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Monetary Policy, Fiscal Policy Variables and Economic Growth in Nigeria (1970 – 2014). ARDL Approach

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Abstract: The paper estimates of the contributions of monetary and fiscal policy variables on economic growth of Nigeria for the sample period of 1970 – 2014. The selected monetary policy variable was narrow money growth rate (GM_1) whereas the fiscal policy variable was growth rate of total government expenditure growth. The policy control variables were investment growth rate (GINV) and trade openness growth rate (GTOP). Besides, real gross domestic product growth rate (RGDP) is used as proxy for economic growth. The study estimated monetary and fiscal policy influences on output growth of Nigeria. The scientific method adopted for this investigation was Autoregressive Distributed lag (ARDL) model was The result obtained indicated that there was a significant long-run relationship between monetary, fiscal policies and output growth in Nigeria. The result further revealed that the speed of adjustment from short run to long run is rapid; specifically about 87 per cent of previous year disequilibrium from long run anchor will be restored in one year. Specifically, one per cent increase in narrow money growth (GM_1) contributed about 0.34% increase in Nigeria's output growth. In the same vein, 1% increase in government expenditure (GTEXP) led to increase in domestic output of about 0.15%. This showed that monetary policy exerted greater influence on Nigeria's output performance than fiscal policy. The policy implication of this study is money growth and government expenditure is germane to Nigeria's economic growth.

Key words: Monetary policy · Fiscal policy · Economic growth · ARDL · ISLM

INTRODUCTION

The achievement of sustainable economic growth is an intractable and daunting challenge facing both developed and developing economies. Dwindling economic growth is a key cause of low aggregate income, low demand and poor living standard. Thus, policy makers and researchers have been preoccupied with the best approaches towards the realization of economic prosperity especially of developing countries. The two major approaches that have been employed by economy managers are: fiscal and monetary policies. Ajayi [1] opines that monetary policy is applied to alter money supply through interest rate channels to raise output. On the other hand, fiscal policy through increased spending by government raises output and income [2]. Government expenditure is effective in this regard if it is tied to productive investment and infrastructure such as irrigation, water, power, telecommunication and transport. Thus, expenditure on productive investment contributes positively to growth, especially in developing countries (World Development Report, 1995).

Over the years, economists have been divided via the controversy generated by Milton Friedman's monetary ideology and John Maynard Keynes's fiscal mentality on which policy is the most potent tool for economic growth. The monetarists hold that money supply and economic growth are positively correlated. The stock of money increases with a corresponding rise in output of goods and services. They condemn the fiscalists' proposition that government spending is germane to economic growth given the consequence of the crowding out effect of private investment [3]. Thus maintaining that, monetary policy remains the most effective approach in the pursuit of economic growth. On the contrary, the Keynesians vehemently reject the monetarists' idea on grounds of the liquidity trap effect. The region of liquidity trap is where interest rate is flat and insensitive to the pressure of money supply [4]. At this point money supply becomes impotent such that increased volumes of it cannot

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stimulate economic activity. Keynes argued that government expenditure on infrastructure services and goods boost the economic activities by raising the capacity of individuals to purchase goods and services in the economy through returning money to the economy via various spending programmes of government.

Nevertheless, monetary and fiscal policies are conducted simultaneously which makes it somewhat difficult to identify which policy exerts greater influence on output. This makes it imperative to separate their impacts on output and other macroeconomic fundamentals because their processes and mechanisms of operations are not similar as well.

