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Do Fiscal And Monetary Policies Cooperate Or Conflict With Each Other In Nigerian Economy?

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Abstract: The determination for this study was to ascertain if fiscal and monetary policies are cooperating or rather conflicting with each other in Nigerian economy. Government disbursement and growth of money stock were used to denote fiscal and monetary policy variables. Two reduced form equations of monetary and fiscal policies were specified from underlying structural model. This yielded fourteen RF parameters in contrast to eleven structural parameters and so we had system of over-identification. These prompted use of IV estimators such as GMM and 3SLS. Estimates show similar findings for both estimators as we found evidence that fiscal policy does not respond favourably to monetary policy as monetary policy was found to have an insignificant effect on fiscal policy. More so, fiscal policy does not respond to lag effect of monetary policy. Relatively, monetary policy responds favourably to fiscal policy. Empirical finding so upholds that Nigerian economy is fiscally overriding notwithstanding money being an integral part of all macroeconomic variables. Significance of lag effects of fiscal policy is reflection that implementation process of fiscal policy is excessively time overshadowing while that of monetary policy is not. Consequently, there is need for building well-organized units of fiscal authority that can accelerate its implementation process.

Keywords: Fiscal policy; monetary policy; structural/reduced form model; Nigeria; fiscal dominance

Introduction

With reference to two principal tools of macroeconomic policy management, namely, fiscal and monetary policies, two major schools of thought exist in economic collections namely, Classical and Keynesian schools. The Classical school drives supply side economics signifying long-term economic outcome while Keynesian school anchors demand side economics which emphasizes short-term economic outcome.

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Accordingly, demand side policy variables are subdivided into fiscal policy, monetary policy and external government policy. For drive to attaining macroeconomic stability in Nigeria, Federal Government (FG) announced oil-price based fiscal rule in 2003 which demands that annual fiscal expenditure be restrained via reference oil price. Any surplus revenue got when actual oil price is above benchmark price is kept in Excess Crude Oil Account (ECOA) and withdrawals are made from EOAC when operating price is below reference price.

In what follows, Fiscal Responsibility Act which was presented in 2007 to guarantee indirect transmission of oil price shocks into Nigerian economy provides for adoption of *Medium Term Expenditure Framework (MTEF)*. Fruitful budget preparation within MTEF has often been intensely bedeviled due to unpredictability of oil prices (Adegboye, 2013). Thus, Nigeria's fiscal policy has pursued MTEF where five-year long run economic outlook is utilized in administering short term (annual) policy measure (Adeosu, 2003). This has translated into budgetary policies that limit deficits, control forecasts, and seeks to save revenue streams.

However, introduction of rules does not seem to have extensively thwarted recurrent variations in fiscal outcomes and budget processes. For instance, oil price benchmark for budget grown by 194 percentage points from US$20 per barrel in 2003 to US$77.5 in 2014 (CBN, 2016).

Monetary policy has been inaudible and focused on price control, using interest rate policy and banking sector control. In many cases central banks play only a second fiddle role in overall management of economy by financing fiscal exercise and mopping up any external sector repercussions of fiscal managers' actions. This has resulted in conflicting positions by fiscal and monetary authorities.

These developments provide platform for examining interactions between institutions of fiscal and monetary policies. This is because both institutions could act somewhat independently without any form of recourse to each other and plunge the economy into unsustainable position or act to derive strength on same market variables.

Both motivations call for level of collaboration between fiscal and monetary authorities and to ensure that policy actions are fixed on viable course. Hence, the study sets out to establish if fiscal and monetary policies respond to each other in Nigeria. There are five sections that constitute the research. Next to this section, is literature review on influence of fiscal and monetary policies in section two, section three is on method of data analysis, section four analyses results and concluding remarks are made in section five.

Literature Review

Efficacy of Fiscal and Monetary Policies: Brief Review of Related Issues

Keynesians fiscal-monetary policy mix had been advocated for efficient simultaneous control of public spending and conservation of positive balance of payments position in disturbed economies. This was achievable under guidance of timely adjustments in taxes and government spending been juxtaposed against favourable adjustments in money supply.

