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## IMPACT OF FISCAL POLICY ON AGGREGATE DEMAND IN NIGERIA (1986-2017)

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### Abstract

*This study examined the impact of fiscal policy instruments on aggregate demand in Nigeria using time series annual data from 1986-2017 which constitutes 31 years observations. This study used secondary data obtained from the CBN annual statistical bulletin and National Bureau of statistics. The data were analyzed using Two Stage Least Square method and a simulation experiment was conducted on three simple structural macroeconomics models. The study found that government expenditure and taxation have significant influence on aggregated demand in Nigeria during the period under review. The result also showed that government revenue (GR) influences government consumption positively. Similarly, the Simulation results performed on government capital expenditure and direct tax go in line with a priori expectation. 1% increase in government capital expenditure has increase GDP (0.6%), private consumption (0.2%) and private investment (0.3). While 1% decreases in direct tax have increase private consumption (0.1%) and private investment (0.7%). The baseline simulation demonstrates good tracking power of the actual from the baseline simulation as the nature of the oscillation suggested except for private consumption (PC). The study therefore recommended that the government should encouraged expansionary fiscal policy by increasing government expenditure channeled to infrastructures and other productive sectors of the economy such as agriculture and manufacturing; reduction in both direct and indirect taxes as it improve the purchasing power of the people which stimulate growth.*

**Keywords:** Fiscal Policy, Aggregate Demand, Tax, Expenditure, Revenue

**JEL Classification:** H3

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### Introduction

Fiscal policy is the means by which a government of a nation manipulates its level of spending in order to monitor and influence the nation's economy (O'Sullivan & Steven, 2003). This policy is used in gearing the economy towards achieving a variety of economic transformation such as economic

development and growth, price stability, reduction in unemployment, external equilibrium as well as income redistribution. On the other hand, aggregate demand (AD) is a macroeconomic concept representing the total demand for goods and services in an economy. This value is often used as a measure of economic well-being or growth (Sexton, Fortuna

& Peter, 2005). Fiscal policy affects aggregate demand through changes in government spending and taxation. These factors (government spending and taxation) influence employment and household income, which then impact consumer spending and investment.

In order to understand how fiscal policy affect aggregate demand, it's important to know how AD is calculated, which is with the same formula for measuring an economy's gross domestic product (GDP):  $AD = C + I + G + (X - M)$ , where C = Consumer spending on goods and services; I = Investment spending on business capital goods; G = Government spending on public goods and services; X = Exports and M = Imports.

Expansionary fiscal policy increases the level of aggregate demand, through either increases in government spending or reductions in taxes. Expansionary fiscal policy can do this by increasing consumption by raising disposable income through cuts in personal income taxes or payroll taxes; increasing investments by raising after-tax profits through cuts in business taxes; and increasing government purchases through increased federal government spending on final goods and services, and raising federal grants to state and local governments to increase their expenditures on final goods and services. Contractionary fiscal policy does the reverse: it decreases the level of aggregate demand by decreasing consumption, decreasing investments, and decreasing government spending, either through cuts in government spending or increases in taxes.

Fiscal policy in Nigeria has been largely driven by the boom and bust pattern of oil prices and revenue for most of the post-independence years. Prior to the oil boom of the early 1970s, fiscal policy was basically driven by taxes from the commodity boom of the late 1940s and 1950s. Thus, with over 70 per cent of the nation's revenue coming from oil since the 1970s, the patterns of government fiscal policy has been prone to oil-driven volatility. Consequently, both revenue and expenditure tend to move in line with the increases in oil prices with revenue and expenditure increasing astronomically in periods of high oil prices, but declining marginally during oil price decline. Basdevand and Kaasik (2003) notes the implications of such boom-bust fiscal policies to include the transmission of oil volatility to the rest of the economy as well as disruptions in the provision of government services