However, the channels of transmission through which monetary policy can impact on economic growth and other macroeconomic aggregates as identified both in theory and empirical findings of Bernanke and Gertler [5], Mishkin [6], Taylor [7], Adamu and Hajara [8] and Estrella [9], are channels of interest rate or liquidity; exchange rate channel, Tobin's q theory of investment, wealth effects and bank lending channels. These channels are the tracks through which changes in money stock affect output and prices[1]. Monetary and fiscal policy tools have been employed at different and in different directions at various times by monetary authorities and Federal Ministries of Finance to achieve desired results in both developed and developing countries. The key instruments used in the analysis of monetary and fiscal policies contribution to domestic output are money supply growth and government expenditure [3]. There are discordant opinions arising from empirical results on which of these two policies exert more significant impact on output growth than the other. The studies of Adefeso and Mobalaji [10]. Friedman [11], Batten and Hafer [12], Tajudeen and Ismail [13], Elliot [14] and Dwivedi [15], find that monetary policy exert greater influence on output especially in developed countries. On the other hand, Keynes [16], Suleiman [17], Chowdhury [18], discovers that fiscal policy of increased public expenditure has greater effect on growth. Considerably efforts have also been made by researchers to assess the empirical relationship between policies and domestic output as well as their comparative effects on economic growth in developing countries. These empirical studies have produced mixed results. For instance: Tinbergen [19]. Rahman [20], Suleiman, Wasti, Lai and Adamu [21] and Yakubu Barfon and Shehu, [22], find that monetary policy variable of money supply is more growth enhancing than fiscal policy variable of public expendurue. In another vein, the empirical works of Chuku [23]. Khosravi and Karimi, [24], Hammed, Khalid and Sabit, [25] and Mutuku and Koech [26], concluded in their findings that fiscal policy exerts greater impact on domestic output growth of the various countries studied.

Since fiscal policy influences aggregate demand through government spending and monetary policy needs to respond simultaneously to maintain overall level of money stock consistent with output growth target, thus, combining these two policy measures will be desirable in attaining macroeconomic targets. Some studies show that the two approaches of monetary and fiscal policies jointly influence macroeconomic aggregates in both developed and developing economies. Ajayi [27], reveals a bi-directional causality running from both monetary and fiscal policies on output. This implies that monetary and fiscal operations of government jointly stimulate economic activities in most developing and developed countries.

Similar studies have been conducted in Nigeria and the outcome varies like in other developing countries. For instance, the finding of Ajayi [27], Familoni [28], Anyanwu and Oaikhenan [29], Chuku [23], Adefeso and Mobolaji [30], Yakubu, Barfon and Shehu [22], discover that the contributions of monetary policy to domestic output growth in Nigeria is higher than fiscal policy whereas Olaloye and Ikhide [31] finds that fiscal policy is more growth enhancing in Nigeria than monetary policy.

Over the years, the Nigeria's apex bank has made several Monetary policy reforms from the period of direct system of monetary control (use of direct instruments) to indirect system of monetary control (market system) in response to the policy of liberalization of the financial sector and the implementation of the Structural Adjustment Programme (SAP). The deregulation brought a removal of rate of interest administration, market driven foreign exchange system and removal of the bottlenecks and administrative restrictions in obtaining bank licensing among other things. In 1989, banks were directed to make interest payment on demand deposits, bar from credit extension hinged on foreign exchange deposits. The CBN bulletin (2007) report shows that the Nigeria's apex bank was also mandated to supervise and regulate all financial institutions in the economy. Privatization of government-owned banks began in 1992, credit control was withdrawn in 1993 and indirect monetary instruments were established while re-imposition of interest and exchange rate controls were launched in 1994. In 1997, the bank minimum paid up capital for commercial and merchant

bank was furthermore increased to a uniform level of N500million. Universal banking system was established in 1991. CBN mandated all commercial banks in 2005 to increase their capital base from N2billion to N25billion. CBN also launched a new monetary policy implementation framework (Monetary Policy Rate (MPR) to replace the Minimum Re-discount Rate (MRR) in 2006. The different policies instituted were to bring about soundness in the macroeconomic variables. Generally, the CBN's amended Act gave the bank more prudence and independence in the conduct of monetary policy. The functional scheme for indirect monetary policy management embraced the use of market (indirect) instruments to control the growth of important monetary aggregates. Under this scheme, only the monetary base, its inherent parts or operating variables are targeted, while the market is allowed to regulate the interest rate and assign credit [32]. Currently, the Central Bank of Nigeria conducts monetary policy based on a monetary targeting scheme with monetary policy rate (MPR), reserve requirements as policy instruments [33]. A monetary policy framework is made following projections of monetary expansions that can achieve a desirable economic growth and low unemployment.

Available reports show that during the period of direct monetary control, the growth in money supply was sluggish and slow. For instance, except in 1988 when M1 was 46.31% above a target of 15%, M1 ranged between 11.05% above 1985 and 12.06% above 11.80% target in 1987. However, the period of indirect system of monetary control (the post reform period), money supply (M1) witnessed substantial growth. Narrow money supply has grown very high, up to 62.24% above target of 41.10% in 2000 and 56.07% in 2008 [32].

