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Healthy interaction between fiscal and monetary policies; A panacea for economic development and sustainability

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Abstract

A healthy fiscal and monetary policies form the basis for economic growth and sustainability of an economy. This work seeks to look at the effect of monetary and fiscal policies on economic growth in Nigeria, to examine how government tax alter the effect of monetary policy, To see how interaction of government recurrent expenditure with monetary policy does alter the effect of monetary policy rate, money supply and inflation on economic growth in Nigeria, and to see if the interaction of government capital expenditure with monetary policy affects monetary policy rate, money supply and inflation on economic growth in Nigeria. This study uses time series data from 1995 to 2021 which were sourced from the Central Bank of Nigeria Statistical Bulletin. The variables used in this study include; Money Supply (MS), Inflation (INF), Monetary Policy Rate (MPR), Government Tax Revenue (GTAX), Total Government Capital Expenditure (TGCE) and Total Government Recurrent Expenditure (TGRE). The data were examined using Ordinary Least Square Regression method and the robustness of the model was tested using post-estimation techniques such as Durbin-Watson test for autocorrelation, Jarque-Bera test for normality, Breusch-Godfrey Serial Correlation test and the Ramsey RESET test for specification correctness. Findings indicate that contractionary policies have caused reduced economic growth and the increase in monetary base in the economy has contributed significantly to economic growth. The study recommends Contractionary monetary policies should be matched with increase in taxation while expansionary monetary policies should be combined with a downward review of tax rates in the country.

Keywords: Fiscal policy; Monetary policy; Money supply; Inflation; Government tax; Government revenue

1. Introduction

Among the major requirements for macroeconomic stability and sustainable economic growth are fiscal and monetary policies. A healthy fiscal and monetary policies form the basis for economic growth and sustainability. The practical experience confirmed the reasonableness of those scientific concepts convergence in close interaction between fiscal and monetary policy, especially in a recession [1]. An unhealthy interaction between fiscal and monetary policies can lead to a destructive economic consequence. It is very important to apply them harmoniously and complexly analyzing the relevant causal relationship. They both function independently and have their different objectives, but however they both gear towards increasing public welfare and are familiar to all public policy elements.

Fiscal policy concentrates on government revenue and expenditures, so its target should not undermine price stability, while the monetary policy focuses on money supply and interest rates but it regulators should be careful not provoke a recession. Both fiscal and monetary policy should interact in a friendly manner over medium and long term to reduce the agents uncertainty and the macroeconomic objectives for most economies is economic growth, other factors which are likely to influence this objectives is the issue of fiscal and monetary policies which is very cardinal in determining the growth of the economy. An efficient fiscal and monetary policy could serve as a booster for economic growth in a

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nation and make it better off while an inefficient policy producing undesired and intended effects could impede the growth potentials of an economy and make it worse [2].

Developing economies are usually faced with the challenges of growth and stability, despite fiscal and monetary policies been in place, they are still been faced by external an internal destabilizations. The effect of these fluctuations is high rate of unemployment, low income, increased level of inequality and rising poverty rate. These factors cause economic growth, depression or cause only a set of individuals readily positioned to accumulate the benefits at the expense of the teeming poor.

Economic growth is an increase in the total, or per capital output of an economy, often measured by an increase in real gross national product and caused by an increase in the supply of factors of production or their productivity. The major macroeconomic policy tools available to achieve sustained growth are fiscal and monetary policy in Nigeria. Despite the country's policies the economy is yet to feel its impact. It is therefore necessary to see how monetary and fiscal policies can help propel and sustain economic growth in Nigeria.

The objective of this work is to; to see the effect of monetary and fiscal policies on economic growth in Nigeria, to examine how government tax alter the effect of monetary policy, To see how interaction of government recurrent expenditure with monetary policy does alter the effect of monetary policy rate, money supply and inflation on economic growth in Nigeria, and to see if the interaction of government capital expenditure with monetary policy affects monetary policy rate, money supply and inflation on economic growth in Nigeria.

