Relationship between Money Supply and Government Revenues in Nigeria

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The insights on the long run relationship amongst money supply and government revenues are of significant importance for monetary-fiscal policy formulation in a developing country like Nigeria. Taking into account the vital importance of these two variables, we empirically analyzed the long-run relationships and dynamic interactions between the money supply (broad money M2) and government revenues in Nigeria using an Autoregressive Distributed Lag (ARDL) bounds testing approach. The study spans the period 1970 to 2010. From the results, it is evident that there is the existence of a long run relationship between money supply and revenues when money supply is made the dependent variable. When revenue was made the dependent variable, no evidence of a long run relationship was found. This indicates that changes in government revenues in the past have significantly affected the money supply as macroeconomic indicator in the country economy. The estimated coefficient of revenues has a positive and significant impact on money supply. A 1% increase in revenues leads to approximately 0.96% increase in the Money supply at long run. The sign of the short-run dynamic impacts of these variables are significant and have the correct sign. The error correction mechanism (ECM) is estimated as -0.17 and -0.28%, this means that government revenue and money supply have significant short term effect.

Keywords: Money supply, Government revenues, ARDL, Cointegration.

JEL Classification: E51, E63, H2

1.0 Introduction

The achievement of macroeconomic goals namely full employment, stability of price level, high and sustainable economic growth, and external balance, that has existed for longer , has been a policy priority of every economy whether developed or developing given the susceptibility of macroeconomic variables to fluctuations in the economy. The realization of these goals undoubtedly is not automatic but requires policy guidance. This policy guidance represents the objective of economic policy. Fiscal and monetary policy instruments are the main instruments of achieving the macroeconomic

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targets. There exists a consensus in the literature that an adequate and effective macroeconomic policy is critical to any successful development process aimed at achieving high employment, sustainable economic growth, price stability, long–viability of the balance of payments and external equilibrium **(**Omitogun and Ayinla, 2007). This, therefore, suggests that the significance of stabilization policy (fiscal and monetary policies) cannot be overemphasized in any growth oriented economy.

Fiscal (tax/revenue) and monetary (money supply) policies are the tools through which an economy is regulated by the government or the respective central bank. The objectives of monetary and fiscal policies in Nigeria are wide-ranging. These include increase in Gross Domestic Product (GDP) growth rate, reduction in the rates of inflation and unemployment, improvement in the balance of payments, accumulation of financial savings and external reserves as well as stability in Naira exchange rate (CBN). Generally, both fiscal and monetary policies seek at achieving relative macroeconomic stability.

In Nigeria, the overriding objective of monetary policy (money supply) is price and exchange rate stability. The monetary authority's strategy for inflation management is based on the view that inflation is essentially a monetary phenomenon. Because targeting money supply growth is considered as an appropriate method of targeting inflation in the Nigerian economy, the Central Bank of Nigeria (CBN) chose a monetary targeting policy framework to achieve its objective of price stability. With the broad measure of money (M2) as the intermediate target, and the monetary base as the operating target, the CBN utilized a mix of indirect (market-determined) instruments to achieve it monetary objectives. These instruments included reserve requirements, open market operations on Nigerian Treasury Bills (NTBs), liquid asset ratios and the discount window (IMF Country Report, 2003).

Government expenditures in Nigeria have in the main consistently exceeded government revenues throughout most of the past decades since 1970 except for 1971, 1973-74, 1979, and 1995-96 periods. The government's purportedly commitment in pursuing rapid economic development programmes as embodied in various developmental plans in Nigeria largely accounts for the fiscal deficits incurred. The expanded role of the public sector resulted in

rapid growth of government expenditures. Government budget deficits over the years have not impacted positively on the economy. Such fiscal deficits tend to reduce national savings which invariably affect economic development. The options available to the government to stimulate economic growth in this situation are to reduce government expenditures or raise revenues through increase in tax. These two options can help to reduce the budget deficit(s).

The relationship between monetary policy (money supply) and Fiscal policy (taxation and/or revenue) has been widely researched and the results have been relatively mixed. Establishing the long run relationship between the money supply and revenues would assist policy makers to trace any source of imbalances in the economy. Consequently, this study investigates the long run relationship between money supply and revenues in Nigeria for the period 1970 to 2010.

The paper has five main sections. Following the introduction is the review of related literature. Section 3 describes the methodology of estimation adopted for the study, section 4 presents the empirical results and findings while the last section contains the concluding remark.