For resolve of policy adjustment, Keynesians advanced forecasting models that simulates policy adjustments in order to predict their effect and adjust policy mix for output stabilization. However, Monetarists support stable policy rules that shrink inconsistency

and uncertainty for private decision makers. They argues government works economy resourcefully by enhancing stability and performing predictably, not by fixing up time lag for policy effectiveness. Such determinations according to Monetarists are habitual (Afonso, Christiane and Philipp, 2006a; Khosravi and Karimi, 2010).

Accordingly, application of Keynesian policies in United States generated sporadic periods of rising inflation and rising unemployment without evident magnificent adjustment in trade-off. This led Monetarists to advancing tenets of Phillips curve. Typically, fiscal policy is expansionary during recessionary occurrences. Nevertheless, massive volume of such recessions are convoyed by contractionary fiscal policy response with attendant fiscal deficits and government debt, while negative terms of trade shocks tend to effect an expansionary fiscal response (Baldacci, Maria, Guin-Siu, & Luiz de, 2003; Baldacci, Benedict, Sanjeev and Qiang, 2004).

One argument that fiscal policy is ineffectual owing to its crowding out is due to rise in interest rates resulting from fiscal amplification having been informed by exogenous increase in money supply that inevitably induces interest rate to provide an instantaneous equality between money demand and supply. Also, is crowding out due to level of unemployment below which inflation rises and adjustment in aggregate demand to equate such equilibrium level.

Also, is Ricardian equivalence induced crowding out which defends that broadening government disbursement stimulates comparable reduction in private spending and hence unchanged aggregate demand (Padovano and Galli, 2001; Blanchard and Perotti, 2002). Moreover, fiscal debt burden discourages government from provision of essential public goods especially when trend in public's budgetary policies centres around growing provision of overall public amenities and diminishing budget for pecuniary services.

Measurement of link between fiscal policy and growth rate is ambiguous as observed in studies that there may be thresholds in links between fiscal size and growth (Chen and Lee 2005). For example, negatively insignificant link between public consumption and mean per capita GDP based on twenty-four observations (Beck and Laeven, 2005). Similarly, with low accumulation of savings by public sector, private sector savings no matter how high are depleted and this most often translate into negative savings-investment gap (Chung, Davig and Leeper, 2007).

Fiscal policy is unadventurously use of taxation and public spending to influence level of economic activities and such implementation is principally transmitted through government's budget (Olawunmi and Tajudeen, 2007; Mansouri, 2008; Hottz-Eakin, Lovely, and Tosin, 2009). However, fiscal policy have been found to exasperated output via indicators of taxes and deficits and economic studies are yet to scientifically favour specific fiscal indicator over others (Folawewo, and Osinubi, 2006; Levine and Renelt, 1992). This incidence has been attributed to possible incompetence of solitary budgetary component to effusively capture fiscal policy stance.

Different taxes have different growth effects and that tax progressivity is bad for growth over panel of twenty three OECD countries (Bleaney, Gemmell, and Kneller, 2001; Widmalm, 2001). For progressive income tax structure are injurious to output growth (Padovano and Galli, 2001; 2002). Similarly, corporate tax rate was found to be negatively associated with economic growth over sample of seventy 70 countries while average tax rate on labour income was found to be insignificantly responsive to growth (Lee and Gordon, 2005).

Spending reductions have underpinned economic growth in Commonwealth of Independent States over panel sample of one hundred and twenty observations (Åslund and Jenish, 2005). At another level of analysis, upsurge in government outflows is expansionary when funded by deficit spending while such is contractionary when financed by escalation in seignorage (Campos and Coricelli, 2000).

In contrast, ample of empirical studies finds that government consumption crowds in private consumption (Monacelli and Perotti, 2008; Blanchard and Perotti, 2002; Perotti, 2007; Ravn, Schmitt-Grohe, and Uribe, 2007; Mountford and Uhlig, 2009).