The remaining four parts of this work are in the following order; section II, review of related literature; section III, Research methods; section IV, data analysis and discussion of findings; and section V the conclusion and recommendations.

1.1. Literature Review

1.1.1. Conceptual frame work

Policy

Policy is a deliberate system of guidelines to guide decisions and achieve national outcomes. A policy is a statement of intent and is implemented as a procedure or protocol, and they are generally adopted by a governance body within an organization (Wikipedia).

Economic growth

This is an increase in the quantity and quality of the economic goods and services that a society produces [3]. Economic growth is an increase in the capacity of an economy to produce goods and services, compared from one period of time to another and it can be measured in nominal term which includes inflation or in real terms which is adjusted for inflation [4]. Economic growth can be the continuous process by which the productive capacity of the economy is increased over time to achieve rising degree of publicly yield and pay [5, 6, 7].

Fiscal policy

This is the measure that government of any nation employs to stabilize its economy [8, 9]. It involves changing the allocations and levels of government expenditure and taxes. Fiscal policy aims at stabilizing the economy [10]. Increases in government spending or a reduction in taxes tend to pull the economy out of recession while reduced spending or increased taxes slow down a boom [11, 12].

Monetary policy

This refers to central bank activities that are directed towards influencing the quantity of money and credit in an economy. Monetary policy is one of the two principal means (the other being fiscal policy) by which government authorities in a market economy regularly influence the pace and direction of overall economic activity, importantly including not only the level of aggregate output and employment but also the general rate at which prices rise or fall [13].

1.1.2. Theoretical framework

Fiscal policy theory

Fiscal policy is based on the theories of British economist John Maynard Keynes whose theory basically states that governments can influence macroeconomic productivity levels by increasing or decreasing tax levels and public spending. This in turn curbs inflation, increases employment and maintains a healthy value of money [14].

Monetarist theory

This monetarist theory of economic growth was led by monetarist such as Friedman, which emphasized that money supply is the critical factor affecting the economic well being of a nation [23]. This indicates that to promote a steady rate of growth in an economy, money supply has to grow at a fixed rate rather than being regulated and controlled by the monetary authorities [15].

1.2. Empirical Review

The table below is a summary of the empirical review.

Table 1 Summary of literature

Author/ Year	Period/ Country	Topic	Variables	Method of estimation	Major findings
Agu, et al, 2015 [14]	1961 – 2010 Nigeria	Fiscal policy and economic growth in Nigeria; emphasis on various components of public expenditures	GDP, government revenue, government expenditures	Augment Dickey fuller and ordinary least square (OLS)	Government expenditure has tended to increase with government revenue and crowding out revenue, investment expenditure was much lower than recurrent expenditure, evidencing poor growth in the economy.
Emmanuel 2016 [2]	1981 – 2014 Nigeria	Fiscal and monetary policy and economic growth in Nigeria; a comparative analysis	Government expenditure, interest rate, money supply and GDP	Johansen co integration test, vector error correction model and wald test of coefficient.	There is a relationship between the real gross domestic product and government expenditure, money supply and interest rate. There exists individually a short run relationship between government expenditure and real GDP, and between money supply, interest rate and real GDP.
Olalekan 2016 [16]	1981 – 2015 Nigeria	Impact of fiscal and monetary policy on Nigerian economic growth	RGDA, surplus and deficit budget, broad money (M2), interest rate	Vector auto regressive model (VAR), augmented dickey fuller test (ADF),vector error correction model (VEC)	Unexpected shock on money supply, real effective exchange rate and taxes to have a negative permanent effect on RGDP while unexpected shock on recurrent expenditure to have positive effect on RGDP.

