THE SAINT-LOUIS EQUATION REBIRTH: RE-ACCESSING FISCAL AND MONETARY POLICY MIX IN NIGERIA*

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Abstract: This study restates the Saint-Louis equation to reinvestigate the relative effectiveness of fiscal and monetary policies on the Nigerian economy. This study used annual data series, from 1981 to 2015. The unit root test conducted revealed that each of the variables has stationarity at first difference. The rejection of null hypothesis on the ARDL Bound testing confirms a level relationship among the variables. The Autoregressive Distributed Lag (ARDL) technique is then used to examine the short-run and long-run relationship among the chosen variables. Also, the ARDL parameter estimates are used to compute the impulse response function in order to shed light on fiscal-monetary impacts' puzzle in the existing literature. The impulse response function (IRF) shows that, GDP responses to fiscal and monetary policy shocks are both positive and negative. Ultimately, the IRF allows us to find out that the very long-run responses of GDP to fiscal and monetary policies shocks are negative and positive. In conclusion, we found out that monetary policy is more effective than the fiscal policy in Nigeria. Given this, we suggest that government and policymakers should simultaneously apply both fiscal and monetary policies, such that their temporal and cumulative effect on the economy becomes positive.

Keywords: Saint-Louis Equation, fiscal policy, monetary policy, ARDL, Nigerian Economy.

1 Introduction

Both the Keynesians and the Monetarists have argued, more than a century, over the superiority of policies adopted by each party, but the fact remains that any policy formulation that is not projected or geared towards economic stability could be considered passive, ineffective or counterproductive. The two active economic policies used in stabilizing any economy are the fiscal and monetary policies. The

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major tools or instruments of these policies are government consumption spending and the money supply. Conceptually, monetary policy focuses on the control of availability, volume, flow, direction, and cost of credits within the economy, while fiscal policy is concerned with the generation of revenue through taxes, government expenditures, and debt control. In developing countries, both monetary and fiscal policies are used in a complementary manner to pursue economic stabilization. The complementarity use of monetary and fiscal policies is subject to debate among empirical economists and speculators. The classical economists argue that the economy is self-regulating, and that there is no need for government intervention. Theses economists believe in the ability of the economy to achieve full employment through its own internal mechanisms (Olofin & Salisu, 2014). However, this proposition became invalid during the great depression of the 1930s which gave birth to the three sector's macroeconomic modeling. Consequently, the fiscalists, championed by J.M. Keynes, proposed that only the intervention of government could drive the economy out of the great boredom.

In many developing countries, monetary policy is used to aid the implementation of fiscal policy (Laurens & de la Piedra, 1998). In other words, when the federal government spends in excess of her purse, the monetary authority may have to print more currency to cover the gap. Also, seignorage, which is one of the government's means of generating revenue, is through the printing of currency by the monetary authority. Lambertini and Rovelli (2003) argued that both fiscal and monetary policies have essential influences on the economy's aggregate demand. Monetary and fiscal policies are used complementarily in macroeconomic management. Based on this, there is need for the government to make use of the two policies simultaneously in such a way that the effect of one will not neutralize the effect of the other or turns the effect to be countercyclical – though the simultaneous effect of two policies differ on the economy.

Anderson and Jordan (1986) pioneered the investigation of the relative effectiveness of fiscal and monetary policy in stabilizing the American economy. He constructed a model of three variables, and formulated an autoregressive growth equation, popularly known as the Saint-Louis equation. However, this model has suffered a lot of criticisms because of its simplicity (see Batten and Thornton 1986). The first among the critics were Batten and Thornton (1986) who argues that the Saint-Louis equation excludes some relevant exogenous variables. A lot of model estimation problems have been attached as drawbacks to the Saint-Louis equation (Batten and Thornton, 1986). However, the major drawback that was used to castigate Anderson and Jordan (1986) was not grounded on a solid and correct econometrical foundation, and we shall extend this argument further for the purpose of re-definition and re-evaluation; hence, this will be useful for academic and research purpose.