Efficient fiscal policy stance kindles economic growth and development following Keynesian activist macroeconomic policy that comprises setting monetary and fiscal variables in each time period at values indispensable to achieve government's objectives (Khosravi and Karimi, 2010). For example, in US, government spending multiplier for output was 1.74 after two years and 0.80 on current impact, while multiplier for consumption multiplier was 0.17 on current impact and 0.95 after two years (Gali, Lopez-Salido, and Valles, 2007).

With new Keynesianism, changes in public purchases affects national output, notwithstanding monetary-fiscal regime through higher government spending that raises demand for goods sold by highly competitive intermediate-goods producing firms (Cogan, Cwik, Taylor, and Wieland, 2009).

A basic principle of Keynesian economics is that private sector is inherently unstable as it is subject to frequent and quantitative disturbances in components of aggregate demand. Hence, it is task of counter cyclical policies to offset these private sector disturbances and so keep real output close to its market clearing equilibrium time path (Omitogun and Ayinla, 2007).

Elsewhere, it was observed that in endogenous growth model, fiscal policy is significant determinant of economic growth (Dar Atui and Amirkhalkhali, 2002). To Abduliah (2000), fiscal policy is key to refining economic activities. Nijkamp & Poot (2002) found that in a sample of forty-one empirical researches, twenty-nine percent reported negative link between fiscal policy and growth, seventeen percent supported positive link and fifty four percent were inconclusive regarding the link.

Reported is that countries with huge budgetary allocations grows higher but effect varies from one country to another (Gregoriou and Ghosh, 2007). Even in Egypt, Morocco and Tunisia, Mansouri (2008) shows that one percent increase in public spending intensified real GDP by 1.26 percent in Morocco, 1.15 percent in Tunisia and 0.56 percent in Egypt separately. Nurudeen and Usman (2010) observed that fiscal spending on education had negative effect on economic growth while such fiscal spending on health, transport and communication are growth enhancing.

The impact of monetary policy on growth has generated large volume of empirical studies but for sake of brevity, only a few are reviewed. Although structural linkages from money to economic activities are established, but with quantitative effects of expectations owing to Lucas' Critique, efficacy of monetary policy is also inevitable (Andersen & Carlson, 1970).

For example, argument on rules contrasted to discretion is driven by performance of central banks in conduct of monetary policy. With rules, central banks conduct policy in manner devoid of exploiting prevailing expectations to attain expansions in output (Cogan

et al. 2009). Discretion, considers choices of time consistency to provide explanations to output growth.

Regarding St. Louis equation estimations, changes in money growth had significant effect on nominal income growth in developed nations studied. Besides, money-GNP link was stable in US, Japan, Germany, Canada, UK and France owing to floating exchange rates. Quite contrary, fiscal actions were significant only in UK and France (Batten and Hafer, 1983).

However, developing nations have always struggled to institute suitable medium-term anchors for both monetary and fiscal policies. These frameworks mean that required adjustments in economy sustains against relatively stable circumstance.

Study by Onyeiwu (2012) shows that monetary policy positively and significantly drives GDP growth, finding that seems to sustain money-prices-output hypothesis for Nigerian economy. Amassoma et al (2011) found monetary policy to have insignificant influence on price level. Monetary policy has contributed significantly to growth and external sector viability in Nigeria (Sanusi, 2002). It has been situated that indirect monetary policy administration in Nigeria enhanced growth rate exclusively during financial sector reform (Nnanna, 2001). Monetary policy stabilizes and positively stimulates domestic economic growth during flexible exchange rate arrangement (Adefeso and Mobolaji, 2010). Monetary policy's influence on growth of output is frequently significant (Folawewo and Osinubi, 2006)

Ajisafe and Folorunso (2002) revealed that monetary rather than fiscal policy exerts superior impact on economic output in Nigeria unlike government fiscal actions that led to countless distortion of Nigerian economy. Adeolu et al. (2012) argues that restricting fiscal indiscipline is key to maximum output determination in Nigeria. Hameed et al. (2012) using OLS found that tight monetary policy has significant negative impact on output and this was attributed to price uncertainties associated with inflation.