Fiscal policy remained expansionary in 2017 as in 2016. Although total spending as a percentage of GDP declined from 13% in 2014 to 10.3% in 2017, revenues declined more sharply, from 11.4% to 5.6% (NBS, 2017). The budget deficit was estimated at 4.8% in 2017, up from 4.7% in 2016, and is

projected to improve to 4.3% in 2018 and 4.1% in 2019, as revenue performance improves. At 14%, unemployment remained high in 2017, the same as in 2016, and is expected to decline only slightly in 2018, to 13.5%, as recovery eases production constraints in manufacturing and agriculture (NBS, 2017). Private consumption accounted for 66.1% of its nominal GDP in 2010, increased to 65.4% in 2011 and dropped to 58.4% in 2012. In 2013, private consumption was 72.9%, 71.7% in 2014 and 78.6% in 2015. In 2017, private consumption accounted to 79.9% compared to 82.6% in 2016 (NBS, 2017). Private investment was at 62.46% in 1996 and between 2007 and 2016, Nigeria's investment share of GDP declined from 18.7% to 12.6% (NBS, 2017). Government spending increased to 295880.30 million in the 4<sup>th</sup> quarter of 2017 from 624001.80 million in the 3<sup>rd</sup> quarter of 2017. Government spending averaged 1031026.93 million from 2010 until 2017 reaching an all-time high of 1615675.03 million in the 4<sup>th</sup> quarter of 2010 (NBS, 2017)

Fiscal policy is known to be relevant in revamping and stabilizing a depressed economy but various studies have opposed the ability of fiscal policy to counteract and reposition the distortions in the Nigerian economy. Different scholars have carried out empirical studies into the impact of fiscal policy instrument on the performance of macroeconomic variables. However, their submissions have been conflicting, For instance Agiobenebo (2003), Gbosi (2008) and Adeoye (2011) have shown the inability of fiscal policy to play the needed role in promoting economic growth. In other hand, some researchers believe that fiscal policy is positively related with economic growth (Agu, 2014; lance, 2012; Audu, 2012; Okafor, 2012). It is therefore a core research issue and this is the pivot of this study. Currently, there is no consensus on the matter.

The scope of this study is restricted only to the impact of fiscal policy instruments proxy with (government expenditure and taxation) and the aggregate demand proxy with (private consumption, private investment and government consumption) in Nigeria. The objective of this study is to analyze the impact of fiscal policy instruments on aggregate demand in Nigeria. The research hypothesis for the study was formulated in null form as follows: Fiscal policy has no significant impact on aggregate demand in Nigeria. The paper is organized in five sections: The general introduction is in section one while the second section reviewed related literature. Section three is the research methodology and section four is the presentation and analysis of results. The last section deals with the conclusion and recommendations of the study.

## Literature Review

Fiscal policy is the use of government revenue collection (mainly taxes) and expenditure (spending) to influence the economy (O'Sullivan & Steven, 2003). According to Okonjo-Iweala (2003), fiscal policy involves the use of taxes and changes in government expenditure to influence the level of economic activity, while Aggregate demand is the sum of the demand for all final goods and services in the economy. It can also be seen as the quantity of real GDP demanded at different price levels (Sexton, Fortura & Peter, 2005).

The Keynesian crowding in theory and classical crowding out theory are the major arguments that link fiscal policy to private investment (a component of AD) in the economy. The former assumes the short run, underemployment, low output level and disequilibrium in the economy (aggregate demand falls short of aggregate supply i.e. excess capacity). It also assumes that due to this excess capacity, savings and investment are interest inelastic (Sineviciene & Vasiliauskaite, 2012). Keynes postulated that a fiscal expansion (a cut-back on taxes) will create income for people and spur investment in the economy which will further lead to the creation of more income in the economy. He opines that fiscal expansion has the tendency to expand the market for private sector products through the fiscal multiplier. This is the crowding-in argument (Gerrard, 1996; Sineviciene & Vasiliauskaite, 2012). The classical crowding out argument assumes an economy in the long run, operating at full employment equilibrium level with no excess capacity; hence, investment and savings are highly interest rate elastic (Sineviciene & Vasiliauskaite, 2012).