Tasnia 2018 [17]	1980 – 2016 South Asian countries (Bangladesh, India, Pakistan and sri-lanka)	The impact of fiscal policy on economic growth: empirical evidence from south asian countries	GDP, government expenditure, tax revenue	Error correction model (ECM), and auto regressive distributed lag (ARDL)	Both government expenditure and tax revenue have no significant impact on real GDP growth in those south Asian countries. Real investment is strongly positively correlated with real GDP growth in these countries.
Lyndon and Godspower 2019 [15]	2000 – 2017 Nigeria	Monetary policy and economic growth nexus; further evidence from Nigeria	GDP, broad money supply(BMS), interest rate, cash reserve ratio and liquidity ratio	Multiple regression technique	Monetary policy had a significant link with economic growth and as well plays a cruial role in economic growth and development.
Anachedo, et al 2021 [7]	1990 -2020 Nigeria	Effects of fiscal arrangement on economic growth in Nigeria	GDP, non-oil revenue, oil revenue, recurrent expenditure and capital expenditure	Augmented dickey fuller test (ADF) and ordinary least square (OLS)	Oil and non oil revenue negatively predicts economic growth indicating that increase in government revenue coincided with a decline in economic growth.
Ayoka, et al 2021 [6]	1983 – 2018 Nigeria	Effects of federal government revenue and expenditure on economic growth in Nigeria	Non-oil revenue, recurrent expenditure, GDP.	Auto regressive distributed lag (ARDL)	The influential growth variables are federal government retained earnings revenue, non oil revenue and recurrent expenditure.
Dumisani 2022 [18]	1980 – 2020 South Africa	The effectiveness of fiscal policy on economic growth in South Africa; an empirical analysis	RGDP, government fixed capital formation, government expenditure, government deficit.	Johansen co integration test, Granger causality, vector auto regression (VAR)	VAR shows that GFCF, GEXP have positive effect on RGDP, whereas GOVD has a negative effect on RGDP in the short run.

2. Material and methods

This study uses time series data from 1995 to 2021 which were sourced from the Central Bank of Nigeria Statistical Bulletin. The variables used in this study include; Money Supply (MS), Inflation (INF), Monetary Policy Rate (MPR), Government Tax Revenue (GTAX), Total Government Capital Expenditure (TGCE) and Total Government Recurrent Expenditure (TGRE). The study uses multiple models to determine the effect of including an interaction variable comprised of a fiscal policy variable and monetary policy rate in the regression mix.

The models of the study are therefore specified thus;

$$NGDP = f(INF, MS, MPR, GTAX, TGCE, TGRE) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 1$$

$$NGDP = f(INF, MS, MPR, GTAX\_MPR) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 2$$

$$NGDP = f(INF, MS, MPR, TGRE\_MPR) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 3$$

$$NGDP = f(INF, MS, MPR, TGCE\_MPR) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 4$$

Where GTAX_MPR = interaction variable between GTAX and MPR

TGRE_MPR = interaction variable between TGRE and MPR

TGCE_MPR = interaction variable between TGCE and MPR

The econometric models of the study are further specified as follows;

$$NGDP = \alpha_0 + \alpha_1 INF + \alpha_1 MS + \alpha_1 MPR + \alpha_1 GTAX + \alpha_1 TGRE + \alpha_1 TGCE + e_t \dots\dots\dots\dots\dots\dots\dots\dots 5$$

$$NGDP = \alpha_0 + \alpha_1 INF + \alpha_1 MS + \alpha_1 MPR + \alpha_1 GTAX\_MPR + e_t \dots\dots\dots\dots\dots\dots\dots\dots 6$$

$$NGDP = \alpha_0 + \alpha_1 INF + \alpha_1 MS + \alpha_1 MPR + \alpha_1 TGRE\_MPR + e_t \dots\dots\dots\dots\dots\dots\dots\dots 7$$

$$NGDP = \alpha_0 + \alpha_1 INF + \alpha_1 MS + \alpha_1 MPR + \alpha_1 TGCE\_MPR + e_t \dots\dots\dots\dots\dots\dots\dots\dots 8$$

The data were analyzed using the Ordinary Least Square regression model and the criteria for data analysis include the regression coefficients, the probability values of the F-statistic and t-statistic, the R-squared and the F-statistic. The robustness of the regression estimates were confirmed using the Durbin-Watson statistic for autocorrelation, the Jarque-Bera test for normality, the Serial Correlation LM test and the Ramsey RESET Test.