Fiscal-Monetary Policy Conflict Review

One possible explanations for fiscal-monetary conflict was pointed out by Oyejide (2003) when he observed that desperate governments have not been predominantly reluctant to use domestic debt and money creation to finance their deficits, especially when they are starved for resources and cannot deploy alternative tax handles. In furtherance to Oyejide's observation, when significant domestic funding of fiscal deficits prompt tremendously high real interest rates which inevitably crowd out private sector credit and investment, government most often claims these to be monetary problems for which independent central bank, rather than fiscal authorities should be blamed. At such occurrence, CBN in principle, respond with desperately restricted monetary policy and consequently declined to house fiscal policy posture of FG in view of coercing FG to adjust its policy.

According to Mar (1994), this hardiness sometimes rebound as in case of Peru. It was observed that as Peruvian Central Bank (PCB) proved hard-hitting by repudiating to lodge excessive government credits demand between September 1988 and July 1989, GDP dropped by three percent in Peruvian economy and this instantaneously led to resignation of central bank governor. To Grilli, Mas & Tabellini (1991), an independent monetary authority has never deceptively discourage government from running fiscal deficits.

Also, fiscal-monetary policy conflict degenerates when CBN fails to oblige FG right-to-cash request beyond what Nigerian economy can absorb. Such independence austerity limits loaning deeds in banking industry with consequence of bank distress. As a

core obligation of CBN to guarantee stability through scrutiny in banking sector, it becomes confronted with problem of bargaining its independence by monetizing FG debt quests. This indeed savage situation of getting banking sector distressed but simultaneously it activates inflationary helix. Even when it prevents occurrence of an inflationary helix, it drives domestic economy into recession.

Methods

Model Specification and Estimation Technique

The model developed in this study is based on interactions between fiscal and monetary policies following theoretical formulations of Phillips (1957). Hence, such interaction is modelled utilizing simultaneous equation model (SEM) to correct for simultaneity bias. The SEM is comprises two structural equations where indicators of monetary and fiscal policies are regressand as specified:

$$Mpol_t = \eta_0 + \eta_1 Fpol_t + \eta_2 INF_t$$
$$+ \eta_3 NRT_t + \eta_4 ERT_t + \eta_5 REV + e_{1t} \tag{1}$$

$$Fpol_t = \lambda_0 + \lambda_1 Mpol_t + \lambda_2 GDP_t$$
$$+ \lambda_3 XPT_t + \lambda_4 REV_t + e_{2t} \tag{2}$$

Where *Mpol* is monetary policy as measured by *MS* which is money growth*, INF* is inflation, *Fpol* is fiscal policy as measured by *GDEP* which is government spending or debt, other control regresors could possibly influence direction of both include, output growth (GDP), total exports (XPT), foreign reserves (REV), and real exchange rate (ERT), $\eta's$ and $\lambda's$ denotes structural parameters. Equations (1) and (1) gives monetary rule and fiscal rule that allows central bank and FG to respond to fiscal variables and monetary variables correspondingly (Schabert, 2006).

Econometrically, reduced form model (RFM) corresponding to our structural model (SM) above is thus specified:

$$Mpol_t = B_{10} + B_{11} INF_t + B_{12} NRT_t + B_{13} ERT_t$$
$$+ B_{14} REV_t + B_{15} XPT + B_{16} GDP_t + u_{1t} \tag{5}$$

$$B_{10} = \frac{\eta_0 + \eta_1 \lambda_0}{1 - \eta_1 \lambda_1}$$

$$B_{11} = \frac{\eta_1 \lambda_4 + \eta_4}{1 - \eta_1 \lambda_1}$$

$$B_{12} = \frac{\eta_1 \lambda_2}{1 - \eta_1 \lambda_1}$$

$$B_{13} = \frac{\eta_1 \lambda_3}{1 - \eta_1 \lambda_1}$$

$$B_{14} = \frac{\eta_2}{1 - \eta_1 \lambda_1}$$

$$B_{15} = \frac{\eta_3}{1 - \eta_1 \lambda_1}$$

$$B_{16} = \frac{\eta_5}{1 - \eta_1 \lambda_1}$$

$$u_{1t} = \frac{e_{1t} + \eta_1 e_2}{1 - \eta_1 \lambda_1}$$

$$Fpol_t = B_{20} + B_{21}INF_t + B_{22}INR_t + B_{23}ERT_t$$
$$+ B_{24}REV_t + B_{25}XPT + + B_{26}GDP_t + u_{2t} \qquad (6)$$

