanned from 1981 to 2017 and were analyzed using an ordinary least squares technique with the aid of Statistical Package for Social Sciences (SPSS) version 20. All the data used were expressed in Billions of Naira.

The multiple regression model adopted for the study is:

$MSS = \beta 0 + \beta_1(FIGR) + \beta_2(SIGR) + \beta_3(LIGR) + \varepsilon$

Where,

MSS = Money Supply

FIGR = Federal Government Independent Generated Revenue

SIGR = State Government Independent Generated Revenue

LIGR = Local Government Independent Generated Revenue

$\beta 0$ = Constant

β_1-β_3 = Regression Coefficients

ε = error term

A Priori economic expectation:

$\beta_1, \beta_2, \beta_3 > 0$

The a priori economic expectation is that FIGR, SIGR and LIGR should be greater than zero signifying the positive impact on MSS.

5. Data Analysis and Interpretations

Table 1. Model Summary of Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.985	.969	.967	1295.39740	2.160

a. Predictors: (Constant), LIGR, FIGR, SIGR; b. Dependent Variable: MSS.

Source: Author's computation, 2019.

Table 1 above shows the summary results of the model used in the study. The correlation R value is 98.5% indicating significant and positive relationship between money supply and the independent generated revenues of the three tiers of government in Nigeria. In a similar manner, the coefficient of determination which is the R Square indicates that FIGR, SIGR and LIGR explain the changes in MSS up to the magnitude of 96.9% remaining only 3.1% accountable by other factors in the model did not consider. The Durbin-Watson of 2 approximately shows that the regression results are free from serial correlation.

Table 2. ANOVA Test of Results

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1749991290.556	3	583330430.185	347.623	.000
	Residual	55375795.943	33	1678054.423		
	Total	1805367086.498	36			

a. Dependent Variable: MSS; b. Predictors: (Constant), LIGR, FIGR, SIGR.

Source: Author's Computation, 2019.

F-test measures the collective effect of the predictor variables on the response variable. Therefore, the F-test on Table 2 above, shows the value of 347.623 with the p-value of 0.000 < 0.05%. This value indicates that the result is statistically significant and the model is appropriate for the study. However, the result further reveals that FIGR, SIGR and LIGR are jointly influencing MSS in Nigeria.

Table 3. Regression Correlations and Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-160.610	295.348		-.544	.590
	FIGR	12.151	3.207	.201	3.789	.001
	SIGR	20.023	1.680	.879	11.919	.000
	LIGR	-36.938	37.495	-.070	-.985	.332

a. Dependent Variable: MSS.

Source: Author's Computation, 2018.

The regression result is as follows:

MSS = (160.610) + 12.151FIGR + 20.023SIGR - 36.938LIGR

The findings show that a unit increase in FIGR while keeping other variables constant will on the average improve the MSS by 12.151. In like manner, a unit increase in SIGR while keeping FIGR and LIGR constant will mend MSS by 20.023. On the contrast, a unit increase on LIGR while keeping

other variables constant will lead to a reduction in MSS by 36.938. The t-test shows the individual performance of all the predictor variables. The FIGR t-test is 3.789 with p-value of 0.001 < 0.05%, this implies that FIGR has a significant positive impact on MSS. This result agrees with the findings of (Haslag, 1996; Buescu et al., 2011; Yakubu et al., 2014). The SIGR t-test is 11.919 with the p-value of 0.000 < 0.05%, this signifies a robust and positive impact on MSS. This finding is in harmony with the studies of (Haslag, 1996; Buescu et al., 2011; Yakubu et al., 2014). The LIGR t-test is -0.985 with p-value of 0.332 > 0.0.05%, meaning that LIGR has an insignificant negative impact on MSS. This result conflicts with the findings of (Haslag, 1996; Buescu et al., 2011; Yakubu et al., 2014).