3. Results

The results of the regression models are summarized in tables to reveal the changes in the effects of monetary policy rate, inflation and money supply on economic growth with various interactions of fiscal policy with monetary policy.

Table 2 Summary of Regression Estimates: NGDP, INF, MS, MPR, GTAX, TGCE, TGRE, Dependent variable: NGDP

Variables	Coefficient	P-value (t-statistic)
MS	2.881540	0.0000
INF	-66.00388	0.2992
MPR	-271.4106	0.3234
GTAX	-16.86466	0.4537
TGCE	-4.151157	0.2406
TGRE	8.085121	0.0017
Post-Estimation Test	Statistic	P-value
R-squared	0.995862	--
Regression F-Statistic	802.1631	0.0000
Durbin-Watson	1.805759	--
Jarque-Bera	2.218752	0.3298
Ramsey RESET Test F-Stat	1.885875	0.1857
Serial Correlation F-stat	0.7090357	0.5052

Source: Author's Compilation from Eviews 10 Output, 2022

Model One: NGDP = f(INF, MS, MPR, GTAX, TGCE, TGRE)

Hypothesis One**:** monetary policy and fiscal policy do not have significant effect on economic growth in Nigeria.

From table 2, money supply is found to have positive ($B = 2.88$) and significant ($p<0.05$) effect on nominal output growth. Similarly, total government recurrent expenditure has positive ($B = 8.09$) and significant ($p<0.05$) effect on nominal output growth. On the other hand, inflation, monetary policy rate, government tax revenues and total government capital expenditure all have negative and insignificant effects on economic growth in Nigeria.

The R-squared value of 0.995862 reveals that about 99% of the variations in economic growth is explained by the combined trends of money supply, inflation, monetary policy rate and fiscal policy variables. The F-statistics of the OLS regression estimate reveals that the overall effect of fiscal and monetary policy macroeconomic variables has significant effects ($F = 802.16; p<0.05$) on economic growth in Nigeria. The Durbin-Watson (DW) test statistic is 1.8058 which is greater than the lower ($dL = 0.738$) and upper bound ($dU = 1.743$) of the tabulated DW statistics ($n=27, k=6$). This reveals that there is no autocorrelation error in the regression model. The Jarque-Bera (JB) test statistic ($JB=2.219, p>0.05$) reveals that the residuals of the regression are normally distributed. The Breusch-Godfrey Serial Correlation LM Test reveals that there is no problem of serial correlation in the regression model as the probability of the F-stat is greater than 0.05. Lastly, the Ramsey RESET test revealed that the model is well specified as the p-value of the f-statistic is greater than 0.05.

<div align="center">Model Two: NGDP = f(INF, MS, MPR, GTAX_MPR)</div>

Hypothesis Two: The interaction of government tax does not significantly alter the effect of monetary policy rate, money supply and inflation on economic growth in Nigeria.

Table 3 Summary of Regression Estimates: NGDP, INF, MS, MPR, GTAX_MPR, Dependent variable: NGDP

Variables	Coefficient	P-value (t-statistic)
MS	2.875274	0.0000
INF	-62.55162	0.4050
MPR	-823.7716	0.0377
GTAX_MPR	4.444996	0.0458
Post-Estimation Test	Statistic	P-value
R-Squared	0.993431	--
Regression F-Statistic	831.7552	0.0000
Durbin-Watson	1.859135	--
Jarque-Bera	1.103552	0.5759
Ramsey RESET Test F-Stat	0.100072	0.7549
Serial Correlation F-stat	2.003526	0.1610

<div align="center">Source:Author's Compilation from Eviews 10 Output, 2022</div>

As shown in table 3, the introduction of the interaction term between government tax and monetary policy has not changed the positive significant effect of money supply on economic growth, neither has it changed the negative insignificant effect of inflation on economic growth. However, it has changed the significance of the effect between monetary policy rate and economic growth in Nigeria. The results also show that despite the finding that government tax has negatively affected economic growth (see model one), when it smoothly interacts with monetary policy rate, it would have a positive and significant effect on economic growth.