$$B_{20} = \frac{\lambda_0 + \eta_0 \lambda_1}{1 - \eta_1 \lambda_1}$$

$$B_{21} = \frac{\lambda_4 + \eta_4 \lambda_1}{1 - \eta_1 \lambda_1}$$

$$B_{22} = \frac{\lambda_2}{1 - \eta_1 \lambda_1}$$

$$B_{23} = \frac{\lambda_3}{1 - \eta_1 \lambda_1}$$

$$B_{24} = \frac{\eta_2 \lambda_1}{1 - \eta_1 \lambda_1}$$

$$B_{25} = \frac{\eta_3 \lambda_1}{1 - \eta_1 \lambda_1}$$

$$B_{26} = \frac{\eta_5 \lambda_1}{1 - \eta_1 \lambda_1}$$

$$u_{2t} = \frac{\lambda_1 e_{1t} + e_{2t}}{1 - \eta_1 \lambda_1}$$

The parameter B_{21} measures aggressiveness with which central bank responds to changes in government debt and to inflation and consequently determines monetary stance. Thus,

B_{21} is coefficient that indicates responses between fiscal and monetary policies. Regarding this measure, when $B_{21} > 0$, response implies complementary policy stance. By this, monetary authorities is seen to have accommodated fiscal policy. When $B_{21} < 0$, response indicates substitutionary monetary policy stance, implying monetary authorities acting in opposition to fiscal policy stance.

The realisation of simultaneity between policy measures and economic growth (see Gros, ayer and Ubide, 2004) implies that OLS estimation of growth equation produces inconsistent results. Thus, with fourteen RF parameters and eleven structural parameters, we have system of over identification and this requires instrumental variable estimators such as 3SLS, GMM or MLE.

Findings

Trend Analysis

Trend analysis captures movement of our variables namely, money supply, government spending and GDP over time. These are shown in figures 1, 2 and 3 respectively.

Figure 1. **Trend Analysis of Money Supply**
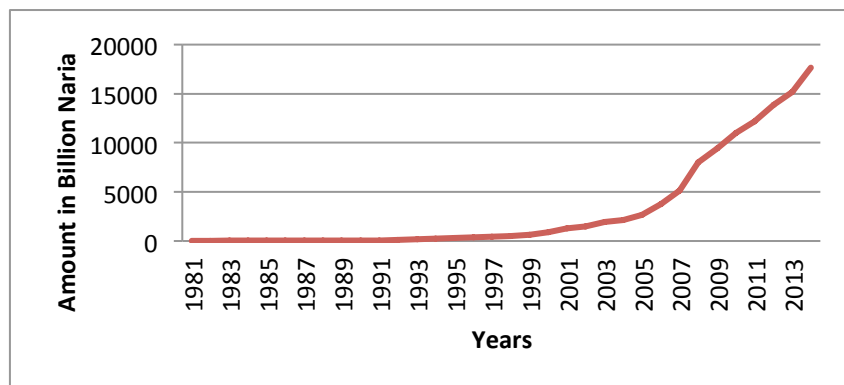
Source: Author's plot using data from CBN, 2015

In figure I, money supply from its lowest level of 14.47 in 1981 to 75.40 in 1991, money growth accounted for about 500% increase within the decade. The next period decade produced over 1000% increase in money supply within 1991- 2013.

Specifically, from 75.40 in 1991 to 1269.32 in 2001. The third decade (2001 to 2011) also almost maintained similar trend as in 1991-2001. This movement has slowed down from 2011 upwards, possibly due to shocks in price of crude oil.