Firstly, the original model was autoregressive in nature, and this assumption is too rigid. It is highly a theoretical to neglects the effect of the lags of dependent variable as a regressor in the model without testing for its exclusion. Also, one of the

major criticisms of the model was that it did not include some relevant exogenous variables, but the fact is that it cannot be ascertained that the inclusion of some exogenous variables would really solve the simplicity-nature problem of the model. Some critics opined that government expenditure and money supply were too weak to be supplied in the Anderson and Jordan model, but the truth is that we are mainly concerned with what the whole agents in the economy could access easily; both government expenditure and money supply impacts could be felt by the whole citizens without carrying out any statistical investigation as the two tools are highly visible.

However, the principle of parsimony of the model should not be taken for granted. Using just the two variables could give us a better and clearer picture of what is going on in the economy. Virtually most of the economic activities in any economy wiggle around government expenditure and money supply. African nations and some developing countries are not excluded.

The major argument of this study is that, although, the original model estimated by Anderson and Jordan (1986) was expressed in a growth form, but the advancement in modern econometrics and statistics have allowed us to conduct empirical research with non-stationary data. Also, since the model is a single equation model, a method that would be able to capture the necessary dynamics should be used this time.

A lot of studies have adopted different techniques to access the relative effectiveness of fiscal and monetary policies on a particular economy, and jumped into long run and short run conclusion without showcasing the dynamics behind the result. The short run or the long run coefficients of an estimated model are necessary, but may not be sufficient in accessing the relativeness of fiscal and monetary policies. More dynamic information is needed to convince or to be convinced. In this study, we shall take a step further to redefine the Saint-Louis equation to re-investigate relative effectiveness of fiscal and monetary policies with Nigerian annual data and we shall adopt the Autoregressive Distributed Lag (ARDL) methodology to shed more light on the dynamic behavior of the economy in response to the two major tools shocks.

2 Empirical literatures

There are some authors that have meticulously accessed the relative effectiveness of fiscal-monetary policies using the Saint-Louis equation over there decades and with mixed findings. Few of these studies are discussed below.

Adefeso and Mobolaji (2010) re-estimated and re-examined the relative effectiveness of monetary and fiscal policies on Nigerian economic growth using time series data that spanned 1970-2010. Cointegration and error correction techniques were adopted in their study. Their findings show that monetary policy is more effective than fiscal policy despite the exclusion of the degree of trade openness.

Oziengbe (2011) investigated the relative effectiveness of monetary and fiscal policy in Nigeria using a quarterly time series data that spanned 1981-2009. He adopted cointegration and error correction methodology. The result from his study showed a significant positive relationship between real gross domestic product and government expenditure, and he also found a positive relationship between real gross

domestic product and one-quarter lagged value of money supply. The result also showed that the positive impact of monetary policy action on economic activities was more significant than that of fiscal policy within the period covered by the study.

Sanni, Amusa, and Agbeyangi (2012) investigated the superiority of fiscal and monetary policies in controlling economic activities in Nigeria using an annual time series data spanned 1960-2011. They adopted Error Correction methodology in their study. Their empirical result showed that none of the policies better off the other and that a proper mix of the policies may enhance a better economic growth.

David, Manu, and Dak-Adzaklo (2017) investigated the relative effectiveness of monetary and fiscal policies in Nigeria using a quarterly time-series from 1981-2012. This study employs the autoregressive distributed lag (ARDL) model. Their study shows that, in the short run, monetary policy affects income more than fiscal policy but the reverse is the case for the long run. The total impact of fiscal policy is higher than that of monetary policy.

Existing works have made a tremendous effort in examining and estimating the causal impact of monetary and fiscal policies on the Nigerian economy. However, most of the works do not follow the Saint-Louis equation specification and some that followed used a modified version of it. Some of the studies used incorrect methodologies for their empirical investigation while some that used correct methodologies do not report the necessary dynamics that can be used for further policy recommendations. This work, therefore, made efforts in restating the Saint-Louis equation in order to reinvestigate the relative effectiveness of fiscal-monetary policies in Nigeria using more advanced tools so as to be able to choose and make appropriate policies justification to achieve different long run and short run set goals.