In all, growth in narrow money (M1) was volatile within the period of this study, from inspection of CBN statistical records; the growth of money supply does not correlate with the growth in the economy. Growth in real GDP fluctuated within the review period. In specific terms, Nigeria's gross domestic product was impressive in just few years and bleak in greater part of the period. Available records indicate that Nigeria's Gross Domestic Product (GDP) has continued to grow albeit at a slow rate [34]. The post reform report shows that the Gross Domestic Product which was relatively low by 1.89% in 1986 increased to about 4.13% though below a programmed target of 5% in 1996 and staggered to just 4.72% still below the target of 5% in 2001. The outcomes of real GDP for 2008 and 2012 were 5.98% and 6.58% below their programmed target of 7.5% and 7.3% respectively [32]. However, the Gross Domestic Product (GDP) growth rate does not reflect the impact of this unprecedented growth in narrow money. The sharp rise in narrow money from 11.05 per cent in 2010 to 21.5 per cent in 2012 accompanied a decline of RGDP from 7.98% in 2010 to 6.5% in 2012 [33].

It is clear that Nigeria had hitherto pursued expansionary fiscal spending and loose monetary policy amidst financial innovations to stimulate domestic output in line with Hicks ISLM model), yet the outcome is less than impressive. Anyanwu [35], Ogege and Shiro [36]. posit that money supply growth and government expenditure growth have the potency of raising output and income in the economy. These two policy measures have been simultaneously applied yet their effects on output performance have remained less impressive. There had been a raging debate among scholars on the contributions of monetary and fiscal policy variables to output growth. Nonetheless, it is not clear how much contributions each of the respective policies had made to Nigeria's economic growth.

Review of Related Literature: Monetary policy is the conscious use of monetary tools (direct and indirect) at the convenience of monetary relevant authorities such as central bank so as to achieve desired economic goals of price stability, economic growth, low unemployment rate, high living standard and balance of payment equilibrium. Monetary policy is essentially the action of monetary authority to execute the mandate of price stability and economic growth specifically through the regulation and effective direction of the quantum of cash and the direction of its supply to the public and the credit flow with a view to actualizing macroeconomic targets[37].

Mansouri [38] observes that in a developing economy with a large non-monetized sector and few effective financial assets coupled with limited financial intermediaries and where financial assets are very imperfect substitute for cash, applying monetary policy to achieve economic growth will have insignificant effect. Riley (2006) opines that the monetarist believes that government spending and tax manipulation manifest temporary and transitory effect on total demand, employment and output and that monetary policy has more effect on output and price stability.

Monetarist believes that increase in money stock affects output and growth. This means that the monetary authority must increase the money supply to achieve a

sustainable economic growth. Thus, affirming that the power of money supply to increase economic growth is greater than public expenditure [10].

However, before monetary policy can achieve the desired objective of sustainable economic growth as opined by the classical economists, the economy must have a highly monetized economy devoid of large stock of informal sector. On this basis, most developing economies with poor financial system, with high interest rate make monetary policy ineffective. The failure of monetary policy in countries that lack the flexibilities and financial development gives fiscal policy preference in achieving economic growth [28]. Thus, monetary policy is effective if and only if the economy has developed money and capital markets.

The monetarists' thesis is based on the theoretical belief that money plays an important role in promoting price stability and economic growth. The monetarists support the quantity theory of money which makes monetary policy attractive as an output stabilization mechanism. They simply dropped the idea of constant velocity of money which was a major weakness of the fisher equation. The monetarists emphasized the influence of money on national output (Y) rather than just on aggregate level of price (P). Thus, money is regarded and viewed as the most important regulatory instrument in the economy and that money has direct impact on the economy not through interest rate mechanism as the Keynesians believe.

The monetary growth model is anchored on the Romar endogenous growth model where production function is given by:

$$Y_t = AK^{\beta}_t K_t^{\ominus} L_t^{1-\alpha} \quad (1)$$

Where, Y_t = output

k_t = aggregate stock of capital in the economy

L_t = size of labour force hired in the economy

With $\alpha + \beta = 1$, the production function takes the endogenous growth AK form implying the possibility of long run output growth, the growth rate of domestic production in particular and the economy in general rises with an increase in narrow money growth especially in economy with an ailing financial system. Since the Tobin's money supply effects is embedded in the neo-classical production function, then, raising the money growth through the Tobin effect stirs up private capital investment, production and income.