Emad (2017) investigates the short term effects of fiscal policy shocks including government spending and tax revenue on real gross domestic product in Egypt. He applied Structural vector autoregressive model (SVAR) model and impulse response function (IRF) using annual data for the period of 1985-2015. His main findings are: 1) Government spending shock has a negative impact on real gross domestic product. 2) The impact of taxation seems to be less efficient as it has a positive but weak impact on real gross domestic product (GDP). Nevertheless, the impulse response functions were statistically insignificant.

Nursini (2017) examines the effect of fiscal policy and trade openness on economic growth in Indonesia for the period between 1990-2015 using vector auto-regressive models. The study shows that government spending on infrastructure and human resources has positive and significant effect on economic growth.

Nwankwo, Kalu, and Chiekiezie (2017) investigate the impact of fiscal policy on economic growth in Nigeria for the period between 1970 to 2014 using data sourced from Central Bank of Nigeria Statistical Bulletin (various issues) and World Bank Development Indicator (WDI), while co-integration and error correction (ECM) approaches were utilized in analyzing the data. The result of the unit root test shows that government capital expenditure, oil revenue, gross domestic product and tax revenue were stationary at first difference I(1), while government recurrent expenditure was stationary at levels at levels I(0). The co-integration result shows that there are 3 co integrating equations at 5 per cent level of significance. This shows that there exists a long-run relationship between fiscal policy and economic growth. The estimated ECM has the required negative sign of -0.447 (45%) and lies within the accepted region of less than unity although, government capital and recurrent expenditures at lagged two years was insignificant and therefore have no impact on economic growth.

Wissem (2016) analyses the threshold effect of fiscal policy on private consumption in Tunisia using a threshold regression model over the period of 1975-2010. The results reveal that public expenditure and tax revenues have Keynesian effects on consumption when private debt/GDP ratio is below 48 %. This effect becomes non-Keynesian once this threshold is exceeded. The study indicates that private consumption reacts in non-linear fashion to changes in fiscal policy.

Joseph, Tochi-Nze, and Ekundayo (2016) examine the nexus between fiscal policy and private investment in five selected West African countries using annual data for the period of 1993 to 2014 employed ordinary least square method. The results show the existence of a significant crowding-in effect of government capital expenditure and tax revenue while non-tax revenue shows a crowding out effect. Recurrent expenditure and external debt also shows crowding-out effects but were insignificant. The accelerator effect of output growth was also found to be insignificant across the countries over the period.

## Methodology

The study uses secondary data obtained from Central Bank of Nigeria (CBN) Statistical Bulletin for 1986 -2017. The choice of the period is as a result of the introduction of the Structural Adjustment Programme (SAP) in 1986. Two stage least squares was employed in estimating the behavioral equations and simulation experiment was also performed using E-View 7 econometric package. The study constructs macro-econometric model with three blocks; fiscal block, aggregate demand block and external sector block that contain 23 variables. The variables are linked to one another through

8behavioural equations and 3 identities. General structures of the models are briefly explained here.

**Fiscal Sector Block Model**

The model examines the impact of fiscal policy shocks on macroeconomic variable (aggregate

$$Fd = GE - T \dots\dots\dots(1)$$

$$GE_t = \beta_1 CGE_t + \beta_2 RGE_t + \beta_3 GDP_t + \beta_4 POP_t + \mu_t \dots\dots\dots(2)$$

$$T_t = \pi_1 DT_t + \pi_2 IT_t + \mu_t \dots\dots\dots(3)$$

Where; Fd = Fiscal deficit, GE = Government expenditure, T = Tax, CGE = Capital government expenditure, RGE = Recurrent government expenditure, GDP = Gross domestic product, POP = Population, DT = Direct tax, IT = Indirect tax and  $\mu$  = Error term.

demand). The main output of the study is an operational fiscal sector model of the Nigerian economy. The fiscal sector block model is specified as:

**Aggregate Sector Block Model**

Aggregate demand is expressed as a function of private consumption ( $P^C$ ), private investment ( $P^I$ ) and government consumption ( $G^C$ ). Aggregate demand is the endogenous variable while private consumption and private investment are the exogenous variables. The macro econometric model specification for the aggregate demand sector block is:

$$AD = P^C + P^I + G^C \dots\dots\dots(4)$$

$$P^C_t = \delta_1 Y^d_t + \delta_2 INT_t + \delta_3 MS_t + \mu_t \dots\dots\dots(5)$$

$$P^I_t = d_1 Y^d_t + d_2 INT_t + d_3 RPSC_t + d_4 G^I_t + \mu_t \dots\dots\dots(6)$$

$$G^C_t = \delta_0 + \delta_1 RDEGDP_t + \delta_2 G^R_t + \delta_3 INF_t + \mu_t \dots\dots\dots(7)$$

The model that examines the impact of fiscal policy shocks on aggregate demand expressed aggregate demand as a function of fiscal policy. The econometric model of this relationship is specified as:

$$AD_t = \beta_0 + \beta_1 GE_t + \beta_2 T_t + \mu_t \dots\dots\dots(8)$$

Where; AD = Aggregate demand,  $P^C$  = Private consumption,  $P^I$  = Private investment,  $Y^d$  = Disposable income, INT= Interest rate, MS= Broad money supply, RPSC = Ratio of private sector credit to GDP,  $G^I$  = Government investment,  $G^C$  =

Government consumption, RDEGDP = Ratio of development expenditure to GDP,  $G^R$  = Government revenue, INF = Inflation rate, GE = Government expenditure, T = Tax and  $\mu$  = Error term

**External Sector Block Model**

The external sector model is specified as:

$$BOP = XP - MP \dots\dots\dots(9)$$

$$XP_t = \beta_0 + \beta_1 CA_t + \beta_2 CM_t + \beta_3 EXR_t + \beta_4 GDP_t + \beta_5 POP_t + \beta_6 GE_t + \mu_t \dots\dots\dots(10)$$

$$MP_t = \alpha_0 + \alpha_1 MS_t + \alpha_2 EXR_t + \alpha_3 INT_t + \mu_t \dots\dots\dots(11)$$

Where; BOP = Balance of Payment, XP = Export, MP = Import, CA = Credit to Agriculture, CM = Credit to manufacturing sector, MS = Broad Money Supply, EXR = Exchange Rate, INT = Interest Rate, GDP = Gross Domestic Product, POP = Population, GE = Government expenditure and  $\mu$  = Error term

**Data Analysis and Interpretation**

The behavioral equations (equ. 2, 3, 5, 6, 7, 8, 10 and 11) were estimated by two stage least square techniques using e-views 7. All the estimates were done without intercept and the results are presented in blocks forms:

**Fiscal Sector Block Results**

**Table 1: Summary of Result for Government Expenditure (GE)Equation**

GE=C(1)*CGE+C(2)*RGE+C(3)*GDP+C(4)*POP					
Instrument list: (CGE,*) (GDP,*) (POP,*)					
	Coefficient	Std. Error	t-Statistic	Prob.	
C(1)	0.635923	1.786465	-3.035747	0.0004	
C(2)	0.749073	1.256805	-3.311853	0.0002	
C(3)	0.961446	1.023068	3.350232	0.0002	
C(4)	0.530841	2.032906	-1.587516	0.3465	
R-squared	0.882102	Mean dependent var			282669.5
Adjusted R-squared	0.793056	S.D. dependent var			342148.1
S.E. of regression	397401.1	Sum squared resid			4.425312
Durbin-Watson stat	2.657994				

Source: E-view 7 output

The table shows that government expenditure equation (GE) has a coefficient of multiple determinations ( $R^2$ ) of 0.88 and an adjusted ( $R^2$ ) of 0.79. This indicates that 88% of variations in the observed behaviour of government expenditure model are jointly explained by the explanatory variables which show that the model fits the data well and has a tight fit. The t-statistics are used to test for individual significance of the explanatory variables of the model. Here, capital government expenditure (CGE), recurrent government expenditure (RGE) and gross domestic product

(GDP) are statistically significant as their respective t-values are greater than two in absolute terms. Specifically, a 1% increase in CGE will prop up GE by more than proportionate percentage point of 0.64%. But in the case of RGE, a 1% increase will lead to increase in GE by more than proportionate percentage point of 0.75%. A 1% increase in GDP will lead to 0.96% increase in GE while population increase by 1% will lead to 0.53% increase in GE. The DW statistic of 2.66 indicates the absence of serial correlation in the residuals.