3 Methodology

Given the nature of this study, we source for historical data on the real gross domestic product, broad money supply and government expenditure for Nigerian economy to re-investigate the effectiveness of fiscal and monetary policies by estimating a redefined Saint-Louis equation. The data series covered the periods of 1981-2015. These historical data were obtained from the Central Bank of Nigeria annual statistical bulletin. Parametric (Augmented Dickey-Fuller) unit root test is employed to test for the stationarity of the three variables. In order to investigate the rich dynamic impact of fiscal and monetary policies on Nigerian economy, we employed an ARDL methodology. The ARDL optimal lags specification is selected using the information criteria using Eviews software. Technically, we do not describe the bound test approach to testing for cointegration in this study but the curious readers are advised to consult the reference (Pesaran, Shin, and Smith, 2001).

3.1. The model and the equation specifications

The model used by Anderson and Jordan (1986) in their study was simply stated as, nominal GDP as a function of narrow money supply and full employment government expenditure. It is presented in algebraic form as shown in equation (1) below;

$$GDP_t = f(MS_t, GOV_t) \dots (1)$$

In order to estimate the model above, Anderson and Jordan (1986) specified the equation below in a baseline and distributed lag form;

$$\Delta GDP_t = \alpha + \sum \beta_i \Delta MS_{t-i} + \sum \gamma_j \Delta GOV_{t-j} + u_t \dots (2)$$

The equation (2) above suffered a lot of drawbacks as discussed earlier and there is a need for re-modification but not total condemnation. The model for this study will not by far deviate from the equation (1), however with little modifications as this study aims. The model in equation (1) above is presented below in a modified version;

$$GDP_t = f\left(GDP_{t-i}, MS_t, MS_{t-j}, GOV_t, GOV_{t-k}\right) \dots (3)$$

From the equation (3) above, the real gross domestic product is a function of its predetermined values, contemporaneous and predetermined broad money supply and contemporaneous and predetermined government expenditure. The delay parameters i, j and k determination is rested on the frequency of the data used and the selection criterion. Econometrically, the role of the predetermined variable(s) helps to shed light on dynamic information embedded in dynamic models. For estimation purpose, we present the new Saint-Louis equation in an iso-elasticy form; instead of the original baseline distributed lag form, based on the model stated in equation (2) above.

$$GDP_t = Ae^{v_t}\left(\prod_{i=1}^{i<\infty} GDP_{t-i}^{\theta_i}\right)\left(\prod_{j=0}^{j<\infty} MS_{t-j}^{\omega_j}\right)\left(\prod_{k=0}^{k<\infty} GOV_{t-k}^{\omega_k}\right) \dots (4)$$

The "A" is the total factor productivity, "v" is the stochastic error term, and the superscript parameters are the iso-elasticy of real GDP in response to the variables. The lag selection of the model is a critical issue that should not be overlooked. Ideally, every government spends four consecutive years in administration and this implies that the four years spending pattern would definitely be correlated and this implies that four years lag of government expenditure may be ideally optimal in the model (in the case of annual data); this may not true but we assumed it to be correct. The lag pattern of money supply may be hard to detect due to its stock nature. For estimation purpose, the lags (i, j and k) will be selected optimally using the Schwarz statistical information criterion. Log linearization of equation (4) becomes an ARDL specification. The advantages of ARDL methodology are that, it will enable us to investigate both the short and long run (gains) impact of variable(s) on the dependent variable, it will enable us to investigate the mean-median lag of response of the dependent variable to effect on the regressors and it will allow us to compute the dynamic response (step response function) of the dependent variable to the repressors' shocks. We shall use the bound test approach to cointegration in order to support the level relationship of the variables as opposed to the difference or baseline form of the original Saint-Louis equation. Technically, we do not describe the bound test approach to testing for cointegration in this study, but the curious readers are advice to consult the reference (Pesaran, Shin and Smith, 2001).