Figure 2. **Trend Analysis of Government Spending**
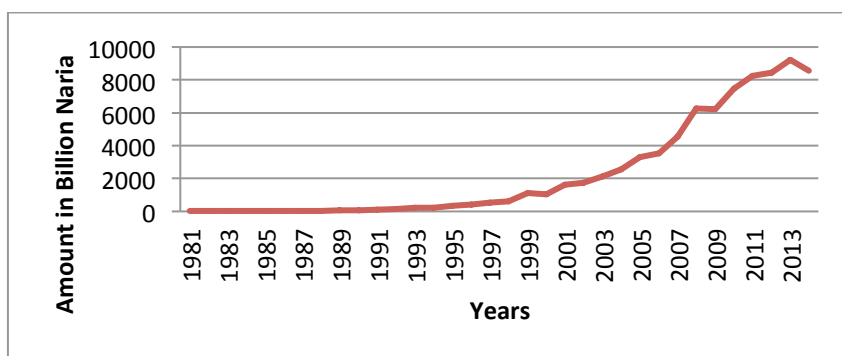
Source: Author's plot using data from CBN, 2015

In figure 2, government spending was at 22.40 in 1981 but dropped to 16.99 in 1984. It eventually peaked at 1115.59 in 1999 and dropped slightly to 1060.73 in 2000. It sustained an upward trend for a decade but reached a ceiling at 9232.12 in 2013 and thereafter fell in 2014. The trend evidently oscillates more than money supply.

Figure 3. **Trend Analysis of Gross Domestic Product**
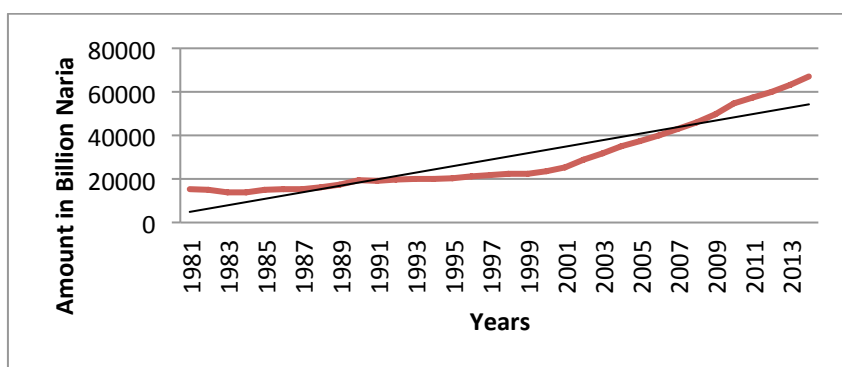
Source: Author's plot using data from CBN, 2015

In 1981, total national output was at 15258.0 as shown in figure 3. This swayed in medium run period from 1982 to 1986. After 1986, the economy began to expand in maintainable manner. For over three decades, it maintained growth at level which ultimately peaked at 67152.79 in 2014.

Stationarity Test Results

The test results using Phillips Perron (PP) technique are reported in Table 1. The results indicate that all variables were altogether integrated of order one, I(1). In a nutshell, unit root test results reveal that all variables are difference-stationary.

Table 1. **Phillip Perron Unit Root Results**

Variable	PP Statistic		Order of Integration
	At Level	At First Difference	
GDP	-2.078420	-3.618960**	I(1)
GDEP	-1.887934	-5.341952*	I(1)
INF	-1.352781	-13.68343*	I(1)
MS	-1.528294	-16.174591*	I(1)

REV	-0.397216	-15.29143*	I(1)
XPT	-1.427154	-16.324951	I(1)
NRT	-1.349567	-11.529748*	I(1)

Note *&** indicate significance at the 1% and 5% levels respectively. The critical values at 1% & 5% are -4.2674 and -3.5530 respectively

Source: Author's computation (2018) using Eview 8.0

The results of GMM and 3SLS estimates of effect of monetary policy variable on fiscal policy variable are presented in Tables 2 and 3 respectively while results of GMM and 3SLS estimates of effect of fiscal policy variable on monetary policy variable are reported in Tables 4 and 5 respectively.