**Table 2: Summary of Result for Taxation(T) Equation**

T=C(1)*DT+C(2)*IT					
Instrument list: (DT,*)					
	Coefficient	Std. Error	t-Statistic	Prob.	
C(1)	0.661229	0.337149	-3.527689	0.0005	
C(2)	0.870064	0.559911	5.783513	0.0000	
R-squared	0.638382	Mean dependent var			3249697.
Adjusted R-squared	0.575995	S.D. dependent var			4656683.
S.E. of regression	1266797.	Sum squared resid			4.81E+13
Durbin-Watson stat	1.585634				

Source: E-view 7 output

As shown in table 2, the tax equation model shows a good fit as indicated by the  $R^2$  of 0.64. Direct and indirect taxes are statistically significant as their t-values are greater than 2 in absolute terms. All the variables have positive relationship with the dependent variable. A percentage increase in Direct

tax (DT) would result to 0.66% increase in total tax and a percentage increase in indirect tax (IT) would result to 0.87% increase in total tax. The Durbin Watson statistic of 1.59 shows that there is no autocorrelation among the variables

**Aggregate Demand Sector Block Results**

**Table 3: Summary of Result for Private Consumption( $P^C$ ) Equation**

PC=C(1)*YD+C(2)*INT+C(3)*MS					
Instrument list: (YD,*) (MS,*)					
	Coefficient	Std. Error	t-Statistic	Prob.	
C(1)	0.886073	0.521857	2.305410	0.0097	
C(2)	-0.214647	0.695309	0.626325	1.8691	
C(3)	0.647074	0.326036	-2.148772	0.0036	
R-squared	0.975402	Mean dependent var			508005.2
Adjusted R-squared	0.960499	S.D. dependent var			726671.7
S.E. of regression	124812.4	Sum squared resid			4.52E+11
Durbin-Watson stat	2.60095				

Source: E-views 7 output

Table 3 shows the estimated coefficient of INT is -0.21 which implies that a percentage increase in INT will decrease  $P^C$  by about 0.21%. The estimated coefficient of  $Y^d$  and MS are 0.89 and 0.65 respectively. They all have a positive relationship

with  $P^C$  which means that a percentage increase in  $Y^d$  and MS would lead to an increase in  $P^C$  by 0.89% and 0.65% respectively. The t-values for  $Y^d$  and MS are statistically significant, while that of INT is statistically significant. The  $R^2$  of the result is 0.98

and R<sup>2</sup> is 0.96. This indicates that about 98% changes in P<sup>C</sup> is caused by the explanatory variables.

The Durbin Watson statistic of 2.17 shows that there no autocorrelation among the variables.

**Table 4: Summary of Result for Private Investment (P<sup>I</sup>) Equation**

PI=C(1)*YD+C(2)*INT+C(3)*RPSC+C(4)*GI					
Instrument list: (YD,*) (RPSC,*) (GI,*)					
	Coefficient	Std. Error	t-Statistic	Prob.	
C(1)	0.920316	0.731566	2.969945	0.0013	
C(2)	0.813573	0.661839	-2.643715	0.0024	
C(3)	0.266030	0.125474	-5.137490	0.0000	
C(4)	0.181864	57.01198	-0.196382	1.6876	
R-squared	0.901805	Mean dependent var		309647.5	
Adjusted R-squared	0.865749	S.D. dependent var		347739.2	
S.E. of regression	117539.6	Sum squared resid		3.87E+11	
Durbin-Watson stat	1.983416				

Source: E-views 7 output

In table 4, Private investment equation indicates that the model is a good fit as 90% of the variation in P<sup>I</sup> is explained by the explanatory variables. All the explanatory variables are statistically significant except for G<sup>I</sup> as its t-value is not up to 2 in absolute terms. All the variables have positive relationship

with the dependent variable. A percentage increase in Y<sup>d</sup>, INT, RPSC and G<sup>I</sup> would result to an increase in P<sup>I</sup> by 0.92%, 0.81%, 0.27% and 0.18% respectively. The DW statistics of 1.98 fall within the rejection region. Therefore, there is absence of autocorrelation among the variables.