4 Empirical analysis

Before we pursue the formal unit root tests, we plot the time series under study as it may help reveal the stationarity or integrating nature of the variable. The three variables were log-transformed (the small case variables are in log form) before using for estimation purpose. The log GDP, log broad money supply, and log government expenditure are examined graphically as depicted in figure 1below. It can be shown from the figure 1 below that the log of the three variables show a visible pattern of trend and this implies that there is a tendency for the variables' means and variances not to be constant over time. In a unit root language, we may say that the logs of the variables are not stationary over the sample periods. However, their respective difference filter at below of each graph shows that they are likely to be stationary after first difference. However, no numerical fact can be derived from the graphical inspection; based on this, we employed the Augmented Dickey-Fuller unit root tests to investigate numerically the stationarity properties of variables.

The probability values for the unit root tests in table 1 below prompt us to accept the alternative hypothesis at first difference, hence we may conclude that the variables in question are indeed first order integrated variables. This implies that estimating our equation in difference form may be highly spurious (unlike the original Saint-Louis equation which was in a difference and distributed lag form) and will lead to losses of long-run information; we may, therefore, need to test for cointegration among the variables. Interestingly, the stationarity nature of the variables had been suggested earlier by their graphical inspection in figure 1 below.

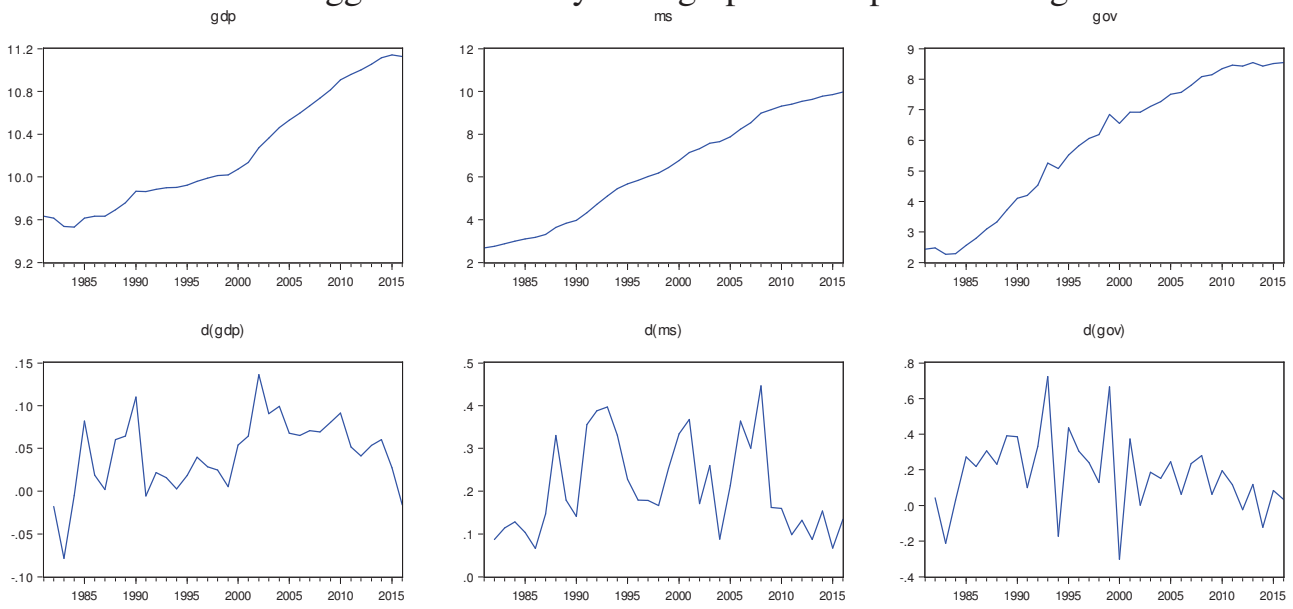

Figure 1 - The log and log difference of gdp, ms and gov spanned 1981-2015
Source: Author's computation using Eviews