Table 2. **GMM Estimates of Monetary Policy Variable on Fiscal Policy Variable**

Endogenous Variable: Fpol

Regressor	Coefficient	T-Ratio	Probability
C	0.124157	0.472701	0.63852
GDP	0.673541	3.734629	0.00005
INF	0.319708	2.072304	0.00125
REV	0.597368	2.561290	0.00198
XPT	0.138656	9.587240	0.00000
MS(-1)	-0.507072	-0.789641	0.43261

R-Squared = 0.996294; R-Bar-Squared = 0.995368, E(GEXP) = 4.293

J-Statistic 0.096971; DW-Statistic 2.934176, s.e.e = 0.002

Source: Author's computation (2018) using Eview 8.0

Table 3. **3SLS Estimates of Monetary Policy Variable on Fiscal Policy Variable**

Endogenous Variable: Fpol

Regressor	Coefficient	T-Ratio	Probability
C	0.1246937	5.18749	0.00000
GDP	0.527676	2.53694	0.00105
INF	-1.63215	-6.46523	0.00000
REV	0.379623	2.79245	0.00196
XPT	0.138214	9.25167	0.00000
MS(-1)	-0.692130	-1.00259	0.27956

R-Squared = 0.89564; R-Bar-Squared = 0.86434; E(GEXP) = 2.1563

J-Statistic 0.00671; DW-Statistic 2.45625, s.e.e = 0.00002

Source: Author's computation (2018) using Eview 8.0

Both GMM and 3SLS estimates of Tables 2 and 3 report similar findings for fiscal policy equation. Aiming at Table therefore, overall goodness-of-fit of the model is very satisfactory given that R^2 and R-bar squared are about 0.996 and 0.995 respectively. With R^2 of about 0.996, 99.6 percent of systematic variations in fiscal policy are attributed to output, inflation, money supply and one year lagged value of government spending in Nigeria.

So, insignificant proportion of about 0.4% of systematic variations in fiscal policy is explained by variations outside our model. Empirically, this is closely supported by adjusted R^2 of 99.5%. DW statistic of 2.93 indicates some level of negative correlation in the equation.

The coefficient of GDP is positive and significant. It has a value of 0.673541 and a t-statistic of 3.734629. Its p-value is 0.00005. This implies that should output gap expand by one percent, government expenditure rises by about 0.673541 percent. Again, estimated coefficient of INF is positive but insignificant. Its coefficient is 0.319708 with a t-value of 2.072304. Hence, inflation does have significant impact on government expenditure.

Also, coefficient of MS is positive but insignificant with coefficient of -0.507072 and a t-value of -0.789641. This indicates that growth in money stock has an insignificant positive impact on government expenditure. The implication is that monetary policy does not influence changes in fiscal policy.

In a similar vein, coefficient of MS (-1) is negative but insignificant. It has an estimated coefficient of -0.507072 and a t-statistic of -0.789641. Its p-value is 0.43261. This magnitude failed test of statistical significance at the 10 percent level. Besides, previous money stock growth has a negative insignificant effect on current level of government disbursement. Consequently, monetary policy variable does not have meaningful impact on fiscal policy variable.

Also, results of fiscal policy equation revealed that XPT and REV are significant determinants of fiscal policy stance in Nigeria. While XPT is significant with p-value of 0.00000, REV is significant with p-value of 0.00198. This implies that previous government spending has significant positive impact on current level of government expenditure.

Table 4. **GMM Estimates of Fiscal Policy Variable on Monetary Policy Variable**

Endogenous Variable: Mpol

Regressor	Coefficient	T-Ratio	Probability
C	-0.279274	-2.255360	0.02867
GEXP (-1)	0.543673	2.96248	0.00521
INF	-0.137951	-2.36250	0.02364
REV	0.379623	3.89625	0.00196
NRT	-0.138214	-2.39746	0.00789
ERT	-0.692829	-7.305476	0.00000

R-Squared = **0.99877**; *R-Bar-Squared* = **0.998524**; **E(MS) = 6.48671**

J-Statistic **0.096971** ; *DW-Statistic* **2.14235; s.e.e = 0.00001**

Source: Author's computation (2018) using Eview 8.0

Table 5. **3SLS Estimates of Fiscal Policy Variable on Monetary Policy Variable**