**Table 5: Summary of Result for Aggregate Demand (AD) Equation**

AD=C(1)*G + C(2)*T					
Instrument list: (G,*)					
	Coefficient	Std. Error	t-Statistic	Prob.	
C(1)	0.654053	0.638322	3.728534	0.0011	
C(2)	-0.358420	0.491048	2.597320	0.0085	
R-squared	0.595322	Mean dependent var		536763.9	
Adjusted R-squared	0.530763	S.D. dependent var		219532.4	
S.E. of regression	145754.9	Sum squared resid		4.15E+11	
Durbin-Watson stat	2.074217				

Source: E-views 7 output

Table 5 shows the result for the impact of fiscal policy variables on aggregate demand in Nigeria. The fiscal policy variables are government expenditure and taxation while aggregate demand is proxy by gross domestic product. The coefficient of government expenditure (GE) is 0.59 while means that an increase in GE by 1% will result to increase in aggregate demand by 0.59%. The low probability value of GE (0.0011) which is less than 0.05 suggest that government expenditure is statistically significant in influencing aggregate demand in Nigeria. The coefficient of tax (-0.36) shows an

inverse relationship with aggregate demand. An increase in tax (T) by 1% will lead to a decrease in aggregate demand by 0.36% and the variable is statistically significant as its t-value (2.59) is greater than 2 or probability value is less than 0.05 (0.0085). The R<sup>2</sup> which measures the goodness of fit of the model is 0.59 which means that 59% of the variables in aggregate demand (AD) is explained by government expenditure (GE) and taxation (T) while the remaining 41% is captured by the error term.

**External Sector Block Results**

**Table 6: Summary of Result for Export (X<sup>P</sup>) Equation**

XP=C(1)*CA+C(2)*CM+C(3)*EXR+C(4)*GDP+C(5)*POP+C(6)*GE					
Instrument list: (CM,*) (EXR,*) (GDP,*) (POP,*)					
	Coefficient	Std. Error	t-Statistic	Prob.	
C(1)	0.148543	0.603565	-2.193727	0.0042	
C(2)	0.207632	0.597649	3.171892	0.0012	
C(3)	-0.085429	0.699944	-2.419172	0.0032	
C(4)	0.168673	23.84443	0.427547	2.3023	
C(5)	0.115377	0.387548	4.282832	0.0003	
C(6)	0.373560	0.726438	-2.292221	0.0052	
R-squared	0.460856	Mean dependent var		4266536	
Adjusted R-squared	0.410854	S.D. dependent var		4965304	
S.E. of regression	1485553	Sum squared resid		4.64E+12	
Durbin-Watson stat	1.56033				

Source: E-views 7 output

As shown in table 6, the estimated result shows that the estimated parameters for credit to Agriculture (CA), credit to manufacture (CM), population (POP) and government expenditure (GE) were found to be statistically significant because their *p-values* are less than 0.05 and exchange rate (EXR) of Naira in growth rate vis-à-vis U.S dollar was statistical insignificant. Thus, gross capital formation (GCF) is not significant at both 5% and 10% significance level. The coefficients of CA (0.15), CM (0.21), GDP (0.17), POP (0.12), and GE (0.37) are positively related to export (XP) which means that a percentage increase in the variables would result to 0.15%, 0.21%, 0.17%, 0.12% and 0.37% increases two.

in export (XP). But the coefficient for EXR (-0.08) has a negative relationship with the dependent variable. Any increase in EXR by 1% would result to 8% decrease in export (XP). While, the R-squared result reveals that 46% of the total variation in export (XP) is accounted by changes in credit to Agriculture (CA), credit to manufacture (CM), exchange rate (EXR), population (POP) and government expenditure (GE) during the review period. The Durbin-Watson test result reveals that there is presence of semi-strong positive serial correlation among the residuals, because of the *d-value* (1.560) is far from zero but close to