Empirical Review: Empirical studies on the assessment of the impact of fiscal and monetary policies on domestic output has elicited large volumes of studies with mixed findings which may have emanated from the different research methods/techniques adopted in their estimations. Fiscal policy is widely understood to be linked to growth, more specifically, it is held that relevant fiscal steps in any condition can be used to stir and drive economic development and growth in a country [24].

In support of this view Ravin and Uribe [39] in a study of government spending effects of on output of four industrialized countries found that government spending produces expansion in output and increase in aggregate demand. The study employed the structural autoregressive model in the evaluation of the study objectives.

Ogbole, Amadi and Essi [40] in a study of economic growth and fiscal policy in Nigeria: A Granger causality test from 1970 to 2006 to ensure that result obtained from the study is devoid of spurious regression. In the study, the gross domestic product (GDP) was used as the dependent variable whereas government expenditure was used as the explanatory variable in the model. Besides, the study adopted the Engel Granger causality test to ascertain the direction of causal link between economic growth and government expenditure. The result reveals that causality runs from government expenditure to economic growth. This is in line with Keynes's theory that posits that government expenditure causes growth of the domestic economy.

Agu, Idike, Okwor and Ugwunta [41] studied fiscal policy and economic growth in Nigeria with focus on various characteristics of public expenditure for the period 1961 to 2010. The components include: expenditure on social and community services, administration, economic services and expenditure on transfers and public debts. The primary aim of the study was to find the extent of contribution of each of the components of public expenditure to the increase in domestic output. The study applied multiple regression analysis after conducting basic econometric pre-tests (unit root test, cointegration). The result reveals that expenditure on economic components like agriculture, transportation, communication and construction had enormous impact on output growth of Nigeria within the period under study. The result further reveals that growth in government expenditure on economic goods crowds-out private sector investment.

Aregbeyen and Bashir [42] conducted a study on the relationship among oil revenue, economic growth and government spending in Nigeria for the period 1980 – 2012. The study applied standard econometric methods of analysis such as Augumented Dickey Fuller test and Philip Perron test statistic to evaluate the unit root status of the series, test of cointegration was conducted to know whether there exist a long run link among the variables, the Granger causality test was also applied to test the direction of causality of the variables and the vector error correction model was used to determine the adjustment speed of the variables from short run to long run equilibrium. The variables used include real gross domestic product (RGDP) as the explained variable whereas oil revenue and government expenditure are the independent variables. The results obtained show that there was no causality between government spending and economic growth but causality runs from oil revenue to government spending. The result further reveals that increase in government spending on capital projects increases output in the oil sub sector which in turn stirs up economic activities in Nigeria. The study recommended that there should be more government spending to raise domestic output.

Ogege and Shiro [36] studied the changes of Nigeria's monetary and fiscal policies towards achieving sustainable economic growth of Nigeria. The target of the study was to determine the relative impact of monetary, fiscal policies on economic growth. The study employed the standard econometric test of unit root, cointegration and Error Correction Mechanism for the purposes of avoiding spurious regression, the long-run relationship between the variables of interest and finally to determine the speed of adjustments from the short-run to the long-run. The result obtained reveals that there exists a long-run relationship between the variables of interest. This implies that there exist a long-run relationship between monetary policy and economic growth. Although the study concluded by demonstrating that monetary policy exerted more influence than fiscal policy.

Masoud and Munadhil [43] examined the impact of military spending on economic growth of the US economy for the period 1970-2011. The study applied standard econometric method of Augumented Dickey Fuller (ADF) and Philip Peron test statistic as well as autoregressive distributed Lag (ARDL) bound testing procedure of Nnanna [44] to test for the unit root and cointegration of the series. The variables deployed in the study include real gross domestic product (RGDP), Military Expenditure (RME), Public Government Expenditure (RPE) and Real Interest Rate (R). The result of ADF and PP indicates that except RGDP which is stationary at level, other variables in the model are integrated of order one I(1). The result of the cointegration test indicates that the F statistic value in greater than the upper bound critical value at 5 percent level of significance. This means that the null hypothesis of no long run relationship existing between growth of the economy and military spending was rejected. The result further reveals that military spending has negative effect on output growth of the US economy.