Endogenous Variable: Mpol

Regressor	Coefficient	T-Ratio	Probability
C	-0.365769	-2.255360	0.029764
GEXP (-1)	0.375486	2.589739	0.005648
INF	-0.135692	-3.279620	0.023643
REV	0.038923	3.129475	0.001964
NRT	-0.578251	-2.000659	0.007895
ERT	-0.4963832	-2.389758	0.009752

$R\text{-}Squared = 0.79349$; $R\text{-}Bar\text{-}Squared = 0.65835$, E(MS) = 5.6921

$J\text{-}Statistic$ 0.027956 ; $DW\text{-}Statistic$ 2.049586, s.e.e = 0.00001

Source: Author's computation (2018) using Eview 8.0

GMM and 3SLS estimates of Tables 4 and 5 relatively also report similar findings for monetary policy equation. Hence, with reference to regression results reported in table 4, overall monetary policy model seems much impressive because R^2 and adjusted R^2 are approximately 0.998. This indicates that about 99.8 percent of systematic variations in monetary policy variable, namely MS are accounted for by exogenous variables of GEXP, INF, REV, NRT and ERT. The proportion of variation in money stock growth accounted for outside this model is about 0.2 percent.

In addition, s.e.e is quite minor as indicated by 0.00001. The mean of MS is around 6.48671. The ratio of s.e.e to mean of MS is 0.0000015 which is quite insignificant. This depicts that predictive power of monetary policy equation is extremely reliable.

The estimated coefficient of NRT is -0.138214. Its t-statistics is -2.39746 with p-value of 0.00789. It does conforms to its theoretical sign and passed statistical test of significance at 5 percent level. This shows that percentage rise in domestic interest rate causes money stock growth to drop by about 0.138214 percent. Thus, money stock growth responds negatively and significantly to interest rate in Nigeria.

Also, co-efficient of INF is negative and significant. Its coefficient is -0.137951. It has a t-value of -2.36250and a p-value of 0.02364. In fact, a percentage rise in inflation gap generates about 0.00008 percent increase in money stock growth. Therefore, inflation gap has a positive significant impact on money stock growth.

Again, coefficient of GDEP is positive and significant given estimate of 0.543673. It accomplishes its a priori sign. It has an estimated coefficient of 0.543673 with a t-statistic of 2.96248. Its associated p-value is 0.005648. Therefore, ten percent increase in government expenditure generates about 5.43673 percent increase in money stock growth. This implies that fiscal policy variable has a positive impact on monetary policy variable. That is, fiscal policy variable has a dominant effect on monetary policy variable. Coefficient of ERT is negative and significant.

Conclusion

The study seek to determine if fiscal and monetary policies respond to each other in Nigeria. Consequently, we utilized GMM and 3SLS schemes to estimate   interactions

between monetary policy and fiscal policy in Nigeria. Some stationarity tests linking unit root analysis were conducted and relevant order of integration of variables used were established. Overall, findings of present research show that fiscal policy does not respond favourably to monetary policy as monetary policy variable was found to have an insignificant effect on the fiscal policy variable. More so, fiscal policy does not respond to the lag effect of monetary policy. This is because the lag effect of monetary policy has no significant impact on the fiscal policy.

Findings show further that monetary policy responds favourably to fiscal policy as government expenditure was found to have significant impact on money supply. The lag effect of money supply had significant impact on money supply. This analysis well portrays Nigerian economy as fiscally governing. Thus, fiscal authority is domineering as monetary policy's role in economic management is often downplayed and disregarded with excessive focus on fiscal activities. This corroborates Olomola's results that fiscal authorities are largely overbearing.

Government should therefore create fiscal space by reallocating expenditures from low-value programs toward programs with greater effect on growth and refining efficiency of public disbursements to optimize gains from precise programs. Finally, significance of lag effects of fiscal policy reflects that implementation process of fiscal policy in Nigerian economy is unduly time consuming while that of monetary policy is not. This call for building efficient units within fiscal institution that can enable fast-tracking of implementation process.

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