The R-squared value of 0.9934 reveals that about 99% of the variations in economic growth is explained by the combined trends of money supply, inflation, monetary policy rate and the interaction term of government tax revenue and monetary policy. The F-statistic of the OLS regression ($F=831.755$) is statistically significant ($p<0.05$); this indicates an overall significance of the effects of the interaction of monetary policy and fiscal policy, money supply and inflation on economic growth. The DW test statistic is 1.859135 which is greater than the lower ($dL = 0.878$) and upper bound ($dU = 1.514$) of the tabulated DW statistics ($n=27, k=4$). This reveals that there is no autocorrelation error in the

regression model. The JB statistic (1.103552) is statistically insignificant (*p=0.575926*). This indicates that the model is free from non-normality problems in the residuals. The Breusch-Godfrey Serial Correlation LM Test result reveals that there is no problem of serial correlation in the regression model as the probability of the F-stat is greater than 0.05. The Ramsey RESET test also revealed that the model is correctly specified as the p-value of the f-statistic is greater than 0.05.

Model Three: NGDP = f(INF, MS, MPR, TGRE_MPR)

Hypothesis Three: The interaction of government recurrent expenditure with monetary policy does not significantly alter the effect of monetary policy rate, money supply and inflation on economic growth in Nigeria.

Table 4 Summary of Regression Estimates: NGDP, INF, MS, MPR, TGRE_MPR, Dependent variable: NGDP

Variables	Coefficient	P-value (t-statistic)
MS	2.582337	0.0000
INF	-53.19922	0.3824
MPR	-1168.893	0.0010
TGRE_MPR	0.599548	0.0003
Post-Estimation Test	Statistic	P-value
R-Squared	0.995699	--
Regression F-Statistic	1273.302	0.0000
Durbin-Watson	1.918162	--
Jarque-Bera	9.671118	0.0079
Ramsey RESET Test F-Stat	0.993604	0.3317
Serial Correlation F-stat	1.001788	0.3849

Source:Author's Compilation from Eviews 10 Output, 2022

As shown in table 4, the introduction of the interaction term between government recurrent expenditure and monetary policy did not cause any significant change in the results found in model one. There remained a positive significant effect of money supply on economic growth as well as a negative insignificant effect of inflation on economic growth. However, the effect of monetary policy rate on economic growth in Nigeria became significant after the interaction term was included in the regression. The results also show that, just as in model one, government recurrent expenditure retains a positive significant effect on economic growth after interacting with monetary policy. This indicates that a healthy interaction of government recurrent expenditure with monetary policy rate, would positively and significantly affect economic growth.

The R-squared value of 0.9957 reveals that about 99% of the variations in economic growth is explained by the combined trends of money supply, inflation, monetary policy rate and the interaction term of government recurrent expenditure and monetary policy. This shows a very good fit of the regression model. The F-statistic of the OLS regression (*F=1273.302*) is statistically significant (*p<0.05*); this indicates an overall significance of the effects of the interaction of monetary policy and fiscal policy, money supply and inflation on economic growth. The DW test statistic is 1.918162 which is greater than the lower (*dL = 0.878*) and upper bound (*dU = 1.514*) of the tabulated DW statistics (*n=27, k=4*). This reveals that there is no autocorrelation error in the regression model. The JB statistic value of 9.671118 is statistically significant with a probability value of 0.0079. This indicates that the residual of the model is not normally distributed. The probability of the F-statistic in the Breusch-Godfrey Serial Correlation LM Test is greater than 0.05 which indicates that there is no problem of serial correlation in the regression model. The Ramsey RESET test also revealed that the model is correctly specified as the p-value of the f-statistic is greater than 0.05.

Model Four: NGDP = f(INF, MS, MPR, TGCE_MPR)

Hypothesis Four: The interaction of government capital expenditure with monetary policy does not significantly alter the effects of monetary policy rate, money supply and inflation on economic growth in Nigeria.