Methodology: The study will make use of applied econometric method which will combine the average econometric approach which involves estimation of economic relationships and classical econometric approach that is concerned with the testing of results obtained to ensure that output is valid and conforms to theory and data. The choice of applied econometrics method stems from the scientific basis of testing hypothesis by gathering data and drawing conclusions through deductions and making forecast and predictions of economic outcomes.

Model Specification: The model of this study is formulated from the Hicksian ISLM model. Ajayi [45] opined that increase in money supply raises investment and output growth through the money market (LM). This is in line with the endogenous growth model of Romar and Tobin's money supply effects on output. On the other hand, through the goods market, increase in government spending at any given rate of interest raises output growth. This also flows from Keynesian theoretical assertion of the role of government spending on output growth.

The Romar's endogenous growth model and Solow's growth model which are modifications of Cobb-Douglas production function is of the form:

$$Y_t = AK_t^{\beta} K_t^{\theta} L_t^{1-\theta}$$

Substituting the coefficient of K and L with monetary and fiscal policies multiplier variables in equation 6 and 19, the equation becomes:

$$Y_t = \frac{\alpha h}{h + \alpha bk}\overline{A} + \frac{\alpha hb}{h + \alpha bk}$$

Where Y_t = RGDP

$$\text{Let}\frac{\alpha h}{h+\alpha bk}\overline{A}=GM_1$$

$$\frac{\alpha hb}{h+\alpha bk}=GTEXP$$

substituting into equation 6 gives
$RGDP = GM_1 + GTEXP$

Introducing the external sector (GTOP) and private investment growth (GINV) variables into equation, we have:

$$RGDP=f(GM_1,GEXP, GINV, GTOP) \quad (23)$$

Equation 22 represents effects of narrow money dynamics and total government expenditure on Nigeria's output growth. Equation 23 is hereby transformed into econometric model and presented below

$$RGDP = \beta o + \beta_1 GM_1 + \beta_2 RINT + \beta_3 GINV + \beta_4 GEXP + \beta_5 GTOP + ut \quad (24)$$

WhereRGDP: Real Gross Domestic Product
GM_1:narrow money supply
GGEXP:growth of government expenditure
GlNV:growth in investment
GTOP:growth in trade openness

Data Discussion: There are three main indicators of fiscal policy: government expenditure, tax and fiscal imbalance. The researcher's choice of government expenditure in the model specification is subjective but not biased against any other fiscal policy variable. In literature, government expenditure is defined as aggregate spending by government including government consumption, investment and public transfer like subsidies and grants. In choosing a monetary policy variable, there is little theoretical guidance for the selection of appropriate monetary variable between narrow money (M_1) and broad money (M_2), Ogunjimi [46]. There are no theoretical justifications to prefer one measure against the other. However, Nnanna [44], Tomori [47], confirmed the superiority of (M_1) over (M_2) as a good monetary policy indicator. External sector variables: two variables are always considered when choosing an appropriate variable to represent external shock. These include, net foreign asset (trade and equity) and trade openness. In this study, trade openness which is the sum of exports and imports as ratio of GDP was selected. Trade openness refers to the degree of Nigeria's penetration to the world market which has effect in the domestic economy.

The data that used in this study include growth rate of real gross domestic product (RGDP). It is normally computed by the National Bureau of Statistics (NBS) using expenditure approach. The narrow money (GM_1) is compiled by the central Bank of Nigeria (CBN) through the aggregation of currency held outside the banks and demand deposits. Government expenditure shall include all government expenditure (GTEXP) growth in private investment (GINV), growth in trade openness (GTOP).

Sources of Data Employed: The data for this study will be selected annually from 1970 to 2014 from Central Bank of Nigeria annual statistical bulletin and National Bureau of Statistics. The variables of RGDP, GM_1, GTEXP, GINV and GTOP are proxies for economic growth, monetary policy, fiscal policy and external sector variables.

Analysis: In other to empirically estimate the effects of monetary and fiscal policies on economic growth, the selected variables: growth in narrow money, growth in government expenditure, growth of investment, growth in trade openness, real gross domestic product of Nigeria during the period under review, researcher subjected time series data to test of stationarity, to remove the effects of unit roots if found on any of the variables of interest. Also, the co-integration tests, error correction modeling techniques, Granger causality tests and other standard econometric tests were employed in the estimation of the models to make appropriate and reliable judgments concerning the hypothesis of this Study.