Table 1: Unit root test results

H_0: unit root H_1: stationary		ADF @ level			ADF @ First difference		
		gdp	ms	gov	gdp	ms	gov
C	t-stat	1.2121	-0.2896	-1.2120	-3.0447	-3.3157	-6.9427
	Prob.	0.9976	0.9165	0.6582	0.0407**	0.0219**	0.0000***

C&T	**t-stat**	**-2.5289**	**-1.9711**	**-0.5699**	**-2.9068**	**-3.2567**	**-7.2842**
	Prob.	**0.3132**	**0.5963**	**0.9747**	**0.1730**	**0.0908***	**0.0000*****
No C&T	**t-stat**	**4.3860**	**4.7829**	**2.8071**	**-1.9043**	**-1.0106**	**-4.7886**
	Prob.	**1.0000**	**1.0000**	**0.9982**	**0.0552***	**0.2742**	**0.0000*****

Source: Author's computation using Eviews

Note * (**) (***) denotes null hypothesis at 10%, 5% and 1% respectively. Where made used, C represents Constant while T represents Trend. All variables are in log form.

It is necessary to select the optimal lag for the ARDL model to estimate because; the subsequent tests and the dynamic information needed will be based on the model selected for estimation. Estimation of too much parameter will lead to proliferation and useful information will be lost. Also, selection of too much lag will reduce the available data for estimation and less degree of freedom will be available thereby making the result shaky. We use Schwarz information criterion (due to its parsimonious selection nature) to select the optimal lag for the estimated ARDL model. ARDL (2, 3, 0) model i.e. 2 lags for log real GDP, 3 lags for log government expenditure and 0 lag for log broad money supply, is selected by the Schwarz information criterion. From the model estimated, we compute the long-short run information as well as the dynamic response of real GDP to monetary-fiscal policies to temporary and permanent shocks. The below table 2 shows the estimated ARDL (2, 3, 0) model and we account for an outlier in the year 1990. It can be seen from the table 2 that, all the variables are statistically significant.

Table 2: ARDL (2, 3, 0) estimated parameters
Dependent variable: gdp
Adjusted sample: 1984-2015 (33 observations)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
gdp(-1)	**1.149754**	**0.103406**	**11.11887**	**0.0000*** **
gdp(-2)	**-0.393237**	**0.091632**	**-4.291479**	**0.0003*** **
gov	**-0.041360**	**0.020645**	**-2.003437**	**0.0570***
gov(-1)	**-0.042984**	**0.019112**	**-2.249081**	**0.0344****
gov(-2)	**-0.048469**	**0.026267**	**-1.845259**	**0.0779***
gov(-3)	**0.054669**	**0.021615**	**2.529234**	**0.0187****
ms	**0.123447**	**0.032086**	**3.847429**	**0.0008*** **
dummy(1990)	**0.109333**	**0.009550**	**11.44891**	**0.0000*** **
constant	**2.182707**	**0.322223**	**6.773911**	**0.0000*** **
R^2-Adjusted	**0.998246**			
F-stat	**2206.9[0.0000]*** **			
$\hat{\sigma}$	**0.02**			
RSS	**0.0104**			
LM(1)	**0.3003[0.5837]**			
LM(2)	**2.5017[0.2863]**			
LM(3)	**2.5113[0.4732]**			
χ^2-ARCH(1)	**0.0479[0.8267]**			
χ^2-ARCH(2)	**0.7715[0.6799]**			

χ^2-ARCH(3)	**3.0916[0.3777]**
Ramsey (1,22)	**0.1549[0.6977]**
Ramsey (2,21)	**0.2905[0.7509]**

Source: Author's computation using Eviews

**** (**) (***) denotes significance at 10%, 5% and 1% respectively***

We proceed to test for the presence of long-run relationship among the variables so as to avoid spuriosity. The table 3 below shows the ARDL bound test result. The calculated F-statistics is far greater than the critical values and we may conclude that the long run relation between the variables is empirically valid.