2.0 Literature Review

The relative impact of fiscal (tax/revenue) and monetary (money supply) policy has been studied extensively in many literatures. Examples include, but not limited to, Friedman and Meiselman (1963), Shapiro and Watson (1988), Blanchard and Quah (1989), Chari *et al*. (1991), Clarida and Gali (1994), Ansari (1996), and Reynolds, (2000). Chowdhury, *et al*. (1986), Chowdhury (1988), Cardia (1991), Chari and Kehoe (1998), and Feldstein, (2002) have examined the impact of fiscal and monetary policies on various aggregates.

However, the bulk of theoretical and empirical research has not reached a conclusion concerning the relative power of fiscal and monetary policy to effect economic growth. Some researchers find support for the monetarist view, which suggests that monetary policy generally has a greater impact on economic growth and dominates fiscal policy in terms of its impact on investment and growth [Ajayi, 1974; Elliot, 1975; Batten and Hafer, 1983], while others argued that fiscal stimulates are crucial for economic growth [Chowdhury et al., 1986; Olaloye and Ikhide, 1995]. However, Cardia (1991)

found that monetary policy and fiscal policy play only a small role in varying investment, consumption, and output.

Mohammad and Amirali (2010) in their paper, empirically examines the factors determining Iran's oil revenues using the time series data for 1970-2008. The error correction version of ARDL procedure is then employed, to specify the short – and long-term determinants of Iran oil export revenues in the presence of structural breaks. The model finds that factors such as oil production, oil price, and oil proved reserves have long run effects on Iran oil export revenues. Based on empirical findings obtained we conclude that, in the long –term, the effects of variables such as. Domestic oil consumption and world oil production are negative.

Prasert and Chukiat (2008), investigate the short-term and long-term relationships between international tourism demand and the most popular explanatory variables such as GDP, jet fuel prices, the exchange rate, exchange rate risk, and temperature during 1997(Q1)-2005(Q2). The autoregressive distributed lag (ARDL) approach to cointegration was utilized to estimate international tourism demand in Thailand. The short-term and long-term relationships results indicated that growth in income, the high jet fuel prices, exchange rate variations, exchange rate risk, and temperature in Thailand affected the number of international visitor arrivals to Thailand.

Syed *et al.* (2010) investigates the comparative effect of fiscal and monetary policy on economic of Pakistan using ARDL approach to cointegration. The cointegration result suggests that both monetary and fiscal policy have significant and positive effect on economic. The coefficient of monetary policy is much greater than fiscal policy which implies that monetary policy has more concerned with economic growth than fiscal policy in Pakistan. The implication of the study is that the policy makers should focus more on monetary policy than fiscal to enhance economic growth. The role of fiscal policy can be more effective for enhancing economic growth by eliminating corruption, leakages of resources and inappropriate use of resources. However, the combination and harmonization of both monetary and fiscal policy are highly recommended.

Despite their demonstrated efficacy in other economies as policies that exert influence on economic activities, both policies have not been sufficiently or adequately used in Nigeria (Ajisafe and Folorunso, 2002).

In Nigeria, Okpara (1988) found a very poor and insignificant relationship between government expenditure and prices. Olubusoye and Oyaromade (2008) analyzing the source of fluctuations in inflation in Nigeria using the frame work of error correction mechanism found that the lagged consumer price index (CPI) among other variables propagate the dynamics of inflationary process in Nigeria. The level of output was found to be insignificant but the lagged value of money supply was found to be negative and significant only at the 10% level in the parsimonious error correction model.

Folawewo and Osinubi (2006) examined the efficacy of monetary policy in controlling inflation rate and exchange instability. The analysis performed was based on a rational expectation framework that incorporates the fiscal role of exchange rate. Using quarterly data spanning over 1980- 2000 and applying times series test on the data used, the study showed that the effects of monetary policy in influencing the finance of government fiscal deficit through the determination of the inflation-tax rate affects both the rate of inflation and exchange rate, thereby causing volatility in their rates. The study revealed that inflation affects volatility in its own rate, as well as the rate of real exchange.