Unit Root Tests: Table 1, shows the estimates of the unit root tests of the variables, using the Augmented Dickey Fuller (ADF) statsitic test for the existence of unit roots in the data using trend and intercept. The test results are presented below

Table 1: Augmented Dickey Fuller Test

Trend and Intercept (series at level)					
Series	ADF test statistics	5% Critical Values	10% Critical Values	Order	Remark
RGDP	-4.8617	-3.5155	-3.1882	I(0)	Stationary
GM_1	-4.2799	-3.5155	-3.1882	I(0)	Stationary
GTEXP	-5.4114	-3.5155	-3.1882	I(0)	Stationary
GINV	-5.8960	-3.5155	-3.1882	I(0)	Stationary
GTOP	-8.6191	-3.5180	-3.1897	I(1)	Stationary

Sources: Researcher's compilation from E views 7.00

The result presented in table 1, shows the unit root status of the variables of the growth rate of real gross domestic product (RGDP), narrow money growth (GM_1), growth in total expenditure of government (GTEXP), growth in private investment (GINV) and growth in trade openness (GTOP). The result shows that the variables of RGDP, GM1, GTEXP and GINV do not possess unit roots, implying that there were stationary at level and are integrated of order zero, I(0). This is because their respective absolute values in table 2 are greater than their critical values. This implies that the variables of RGDP, GM1, GTEXP and GINV fluctuated around a given mean overtime. The variable of GTOP in absolute value was less than its critical value. This means that it has unit root at level and requires differencing. Since non-stationary variables are not good for economic forecasting, the non stationary variable was differenced. The variable became stationary at first difference, thus it is integrated of order one, I(1).

The establishment of long-run relationship between economic growth and narrow money (GM_1), real interest rate, growth in government expenditure (GTEXP), growth in investment (GINV) and growth of trade openness (GTOP) motivated the estimation of the long-run coefficients of the parameters.

Table 2: Estimated Long-run Parameters using ARDL technique

Variable	Coefficient	Standard Error	t-statistic	Prob
C	-0.5877	0.1551	-3.7878	0.0008
GM_1	0.3437	0.1045	3.2871	0.0029
GTEXP	0.1503	0.0482	2.1142	0.0045
GINV	-0.0107	0.0099	-1.0828	0.2888
DGTOP	0.0016	0.0051	0.3295	0.7441

$R^2 = 0.69$, F-statistic = 4.01 (0.0009), DW = 1.80

Source: Researcher's compilation from E-views

In testing for the long run contribution of M_1 to economic growth, the coefficient of long run Auto Regressive Distributed Lag (ARDL) test statistic is used. The coefficient of GM_1 of (0.34) per cent indicates that the growth of narrow money (GM_1) by one per cent contributed to the growth of Nigeria's output by about 0.34 per cent. Thus, M_1 dynamics as a monetary policy variable contributed significantly to the growth of Nigeria's output within the period under study. This positive effect of money supply on economic growth shows that money growth as a monetary policy has the potency of raising output in Nigeria.

In testing the empirical validity of hypothesis two, the P-value of the T statistic is used to test the statistical reliability of the parameter of the model. As observed in table 2, the result indicates P-value of (0.0002) less than the chosen level of significance of. This implies that government expenditure (GTEXP) as a variable of fiscal policy in the model is statistically significant. In testing the long run contribution of government expenditure (TEXP) to economic growth, the coefficient of long run Auto Regressive Distributed Lag (ARDL) test statistic is used. The coefficient of GTEXP of (0.15) per cent is positive, indicating that there is positive correlation between growth in government expenditure and domestic output. This further indicates that increase in government spending by one per cent, will raise Nigeria's output by (0.15) per cent. Thus, government expenditure as a fiscal policy variable has contributed significantly to the growth of Nigeria's output. This implies that increase in government expenditure has the potential of raising domestic output in Nigeria.

This section focuses on the analysis and discussion of results obtained from all the empirical tests conducted. It tries to give detailed information concerning the interaction of variables on the models constructed in this wok. Effort is made also to determine whether the results obtained conform with theoretical a priori as well as having a link with similar works.