Table 3: ARDL F-bound test result

Null Hypothesis: No levels relations relationship

Test Statistic	Value	Signif.	I(0)	I(1)
F-stat	**15.32**	**10%**	**2.845**	**3.623**
d.o.f (k)	**2**	**5%**	**3.478**	**4.335**
Sample Size Used	**32**	**1%**	**4.948**	**6.028**

Source: Author's computation using Eviews

In table 4 below, we show the estimated long-run parameters. The result shows that the accumulated (long run) effect of broad money supply on real GDP is positive while the accumulated (long run) effect of government expenditure on real GDP is negative. The two long-run effects are both significant statistically. Also, one percent increases in government expenditure lead to 0.32% decrease in the real GDP while one percent increases in broad money supply lead to 0.51% increase in the real GDP in the long run respectively.

Table 4: ARDL (2, 3, 0) estimated long run parameters

Dependent variable: gdp

Adjusted sample: 1984-2015 (33 observations)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Gov	**-0.320942**	**0.076702**	**-4.184299**	**0.0004*****
Ms	**0.507004**	**0.067757**	**7.482733**	**0.0000*****
Constant	**8.964512**	**0.087820**	**102.0777**	**0.0000*****

Source: Author's computation using Eviews

*** (**) (***) denotes significance at 10%, 5% and 1% respectively**

The table 5 below shows the estimated short run parameters. The result shows that the instantaneous effect and the two previous period's consecutive effects of government expenditure on real GDP are negative in the short-run. Since zero lag is selected for the broad money supply by the information criterion, it will automatically disappear in the error correction equation through algebraic transformation; however, its short run (instantaneous) effect on real GDP is equivalent to the estimated

coefficient (0.12) of the log money supply in table 2 above. In essence, we could see that this value is positive and significant.

Table 5: ARDL (2, 3, 0) estimated short run parameters
Dependent variable: d(gdp)
Adjusted sample: 1985-2015 (32 observations)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
d(gdp(-1))	0.393237	0.082000	4.795560	0.0001***
d(gov)	-0.041360	0.018601	-2.223514	0.0363**
d(gov(-1))	-0.006200	0.015180	-0.408459	0.6867
d(gov(-2))	-0.054669	0.016641	-3.285279	0.0032***
dummy(1990)	0.109333	0.022235	4.917118	0.0001***
Ecm(-1)	-0.243483	0.029247	-8.325172	0.0000***

Source: Author's computation using Eviews

**** (**) (***) denotes significance at 10%, 5% and 1% respectively***

Interestingly, one could quickly convince or be convinced that fiscal policy impacted negatively on real GDP both in the short run and long run based on the results above while money supply impacted positively on real GDP in the short run as well as in the long run.

Logically, the long run impacts in the table 4 above are interpreted as the cumulative effect of the temporary (short run) fiscal and monetary policies shocks on the economy. The implication of this statement is that long run state cannot be achieved immediately but through the momentum of processes. This implies that there are fiscal and monetary policies dynamics (which only the parameter estimates cannot reveal) that drive the economy towards the steady state (long run). In order to delve further into these embedded dynamics, we used the coefficients of the estimated ARDL (2, 3, 0) model in table 2 above to derived the impulse response function as shown in figure 2 below.

Graphs labeled A and B show the dynamic responses of GDP to fiscal and monetary policies shocks while graphs labeled C and D show the cumulative (long run) responses of GDP to fiscal and monetary policies shocks.