Elijah (2011) estimated the relationship between public expenditure, private investment and agricultural output growth in Nigeria over the period 1970-2008. The bounds test and Autoregressive distributed lag (ARDL) modeling approach was used to analyze both short- and long-run impacts of public expenditure, private investment (both domestic investment and foreign direct investment) on agricultural output growth in Nigeria. Results of the error correction model show that increase in public expenditure has a positive influence on the growth of the agricultural output. However, foreign investment has insignificant impact in the short run. Hence, it is recommended that policymakers should combined both private and public investment in a complementary manner to ensure that both short run and long run productivity of the agricultural sector is not undermined.

Phillips (1997) critically analyzed the Nigerian fiscal policy between 1960 and 1997 with a view to suggesting workable ways for the effective implementation of Vision 2010. He observed that budget deficits have been an abiding feature in Nigeria for decades. He noted that except for the period 1971 to 1974, and 1979, there has been an overall deficit in the federal Government budgets each year since 1960 to date. The chronic budget deficits and their financing largely by borrowing, he asserted, have resulted in excessive money supply, worsened inflationary pressures, and complicated macroeconomic instability, resulting in negative impact on external balance, investment, employment and growth. He, however, contended that fiscal policy will be an effective tool for moving Nigeria towards the desired state in 2010 only if it is substantially cured of the chronic budget deficit syndrome it has suffered for decades.

Ajisafe and Folorunso (2002) investigated the relative effectiveness of monetary and fiscal policy on economic activity in Nigeria using co-integration and error correction modeling techniques and annual series for the period 1970 to 1998. The study revealed that monetary rather than fiscal policy exerts a greater impact on economic activity in Nigeria and concluded that emphasis on fiscal action by the government has led to greater distortion in the Nigerian economy.

Adenikinju and Olofin (2000) focused on the role of economic policy in the growth performance of the manufacturing sectors in African countries. They utilized panel data for seventeen African countries over the period 1976 to 1993. Their econometric evidence indicated that government policies aimed at encouraging foreign direct investment, enhancing the external competitiveness of the economy, and maintaining macroeconomic balance have significant effects on manufacturing growth performance in Africa.

3.0 Methodology

This paper employed time series data from 1970 to 2010. The data include broad money supply, and total government revenues, and were all sourced from Central Bank of Nigeria Statistical Bulletins 2009 and 2010.

First, the time series characteristics of the variable are investigated. The purpose is to determine the order of integration. The paper conducted unit root

test on the variables included in the regression by employing the Dicky-Fuller generalized least square (DF-GLS) test developed by Elliot *et al.* (1996) and Ng-Perron test following Ng and Perron (2001). The DF-GLS test is a modification of ADF test while Ng-Perronis the modification of Phillips-Perron (PP) test. The objective here is to determine the underlying properties of the process that generated the present results and discussion of the analysis, while conclusion is presented based on the time series variables employed. The choice of the DF-GLS and Ng and Perron (2001) modified unit root test is based on the fact that the tests are more suitable for small samples than the traditional tests of ADF and PP test.

Secondly, the paper examines the relationship between the Money supply and total government revenues. Such an exercise will provide an understanding of the interactions among the variables in the system. Thirdly, the paper proceeds further to test the long-run (cointegration) relationship between the variables used in the model by employing the (ARLD) bounds testing approach to cointegration proposed by Pesaran *et al.* (2001).

The paper adopted the Autoregressive Distributed Lag (ARDL) bound test used extensively by Pesaran and Pesaran (1997); Pesaran and Smith (1998) and Pesaran *et al*. (2001). This technique has a number of advantages over Johansen cointegration techniques. First, whereas the Johansen techniques require large data sample, a luxury that most developing economies do not have, the ARDL model is the most useful method of determining the existence of cointegration in small samples (Ghatak and Siddiki, 2001)

The second advantage of ARDL approach is that while other cointegration techniques require all of the regressors to be of the same order, the ARDL approach can be applied whether the variables in the regression are purely of I(I) and/or purely I(0) or a mixture of both. This implies that the ARDL approach avoids the pre-testing problem associated with standard cointegration, which requires that the variables be already classified into I(I) (Pesaran *et al*., 2001).

Thirdly, the ARDL approach to cointegration is preferable to the Johansen approach because it avoids the problem of too many choices that are to be made in Johansen method. These include the treatment of deterministic elements, the order of VAR and the optimal lag length to be used. Finally, in

the ARDL approach variables could have different lag length, whereas in the Johansen method this is not permissible.