Table 5 Summary of Regression Estimates: NGDP, INF, MS, MPR, TGCE_MPR,Dependent variable: NGDP

Variables	Coefficient	P-value (t-statistic)
MS	3.714897	0.0000
INF	-55.06616	0.4964
MPR	-535.5524	0.1509
TGCE_MPR	0.325892	0.2930
Post-Estimation Test	Statistic	P-value
R-Squared	0.992489	--
Regression F-Statistic	726.7198	0.0000
Durbin-Watson	1.658148	--
Jarque-Bera	0.481428	0.7861
Ramsey RESET Test F-Stat	0.102975	0.7515
Serial Correlation F-stat	1.491147	0.2491

Source:Author's Compilation from Eviews 10 Output, 2022

The interaction between total government capital expenditure and monetary policy does not significantly change the effect of money supply on economic growth as the results in model 4 still shows a significant ($p<0.05$) and positive ($B=3.7149$) effect of money supply on economic growth. Likewise, inflation retains a similar negative ($B=-55.066$) and insignificant ($p<0.05$) effect on economic growth as was found in model one. Also similar to the results of model one, monetary policy rate negatively ($B=-535.5524$) and insignificantly ($p<0.05$) affects economic growth in Nigeria. However, it was found that interaction with monetary policy causes a change in the direction of effect (from negative to positive) of total government capital expenditure on economic growth.

The R-squared value of 0.992489 reveals that about 99% of the variations in economic growth is explained by the combined trends of money supply, inflation, monetary policy rate and the interaction between government capital expenditure and monetary policy. The F-statistics of the OLS regression estimate reveals that the overall effect of fiscal and monetary policies macroeconomic variables has significant effects ($F = 726.72$; $p<0.05$) on economic growth in Nigeria. The Durbin-Watson (DW) test statistic is 1.658148 which is greater than the lower ($dL = 0.878$) and upper bound ($dU = 1.514$) of the tabulated DW statistics ($n=27, k=4$). This reveals that there is no autocorrelation error in the regression model. The Jarque-Bera (JB) test statistic ($JB=0.481428, p>0.05$) reveal that the residuals of the regression are normally distributed. The Breusch-Godfrey Serial Correlation LM Test reveals that there is no problem of serial correlation in the regression model as the probability of the F-stat is greater than 0.05. Lastly, the Ramsey RESET test revealed that the model is free from misspecification problems as the p-value of the f-statistic is greater than 0.05.

4. Discussion

It is often the case that fiscal authorities mete out policies that contradict the objectives of the policies meted out by the monetary authorities. This is not a rarity due to the dissimilarities in policy tools and mechanisms as well as intermediate objectives. Fiscal policies are majorly aimed at improving social welfare of the nation and such policies are hardly contractionary in nature, but rather expansive with each passing year. On the other hand, monetary policy is seeking monetary and economic stability which often involves contractionary policies to curb inflation. Contradictions between the fiscal and monetary policy could lead to gross underachievement of policy targets, thereby worsening the socioeconomic condition of the country. This could reflect in high inflation rates, monetary instability, unemployment, slow infrastructural development, and ultimately, poor economic growth. Recognizing the socioeconomic consequences of unhealthy interactions between monetary and fiscal policies, this study examined several interaction models for fiscal and monetary policy in order to determine a healthy interaction between fiscal and monetary policy that would promote monetary stability and economic growth.

Economic growth is measured using gross domestic product (GDP), monetary policy variable is monetary policy rate while the fiscal variables include recurrent and capital expenditure and government tax revenues. Money supply and inflation were introduced as controls for macroeconomic conditions. The data were examined using the Ordinary Least

Square Regression method and the robustness of the model was tested using post-estimation techniques such as Durbin-Watson test for autocorrelation, Jarque-Bera test for normality, Breusch-Godfrey Serial Correlation test and the Ramsey RESET test for specification correctness. The examinations were divided into four models; each reflecting the effects of introducing an interaction variable between a certain fiscal policy tool and monetary policy rate.