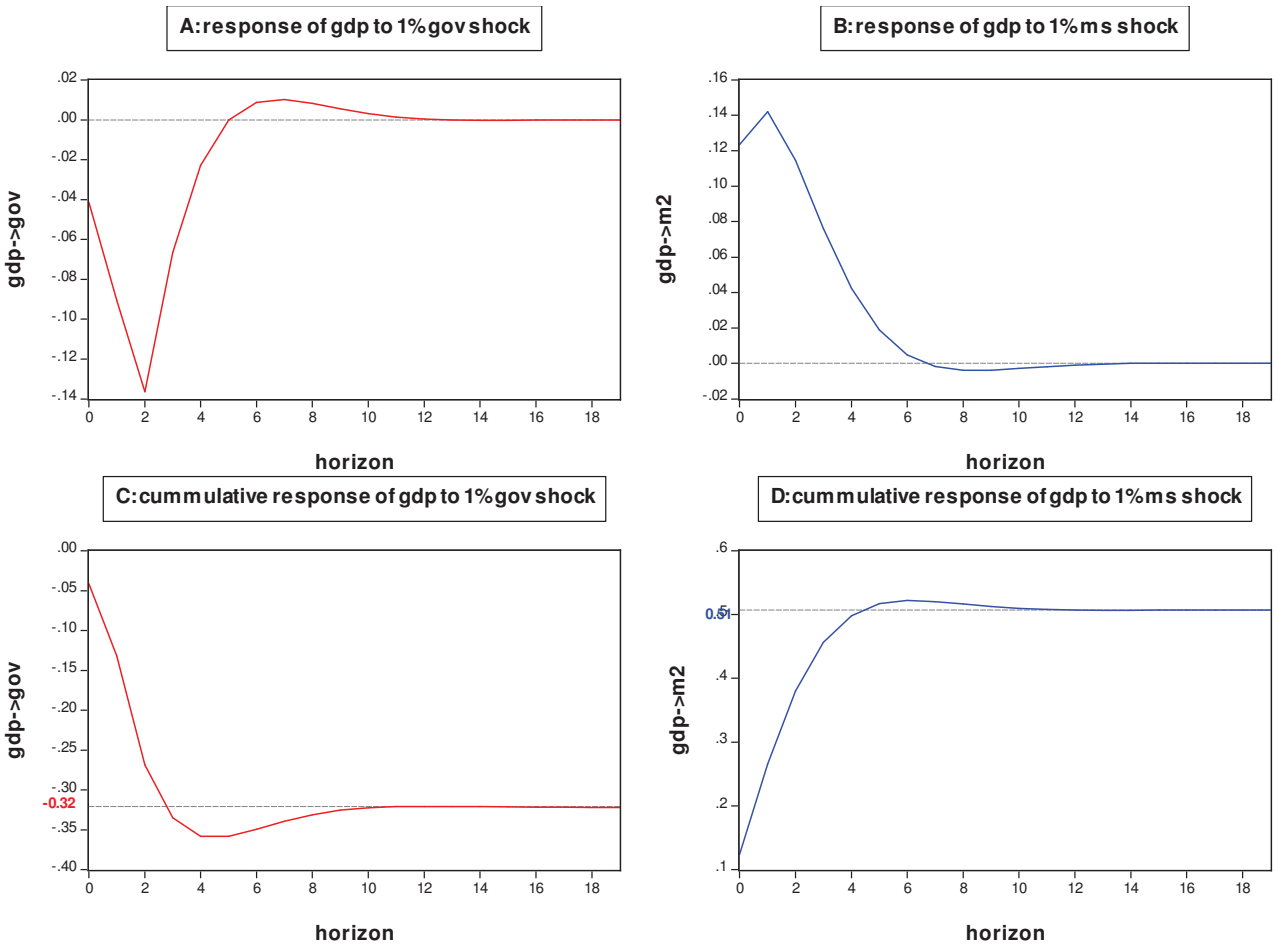

Figure 2 - ARDL (2, 3, 0) impulse response function.

Sources: Authors computation from the estimated ARDL model

From graph A, we can see that GDP respond negatively to fiscal policy shock between the initial horizon up to the fifth horizon when its response switch to positive and the effect dies off at the longer horizons. The graph helps us to investigate properly that the effect of fiscal policy on GDP is not wholly negative in the short run as seen in the error correction model result (see table 5 above). Also on graph labeled A, we can see that the negative effect of fiscal policy on GDP outweighs the positive effect hence the cumulative (long run) effect will be negative; this proposition is supported by the graph labeled C. Also, from figure B, we can see that GDP respond positively to monetary policy shock between the initial horizon till the sixth horizon when its response switch to negative and the effect dies off in the longer horizons. Figure B as well help us to shed more light on the view that the effect of monetary policy on GDP is not wholly positive (the value of 0.12 as stated above) in the short run. On graph labeled B, we can see that the positive effect of monetary policy on GDP outweighs the negative effect hence the cumulative (long run) effect will be positive; this is supported by the graph labeled D. The two graphs labeled C and D show the cumulative (long run) response of GDP to fiscal and monetary policies shocks. The horizontal lines on graphs C and D correspond to the long run values as shown in table 4 above.