Unit Root Test: The result presented in table 1, depicts that four of the variables are stationary at level I(0),whereas one is homogenous I(1) (i.e. stationary after first differencing). The first difference estimation was performed on the series to forestall spurious regression or nonsense regression with the application of the Augmented Dickey Fuller test statistic.

Co-Integration: Since the Auto-Regressive Distributed lag (ARDL) approach is efficient and most suitable for testing the presence of a long-run association between variables that are fractionally integrated or possesses mixed levels of integration. Thus, the bound testing procedure was employed to determine whether the variables were co integrated so as to establish the presence of long run relationship between the dependent variable RGDP and the regressors.

The null hypothesis of no co integration (H_0: $\beta_{13}=\beta_{14}=\beta_{15}=\beta_{16}=\beta_{17}=\beta_{18}$) is tested against the alternative hypothesis (H_1: $\beta_{13}?\beta_{14}?\beta_{15}?\beta_{16}?\beta_{17}?\beta_{18}$).

Table 3, of this study reports the result of the ARDL approach to co integration. The computed F statistic of (5.9073) is greater than the upper critical bound at 5%

level of (3.61). Since the F statistics is higher than the critical bound value, it provides the justification for rejecting the null hypothesis of no co integration and conclude that there is a long run relationship existing between the predicted variable Real Gross Domestic Product (RGDP) and narrow money growth (GM_1), growth of total government expenditure (GTEXP), growth in private investment (GINV) and growth in trade openness (GTOP). The result is in line with the findings of Syed, Imtiaz Syed, [48], Nurudeen and Usman [49], Momodu and Ogbole [50], Rebelo and King [51] and Yakubu, Umar and Aminu [22] who find a significant long run association between monetary policy, fiscal policy and economic growth.

Table 2 shows the estimated long-run coefficients of GM1, GTEXP, GINV and GTOP. The coefficients of GM1 and GTEXP are 0.34 and 0.15 respectively while their respective p-values are 0.002 and 0.004 respectively. Specifically, the result reveals that the coefficient of narrow money growth (GM_1) as a monetary policy variable is (0.34) at a significant level of (0.002) less than 5% level. Thus, 1% increase in narrow money growth leads to increase in domestic output of Nigeria by about 0.34 per cent. The finding is in line with empirical works of Ajayi [1], Yakubu, Shehu and Barfour [22], Adefeson and Mobolaji [30], Barro [52] and Ekpo [53] and who found that expansionary monetary policy raises output level of an economy. This is also consistent with Tobin's theory that monetary expansion causes income and output to rise. Also, the coefficient of total government expenditure as a variable of fiscal policy is positive and statistically significant at 5% significant level. More specifically, the coefficient of government expenditure is (0.15) per cent at a significant level of (0.004). This means that 1% increase in government expenditure contributed to the growth of Nigeria's domestic output by about 0.15 per cent. This conforms to the empirical works of Ekpo [54], Chukwuigwe and Abali, [55], Olaloye and Ikhide [31], Dickey and Fuller [56] Dong, Lori and Yucel [57] and Mutuku and Koech [26], who hold that fiscal policy through government spending is moderately effective since output rises by an amount greater than zero but less than changes in government spending. The result is consistent with the Keynesian theory as well as the theoretical positions of Romer [58] posit that government spending through the strengthening of production techniques and capacities has positive effect on economy's growth performance. Furthermore, Trade openness exhibited a positive but insignificant relationship with Nigeria's real GDP. The growth in investment (GINV) as shown in the result indicates that the coefficient of (GINV) is negative and statistically insignificant.

Furthermore, the F statistic value of (4.01) with a P value of (0.00009) less than P value of (0.05) indicates that at aggregate level, narrow money growth (GM_1), total government expenditure (GTEXP), trade openness growth (GTOP), investment growth (GINV), are statistically significant in influencing real GDP within the study period. The value of R-squared (0.69) shows that about 69% changes in real GDP in the long run are explained by the independent variables in the study. The Durbin Watson statistic value of approximately 1.78 confirms that there is no problem of positive serial correlation. From the forgoing, it is evident that narrow money dynamics and growth of government expenditure have positive and significant contribution to economic growth in Nigeria. It implies that the findings are consistent with the Hicksian hypothesis that simultaneous applications of monetary and fiscal policies by increasing money supply and government expenditure have the potentials of raising domestic output. This is also consistent with the findings of Engle and Granger [59]. Ogege and Shiro [36], Gerson and Mackenze [60], Isiaka Abdulraheem and Mustapha [61]. In various studies conducted at different times and in different countries, their findings corroborate with Hicks (1939) that monetary and fiscal policy has positive and significant effect on output.