The ARDL approach requires two steps. In the first step, the existence of any long run relationship among the variables of interest is determined by using the F-test. The second stage requires the estimation of the long run relationship between dependent and explanatory variables and to determine their values, thereafter the short run elasticity of the variables with the error correction representation of the ARDL model. The purpose of applying the ECM version of the ARDL is to determine the speed of adjustment to equilibrium.

3.1 Model Specification

The relationship between Money supply and total government revenue can either run from money supply to revenue or revenue to money supply. Thus, there are two possible functional forms as:

$$MSP = f(REV) \tag{1}$$

$$REV = f(MSP) \tag{2}$$

To empirically analyze the above functional forms, the ARDL model specification is used to show the long-run relationships and dynamic interactions between money supply and government revenue using Autoregressive Distributed Lag (ARDL) co-integration test popularly known as the bound test.

The ARDL model specifications of the functional relationship between broad money supply and total government revenue as expressed by Equations (1) and (2) are:

$$\Delta LMSP = \alpha_0 + \beta_1 LMSP_{t-1} + \beta_2 LREV_{t-1} + \sum_{i=1}^{k} \delta_{1i} \Delta LMSP_{t-i} + \sum_{i=1}^{k} \delta_{2i} \Delta LREV_{t-i} + \varepsilon_t \tag{3}$$

$$\Delta LREV = \theta_0 + \lambda_1 LREV_{t-1} + \lambda_2 LMSP_{t-1} + \sum_{i=1}^{k} \phi_{1i} \Delta LREV_{t-i} + \sum_{i=1}^{k} \phi_{2i} \Delta LMSP_{t-i} + \mu_t \tag{4}$$

where:

LMSP = Log of money supply
LREV = Log of total government revenue
K = lag length for the unrestricted error-correction model (UECM)
Δ = first differencing operator
ε and μ = white noise disturbance error terms

The bound test approach for the long-run relationship between the money supply and government revenue is based on the Wald test (F statistic), by imposing restrictions on the long-run estimated coefficients of one period lagged level of the money supply and revenues to be equal to zero, that is, H_0: $\beta_1 = \beta_2 = 0$ for equation 3 and H_0: $\lambda_1 = \lambda_2 = 0$ for equation 4. Then the calculated F-statistic is compared to the tabulated critical value in (Pesaran, 2001). The explanatory variables are assumed to be integrated of order zero, or I(0) for values of the lower bound, while the upper bound values assumed that they are integrated of order one, or I(1). Therefore, the decision rule is that if computed F-statistic falls below the lower bound value, I(0), the null hypothesis (no co-integration) cannot be rejected. Contrarily, if the computed F-statistic exceeds the upper bound value, I(1) then it can be concluded that money supply and government revenue are co-integrated.

The long-run and short-run parameters of Equations (3) and (4) were then estimated once a cointegration relationship had been established. The co-integrating long-run relationship was estimated using the following specifications:

$$LMSP = \alpha_0 + \beta_1 LMSP_{t-1} + \beta_2 LREV_{t-1} + \varepsilon_t \qquad (5)$$

$$LREV = \theta_0 + \lambda_1 LREV_{t-1} + \lambda_2 LMSP_{t-1} + \mu_t \qquad (6)$$

However, to restore equilibrium immediately may not be possible because of the speed of adjustment. This could be caused by the lags and adjustment process used to capture changes in any of the factors affecting money supply or revenue overtime. Hence, the error correction model was used to capture the speed of adjustment of money supply model and government revenue model. These models are expressed below as:

$$\Delta LMSP = \alpha_0 + \sum_{i=1}^{k} \delta_{1i} \Delta LMSP_{t-i} + \sum_{i=1}^{k} \delta_{2i} \Delta LREV_{t-i} + \delta_3 \varepsilon ct_{t-1} + \varepsilon_t \qquad (7)$$

$$\Delta LREV = \theta_0 + \sum_{i=1}^{k} \phi_{1i} \Delta LREV_{t-i} + \sum_{i=1}^{k} \phi_{2i} \Delta LMSP_{t-i} + \phi_3 \varepsilon ct_{t-1} + \mu_t \qquad (8)$$

where:

εct_{t-1} = the error correction term lagged for one period

δ and ϕ = the coefficients for measuring speed of adjustment in equations(7) and (8).

3.0 Empirical Results

Before proceeding with the econometric estimations, it is required to investigate the integration properties of the used variables in order to avoid the problem of spurious regression. Consequently, the variables for their stationary properties are examined by means of the DF-GLS and Ng-Perron unit root tests. The tests for the variables in levels are presented in Table 1. The results suggest that, all variables are non-stationary in levels and stationary when tested in first difference form, providing evidence that all examined variables are integrated of order one I(1).