The results of the first model revealed that money supply significantly and positively affects economic growth. This confirms the positions of the monetarist theory which postulates money supply has to grow at a certain rate to facilitate economic growth [15]. Emmanuel [2] also found a significant relationship between money supply and economic growth in Nigeria. On the other hand, inflation and monetary policy rate negatively but insignificantly affects economic growth. These findings indicate that contractionary policies have caused reduced economic growth and the increase in monetary base in the economy has contributed significantly to economic growth. Evidence of Nigeria's increasing dependence on recurrent particulars is shown in the positive and significant effect of government recurrent expenditure on economic growth. However, taxation and capital expenditure of the government has negative insignificant effect on economic growth. This is further indication of the gross misappropriation, inappropriateness, low completion rate, mismanagement, un-sustainability and unaccountability associated with capital projects in Nigeria [19, 20, 21, 22].

In the second model, the interaction of government tax revenue and monetary policy rate was introduced into the regression mix excluding other fiscal policy variables. The findings showed that this interaction did not significantly change the effects of the macroeconomic control variables (money supply and inflation) on economic growth. However, the effects of monetary policy rate became significant. This indicates that the impact of monetary policy becomes more notable on the economy when there is proper alignment between taxation activities and the prevailing monetary policy. This interaction is also found to have positive and significant effect on economic growth whereas in model one, taxation has a negative insignificant effect on economic growth.

The third model saw the introduction of an interaction variable between government recurrent expenditure and economic growth. The results of the regression were similar to that of model two however, the coefficient as well as the significance of the effect of monetary policy rate increased in the third model compared to the second model. The coefficient of inflation rate also declined. The results also revealed that the interaction of total government recurrent expenditure positively and significantly affects economic growth. This is an indication that significantly attaining the monetary policy objective would involve a harmonic alignment of the objective between the recurrent expenditure and monetary policy rate.

The fourth and final model of this study included the interaction variable made up of total government capital expenditure and monetary policy rate. The results of this model saw an increase in the coefficient of money supply. However, the significance of the effect of monetary policy rate on economic growth was eroded. The interaction effect was also found to be positive but not significant. This indicates that attempts to synchronize the monetary policy objectives with the capital expenditure arm of fiscal policy will not lead to significant attainment of the monetary policy.

5. Conclusion

Recommendations

In line with the findings of the study, the following recommendations are postulated to the monetary and fiscal authorities;

- The attainment of sustainable economic growth should also see a seamless combination of recurrent expenditure and monetary policy objectives. Contractionary To achieve sustainable economic growth, taxation policies must be tailored to the prevailing monetary policy objectives. Contractionary monetary policies should be matched with increase in taxation while expansionary monetary policies should be combined with a downward review of tax rates in the country.
- The attainment of sustainable economic growth should also see a seamless combination of recurrent expenditure and monetary policy objectives. Contractionary measures should be accompanied with a reduction in recurrent expenditure while expansionary measured should be reinforced by an increase in recurrent expenditure of the Nigerian government.
- There should be proper management, continuity and accountability of capital projects to ensure that the socioeconomic objectives are well achieved. This would lead to improved economic growth in Nigeria.

- The monetary authorities should ensure that there is adequate stock of money in the economy to facilitate financial activities that leads to economic growth.
- Supply-side causes of inflation such as hoarding, monopoly, lack of price regulations and speculative pricing should be addressed as they distort the effectiveness of monetary policy in reducing inflation and attaining economic growth.

Compliance with ethical standards

Disclosure of conflict of interest

There is no conflict of interest.

References

[1] Igor, C., Mykola, P., Valerly, K., Tetiana, K. and Andriy, N. Fiscal and monetary policy of economic development. European journal of sustainable development, 2021, 10(1), 42-52.

[2] Emmanuel, E. Fiscal and monetary policy and economic growth in Nigeria; a comperative analysis, Munich, GRIN verlag, https://www.grin.com/document/375716. 2016

[3] Max, R.. What is economic growth? And why is it so important? [internet] Available from https://www.worldindata.org.2021.