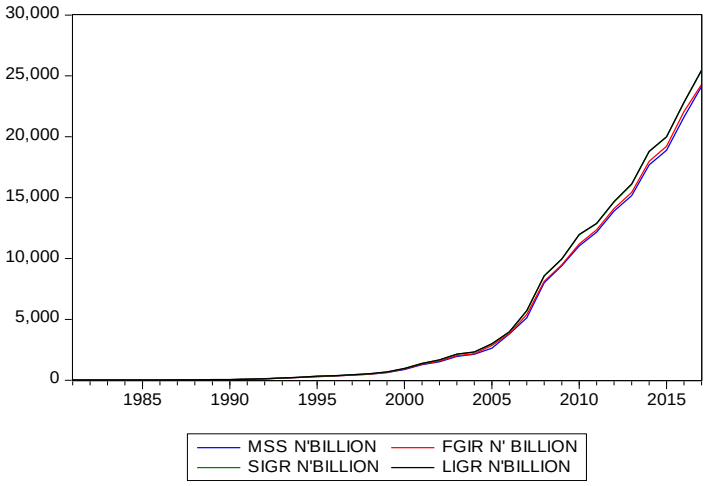

Figure 1. Trend of MSS, FIGR, SIGR and LIGR from 1981-2017 in a Single Graph

Data Source: CBN, STATISTICAL BULLETIN, 2017 EDITION.

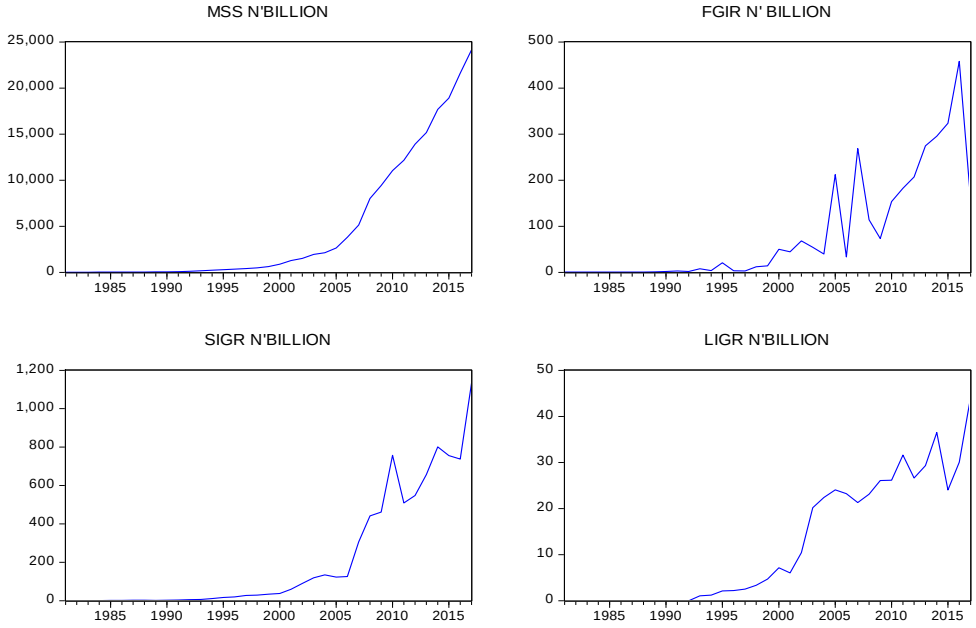

Figure 2. Trend of Data for Each Variable Used in the Study from 1981-2017

Data Source: CBN STATISTICAL BULLETIN, 2017 EDITION.

Figure 2 above shows the growth of each variable used in the study from 1981 to 2017. It can be observed that MSS, SIGR and LIGR were all rising and in fact got to the peak in 2017 while FIGR dwindled significantly in 2017. This graphical display of result shows evidence of revenue leakages, corruption and diversion of government money for personal and selfish use. The implication is that the federal government might not have sufficient fund to carry out government functions if the root cause of the revenue leakage is not promptly addressed.

6. Conclusion and Recommendations

The study provides evidence that independent revenue generated by the different tiers of government has a unique influence on money supply in Nigeria. The federal and state governments' revenues impact on money supply positively and significantly while the local government exhibits negative influence though not significant. The results also show that government independent revenues collectively influence money supply and the relationship is very strong and positive.

Therefore, the study recommends that the monetary policy in the country should take cognizance of revenue management at the local government level in the country. The Central Bank of Nigeria should employ monetary policy measures such as sales of CBN Bills and discount window operation that will help control the revenue available for government to use especially at the local government levels.

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