3.1 ARDL bound test result for Equations (3) and (4)

The results of the bounds test for equations 3 and 4 are presented in Table 2. The Computed F-Statistic for Equation is 5.0530. This value exceeds the upper bounds critical value of 4.9520 at the 10% significance level. This implies that money supply and government revenues are co-integrated. The computed F- Statistic for Equation is 1.7298 which is lower than the lower bounds critical values and upper bound critical values. This means that the null hypothesis of no co-integration cannot be rejected. Based on this, we inferred that no long run relationship run from government revenues to money supply.

As shown in Table 2, there is cointegration running from money supply to government revenues while there is no evidence of co-integration running from revenues to money supply. Therefore, equation (5) was estimated to explore the long run relationship running from money supply to government revenues. The result obtained is contained in Table 3. From Table (3), it is revealed that the estimated coefficient of government revenue has a positive

and significant impact on money supply. A 1% increase in government revenue leads to approximately 0.96% increase in the Money supply.

Table 1: DF-GLS and Ng-Perron Unit Root Test

Variables	**Constant**		**Constant & trend**	
	DF-GLS	Ng-Perron (MZa)	DF-GLS	Ng-Perron (MZa)
	t statistic	t statistic	t statistic	t statistic
LMSP	0.006852	-1.03238	-1.724226	-5.38181
LREV	0.15576	0.34191	-2.346559	-8.70879
Test critical values (5%) DF-GLS = -1.949319 Ng-Perron =-8.10000			Test critical values (5%) DF-GLS = -3.19000 Ng-Perron = -17.3000	
*MacKinnon (1996) * Ng-Perron (2001, Table 1)			* Elliott-Rothenberg-Stock (1996, Table 1) * Ng-Perron (2001, Table	
- Lag length for DF-GLS tests are decided based on Modified Akaikes information criteria (AIC) -Ng-Perron test lag length are decided based on Modified AIC and AR spectral- GLS detrended spectra				

Table 2: Testing for existence of a level relationship among the variables in the ARDL model

Equation 3 [ARDL(2,0)]				
F-statistic	95% lower bound	95% upper bound	90% lower bound	90% upper bound
5.0530	5.2844	6.0484	4.2436	4.9520
Equation 4 [ARDL(1,2)]				
F-statistic	95% lower bound	95% upper bound	90% lower bound	90% upper bound
1.7298	5.2844	6.0484	4.2436	4.9520

The results of the short-run dynamic coefficients in equation (7) are presented in Table 4. The sign of the short-run dynamic impacts of government revenues on money supply is positive and significant. The error correction mechanism (ECM) is estimated as -0.17 with probability value of 0.000. Hence, the ECM is highly significant and has the correct sign. This means that approximately

17% of the discrepancy in the previous year is adjusted for by the current year.

Table 3: Results of Long -run Relationship (Equation (5))

Regressor	coefficient	Standard error	T-ration	Prob.
LREV	0.96124	0.037598	25.5663	0.000*
C	1.2709	0.50558	2.5137	0.017**
Notes: (*) and (**) indicates 1% and 5% significance level				
R-Squared: 0.98806 Durbin Watson Statistic : 2.0272 and Prob (F-Statistic): 0.000.				

Table 4: Results of the ARDL Short-run Relationship (Equation (7))

Regressor	coefficient	Standard error	T-ration	Prob.
ΔLMSP1	0.23323	0.13070	1.7845	0.083
ΔLREV	0.16600	0.035581	4.6655	0.000
ECM(-1)	-0.17270	0.036608	-4.7175	0.000
R-Squared: 0.46062 , Adjusted R-squared: 0.41303, Durbin Watson Statistic : 1.9519 and Prob (F-Statistic): 0.000.				

Though the bound test results for equation (4) reveal that government revenue as the dependent variable does not co-integrate with money supply, however, the short run dynamic coefficient between the two variables was estimated. The results from this estimation is presented in Table 5.The sign of the short-run dynamic impacts of money supply on government revenues is positive and significant. The error correction mechanism (ECM) is estimated as -0.28 with probability value of 0.076. Again, the ECM is significant and has the correct sign. This means that approximately 28% of the discrepancy of the previous year is adjusted for by the current year.