[4] Okonkwo, J. J., Anachedo, C. K., Jeff-anyeneh, E. S., and Nnoje, I. A., (2022). The contribution of banking sector to the growth of the Nigerian economy. International journal of research, 2022, 9(3), 85-101.

[5] Todaro,M. P. and Smith, S. C. Economics development 9th edition. Pearson educational limited, England. 2005.

[6] Ayoka, C. O., Nzotta, S. M., and Kanu, S. I. The effect of federal government revenue and expenditure on economic growth in Nigeria; an empirical review. International journal of innovation and economic development, 2021, 9(3). 34-52.

[7] Anachedo, C. K., Okonkwo, J. J., Nnoje, I. A., and Jeff-anyeneh, E. S. Effect of fiscal arrangement on economic growth in Nigeria (1990-2020). International journal of progressive science and technologies, 2021, 30(1), 481-492.

[8] Audu, N. A. External debt management policy and economic growth in Nigeria. Journal of global economy, business and finance. 2010, 1(1), 35-59.

[9] Cletus, U. I., Ejima, O. A., and Ali, Y. Effect of fiscal policy on economic development in Nigeria; econometric approach 1986-2016. International journal of agricultural economics, management and development.2021. 4(1), 37-54.

[10] Amadi, S. N., and Essi, I. D. Government economic policy and Nigerian capital market behavior; a causality analysis. Dev. Alternatives area studies, San Antonio, USA.2006.

[11] Dornbusch, R. and Fisheer, S. Macroeconomics (5th ed.) New York, McGraw hill publishing company.1990.

[12] Ubesie, M. C. The effect of fiscal policy on economic growth in Nigeria. Journal of finance and accounting. 2016, 4(3), 140-145.

[13] Friedman, B. M. Monetary policy, a key objective of monetary policy is the maintenance of low and stable inflation. International encyclopedia of the social & behavioral sciences. www.sciencedirect.com. 2001.

[14] Agu, S. U., Okwo, I. M., Ugwunta, O. D. and Idika, A. Fiscal policy and economic growth in Nigeria; emphasis on various components of public expenditure. SAGE Open journal.2015, 5(4),1-12.

[15] Lyndon, M. E., and Godspower T. O. Monetary policy and economic growth nexus; further evidence from Nigeria. Global journal of arts, humanities and social sciences, 2019, 7(3), 24-37.

[16] Olalekan, S. B. The impact of fiscal and monetary policy on Nigeria economic growth. [internet] MPRApaper. Available from https://mpra.ub.uni-muenchen.de/92811/. 2016.

[17] Tosnia, S. The impact of fiscal policy on economic growth; empirical evidence from four South Asian countries. Mastersthesis,eastern Illinois university. 2018.Masters theses 3556, available from, https://thekeep.eiu.edu/theses/3556

[18] Dumisani, P. The effectiveness of fiscal policy on economic growth in South Africa; an empirical analysis. [internet] School of accounting, economics and finance, university of Kwazulu-Natal Westville South Africa. www.preprints.org.2022.

[19] Obadan, M. I. Perspectives on the Nigerian economy: Management strategies and development outcomes. A paper presented at the Retreat for Special Advisers and Assistants to the Senate President organized by the National Institute for Legislative Studies held in Lafia, Nasarawa state. June 2nd. 2012.

[20] Ogujiuba, K. &Okafor, H. Public financial management and fiscal outcomes in Nigeria: Empirical evidence. AfriHeritage Policy Research Working Paper Series 002, 2013, 1-22

[21] Nwabugwu, F. 60% of projects fail in Nigeria – UNIDO. [internet]Retrieved from Vanguard at: https://www.google.com/amp/s/www.vanguardngr.com/2015/08/60-of-projects-fail-in-nigeria-unido/amp/.2015

[22] Adedeji, D.,Lawal, A.& Simon, O. Governance factors and mismanagement of public project funds in Ondo state, Nigeria. American Journal of Financial Management (AJFM), 2018, 1(3), 1-12

[23] Friedman, M. A theoretical framework for monetary analysis. Chicago, university Chicago press. [internet] https://www.investopedia.com.1974.