Short run dynamics and Long run relationships of variables in the model. Table 5 shows the result of the short run dynamic coefficients associated with the long run relationships obtained from ECM equation. The error correction terms in the model are highly significant and correctly signed. In specific terms, the result indicates a coefficient of (-0.8679) with a P value of (0.0072) which is less than (0.05) level of significance. This implies that about 87% of discrepancy of previous year adjusted for the year i.e. 87% disequilibria that occurred in the previous year converged back to the long run equilibrium in the current year. Thus the result shows a quick speed of adjustment from short run dynamics to long run growth rate in output.

Figure 9 shows the recursive residual estimation of the model. The CUSUM test shows stability of the long run coefficients of the economic growth function within the sample period.

DISCUSSION AND IMPLICATION OF FINDINGS

In other to critically estimate the impact of monetary policy, fiscal policies on economic growth of Nigeria, the selected monetary and fiscal policy variables were subjected to unit root test so as to determine if there are stationary and if otherwise, to determine their order of integration (that is number of times there were differenced to achieve stationarity).

Given this result, the Auto Regressive Distribution Lag (ARDL) developed by Engel and Granger under the platform of Philips and Perron [62], the Bound Test procedure was applied. From the estimated result presented in table 2, the null hypothesis of no long relationship existing between monetary and fiscal policy variables and economic growth was rejected. This implies that monetary and fiscal policies have significant long run relationship with domestic output of Nigeria within the period under review.

In terms of analyzing the contribution of growth of narrow money as a monetary policy variable on domestic output of Nigeria. The null hypothesis of no significant contribution of narrow money dynamics on domestic output was rejected. This implies that the growth of narrow money significantly contribute to output growth in Nigeria. This finding is in line with Mutuku and Koech [26]. From the estimated result in table 1 the growth of government expenditure (GGEXP) significantly contributed to sustainable economic growth of Nigeria. The null hypothesis of no significant relationship between growth of government expenditure and output growth was rejected. Thus, government expenditure contributes significantly to achieving sustainable economic growth. These findings meet theoretical a priori and empiricism. It is supported by Keynes public expenditure theory and studies of Olaloye and Ikhide and Anderson and Jordan.

In a comparative estimation of simultaneous effects of monetary and fiscal policy on economic growth, the result indicates that 1% increase of narrow money dynamics leads to 0.34% increase in domestic output of Nigeria, whereas, 1% increase in government expenditure leads to increase of domestic output of Nigeria by about 0.15%. This implies that narrow money dynamics exert greater influence on growth of domestic output in Nigeria government expenditure. This finding is in tandem with the empirical works of [12], [14],[30],[63],[64],[65].

The result also reveals that there exists significant long-run uni-directional causal relationship that flows from monetary policy to economic growth as well as uni-directional causality that runs from government expenditure to domestic output.

The causality runs from narrow money growth GM_1 to real gross domestic product and also runs from government expenditure to economic growth is in line with Friedman's assertion that monetary expansion is significant in raising output and Keynes's postulation that economic growth is stimulated by increase in government expenditure. Also, the findings flow from Hicks ISLM model that through the goods and money market, increase in government expenditure and increase in money supply have the potentials of raising output.

CONCLUSION

The paper examines the contributions of monetary and fiscal policy variables to Nigeria's economic growth. Some standard econometrics tests were conducted and results revealed that there is a significant long-run relationship between the variables of monetary, fiscal policies and domestic output of Nigeria. This implies that both monetary policy variables and fiscal policy variables have long-run relationship with economic growth. On the bases of empirical results, the findings show that the results obtained were consistent with theory and findings of some studies conducted by other researchers. The empirical result shows that the coefficient of narrow money dynamics and government expenditure are both positive and have significant impact on the growth of Nigeria's economy. The results further reveal that there is significant long run causal relationship between narrow money dynamics as a variable of monetary policy and Nigeria's output. Nevertheless, the result indicates that monetary policy exerts greater influence on output of Nigeria than fiscal policy during the period under review.

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