The diagnostic statistics as shown in Tables 6 and 7 are quite good. There is no evidence of serial autocorrelation, the Ramsey's RESET test using the square of the fitted values are satisfied. The normality test proved that the error term is normally distributed. Based on the regression of squared residuals on squared fitted values, there no heteroskedasticity.

Table 5: Results of the ARDL Short-run Relationship (Equation (8))

Regressor	coefficient	Standard error	T-ration	Prob.
ΔLMSP	1.3544	0.44811	3.0226	0.005
ΔLMSP1	-0.63148	0.41550	-1.5198	0.138
ECM(-1)	-0.27939	0.15266	-1.8302	0.076
R-Squared: 0.25775 , Adjusted R-squared: 0.16778, Durbin Watson Statistic : 2.0272 and Prob (F-Statistic): 0.018.				

Table 6: Diagnostic Tests Autoregressive Distributed Lag Estimates ARDL(2,0)

Dependent variable is LMSP

Test Statistics	LM Version	F Version
A: Serial Correlation	CHSQ(1) = 0.070824[.790]	F(1,33) = 0.061620[.805]
B: Functional Form	CHSQ(1) = 1.1054[.293]	F(1,33) = 0.98870[.327]
C: Normality	CHSQ(2) = 0.42332[.809]	Not applicable
D: Heteroscedasticity	CHSQ(1) = 0.7148E-3[.979]	F(1,36) = 0.6772E-3[.979]

A: Lagrange multiplier test of residual serial correlation
B: Ramsey's RESET test using the square of the fitted values
C: Based on a test of skewness and kurtosis of residuals
D: Based on the regression of squared residuals on squared fitted values

Table 7: Diagnostic Tests Autoregressive Distributed Lag Estimates ARDL(1,2)

Dependent variable is LREV

Test Statistics	LM Version	F Version
A: Serial Correlation	CHSQ(1) = 0.027296[.869]	F(1,33) = 0.023002[.880]
B: Functional Form	CHSQ(1) = 0.44647[.504]	F(1,33) = 0.38045[.542]
C: Normality	CHSQ(2) = 1.1961[.550]	Not applicable
D: Heteroscedasticity	CHSQ(1) = 0..086729[.768]	F(1,36) = 0.082352[.776]

A: Lagrange multiplier test of residual serial correlation
B: Ramsey's RESET test using the square of the fitted values
C: Based on a test of skewness and kurtosis of residuals
D: Based on the regression of squared residuals on squared fitted values

A stability test of the long run and short run coefficients using the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMQ) was performed. As observed by Bahmani-Okooee (2001), the stability of the

regression coefficients is evaluated by stability tests, and stability tests can show whether or not the regression equation is stable over time. This stability test is appropriate in time series data, especially when one is uncertain when change might have taken place. The null hypothesis is that the coefficient vector is the same in every period.

CUSUM and CUSUMQ statistics are plotted against the critical bound of 5 per cent significance. As noted by Bahmani-Oskooee and Wing NG (2002), if the plot of these statistics remains within the critical bound of 5 per cent significance level, the null hypothesis, which states that all coefficients in the error correction model are stable, cannot be rejected.

The plots of the recursive residuals are presented in Figures 1, 2, 3 and 4. As shown in the graphs, the plots of CUSUM and CUSUMQ residuals are within the boundaries. This implies that the parameters of the models have remained stable within its critical bounds.

Figure 1: Plot of cumulative sum of recursive residuals (dependent variable LMSP: ARDL (2,0))

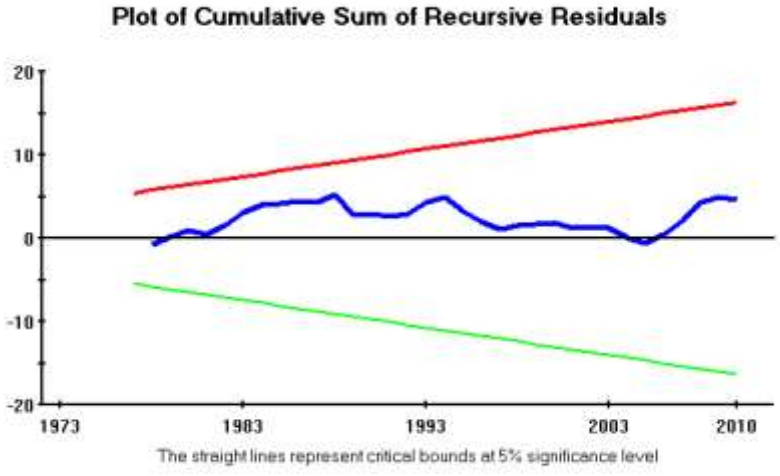


Figure 2: Plot of cumulative sum of squares of recursive residuals (dependent variable LMSP:ARDL (2,0))