5 Conclusion

This study shows that short run parameter estimates of a single equation dynamic model may be too weak to unveil the true and necessary dynamics, and this would bring misperception of policy tools by the policymakers which would surely lead to wrong policy formulation. This study also finds out that GDP responded positively and negatively to fiscal policy shock but the accumulated (long run) effect is negative. Likewise, GDP responded positively and negatively to monetary policy shock but the accumulated (long run) effect is positive. From our meticulous findings after the herculean task, we conclude that the monetary policy effect is much stronger than the fiscal policy effect on the Nigerian economy. However, it would sound pessimistic if we proffer that monetary policy rather than fiscal policy should be relied upon by the Nigerian government as an economic stabilization tool because they ought to be used simultaneously. In fact, monetary and fiscal policies are *sine qua non* for the sustainability of Nigerian economy. Ultimately, we suggest based on our empirical findings that the government and the policymakers should try to simultaneously make fiscal and monetary policies formulation in such a way that their temporal and cumulative effects on the economy for growth and sustainability motive would be positive.

6 References

1. Adefeso, H.A. & Mobolaji, H.I. (2010). The fiscal-monetary policy and economic growth in Nigeria: Further empirical evidence. Pakistan Journal of Social Sciences, 7(2), pp. 137-142.
2. Andersen,L.C. & Jordan, J.L. (1968). Monetary and Fiscal Actions: A Test of Their-Relative Importance in Economic Stabilization. Federal Reserve Bank of St. Louis Review, Nov, 11-24.
3. Batten, D., & D. Thornton (1983a), "Polynomial Distributed Lags and the Estimation of the St. Louis Equation," *Federal Reserve Bank of St. Louis Review*, 65, 13-25. (1983b), "Lag-Length Selection Criteria: Empirical Results from the St. Louis Equation," Federal Reserve Bank of St. Louis Working Paper, 83(8). (1986), "The Monetary-Fiscal Policy Debate and the Andersen-Jordan Equation," *Federal Reserve Bank of St. Louis Review*, 68, 9-17.
4. Dickey, D. & W. Fuller (1979): Distribution of the Estimators for Autoregressive Time Series with a Unit Root, Journal of the American Statistical Association, 74, 427-431
5. Lambertini, L. & Rovelli, R. (2003). Monetary and fiscal policy coordination and macroeconomic stabilization. A theoretical analysis.
6. Laurens, B. & de la Piedra, E.G. (1998). Coordination of monetary and fiscal policies. IMF Working Paper No. 98/25. Washington D.C.: Monetary and Exchange Affairs Department, International Monetary Fund.
7. Oziengbe, S. A. (2011). Examining the Relative Effectiveness of Monetary and Fiscal Policies in Nigeria: A Cointegration and Error Correction Approach. Working Papers Series.
8. Pesaran, M. H. & Y. Shin, 1999. An autoregressive distributed lag modeling approach to cointegration analysis. Chapter 11 in S. Strom (ed.), Econometrics

and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium. Cambridge University Press, Cambridge.

9. Pesaran, M. H., Shin, Y. & Smith, R. J., 2001. Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics, 16, 289–326. PettingerT.Newtradetheory;2013.Available:http://www.economicshelp.org/blog/6957/trade/new-trade-theory/
10. Sanni, M.R.; Amusa, N.A. & Agbeyangi, B.A. (2012). Potency of monetary and fiscal policy instruments on economic activities of Nigeria (1960 – 2011). Journal of African Macroeconomic Review, 3(1), pp. 161-176.