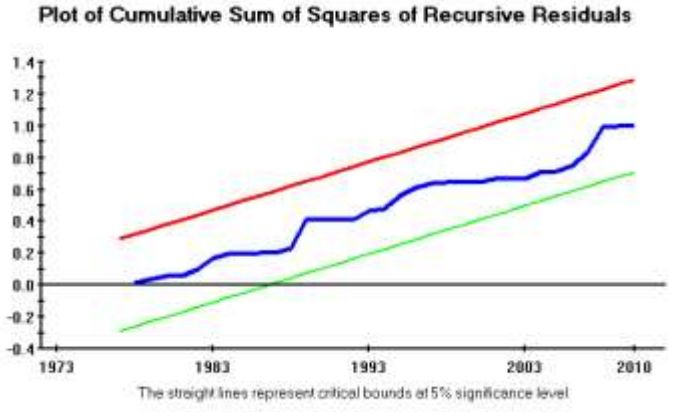


Figure 3: Plot of cumulative sum of recursive residuals (dependent variable LREV:ARDL(1,2))

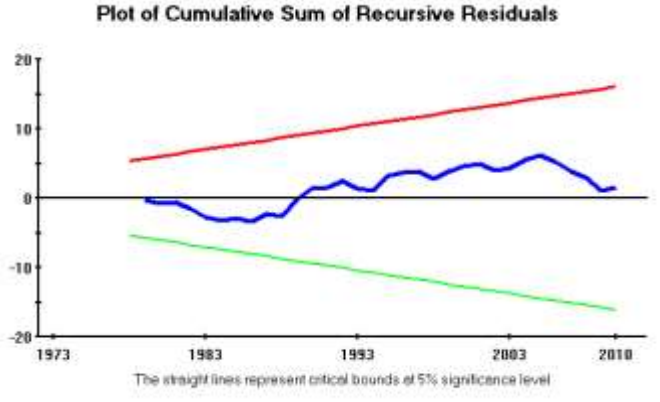
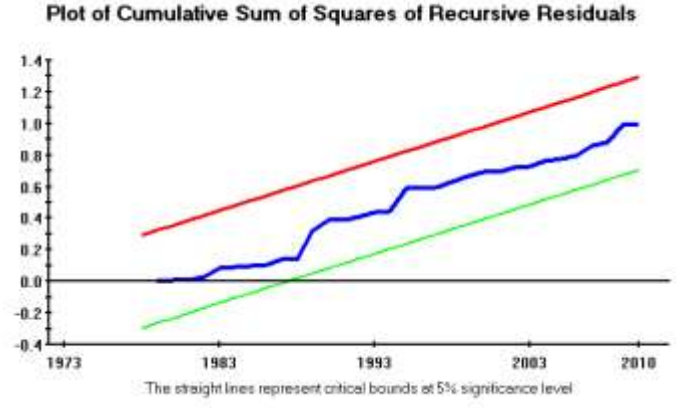


Figure 4: Plot of cumulative sum of squares of recursive residuals (dependent variable LREV:ARDL(1,2))



4.0 Summary and Conclusion

The purpose of this study was to analyze long and short run relationship between money supply and government revenues in Nigeria. The study adopted the ARDL bounds testing co-integration approach to investigate the long -run and short -run relationships between money supply and government revenues in two different functional forms. The results show that there is a co-integration relationship between money supply and revenues in the first functional form where money supply was the dependent variable. The results also indicate that government revenue has a positive and significant impact on money supply.

In contrast, the results for the second functional form where government revenue was the dependent variable show no evidence of long run relationship between government revenues and money supply. But a short- run relationship between the two variables was found in the two functional forms. Summarily, the results obtained indicate that it was revenue that was driving money supply in Nigeria. The implication of these findings is that, the government revenue has an impact on the money supply in the country economy. We recommend that the policy makers should regulate more ways to avoid corruption into oil and non-oil revenues generated, since it has significant impact into Nigerian economy.

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