**Table 7: Summary of Result for Import (MP) Equation**

MP=C(1)*MS+C(2)*EXR+C(3)*INT					
Instrument list: (MS,*) (INT,*)					
		Coefficient	Std. Error	t-Statistic	Prob.
	C(1)	0.322028	0.203837	3.091832	0.0012
	C(2)	-0.102922	0.994309	1.038832	2.1090
	C(3)	0.103883	0.264783	-2.538390	0.0029
	R-squared	0.481037	Mean dependent var		588376
	Adjusted R-squared	0.395462	S.D. dependent var		6353687
	S.E. of regression	2818263	Sum squared resid		5.24E+11
	Durbin-Watson stat	1.998832			

Source: E-views 7 output

As indicated in table 7, the result from table 7 shows that the coefficients of the broad money supply (MS) of 0.32 have positive influence on the import (MP) and is statistically significant as *p-value* is less than 0.05. The coefficient of the exchange rate (EXR) of -0.10 have negative influence on EXR and not statistically significant. The coefficient of interest rate (INT) of 0.10 have positive influence on MP and also significant. From the regression analysis, the value of the *R<sup>2</sup>* is 0.48, this suggest 48% of the changes in MP is caused by the independent variables (money supply, exchange rate and interest rate). The result implies that the independent variables are statistically significant in explaining

the dependent variable. The value of the Durbin Watson is 1.99 which means there is no positive but weak serial correlation in the model because the value is greater than 1 and approaching 2.

**Simulation Results**

The study uses two policy variables for the simulation: capital government expenditure and direct tax with the following scenarios: Scenario 1:- How would macroeconomic variables be affected assuming the capital government expenditure increased by 1%. Scenario 2:- A decrease in direct tax by 1%.

**Table 8: Simulation Results of Macroeconomic variables**

Variables	Policy Variable				
	Baseline	Capital Government expenditure increase by 5%		Direct tax decrease by 1%	
		Scenario 1	Change in Scenario 1	Scenario 2	Change in Scenario 2
CGE	-6	-6	0	6.3	0.3
RGE	9.4	9.3	-0.1	9.7	0.3
GDP	17.8	18.4	0.6	18.0	0.2
DT	6.2	6.5	0.3	6.2	0
IT	-15.3	-15.3	0	-15.3	0
PC	11.9	12.1	0.2	12.0	0.1
PI	24.2	24.5	0.3	24.9	0.7

Source: E-views 7 output

Scenario 1 examines the increase in capital government expenditure by 1%. The result shows that gross domestic product (GDP) appreciates by 0.6% points, direct tax (DT) rise by 0.3% points.

Also, private consumption (PC) and private investment (PI) appreciate by 0.2% and 0.3% respectively. However, the shocks have impact on the aggregate demand in the economy.

In scenario 2, a decrease in direct tax (DT) by 1% points results in an increase in gross domestic product (GDP) by 0.2% without any impact on direct and indirect taxes. Similarly, a reduction in direct tax (DT) by 1% increases private consumption by 0.1% and private investment by 0.7%. This result shows a strong relationship between fiscal policy and aggregate demand side of the economy. It also shows the strength of fiscal policy rate to influencing real GDP.

### Discussion of Results

The results from the estimated equations on the impact of fiscal policy on aggregate demand indicated that, the instruments of fiscal policy; government expenditure have positive and significant influence on aggregated demand while taxation has negative and significant influence on aggregate demand in Nigeria during the period under review. The result also shows that government revenue (GR) influences government consumption positively. Also, credit to Agriculture, credit to manufacture and population size of the country are strong determinants of export. The findings are in line with the works of Nursini (2017) and Nwankwo, Kalu, and Chiekezie (2017). Similarly, the Simulation results performed on government capital expenditure and direct taxation indicated a good signed. 5% increase in government capital expenditure have increase GDP, private consumption and private investment. While 1% decreases in direct tax have increase private consumption and private investment. The baseline simulation demonstrates good tracking power of the actual from the baseline simulation as the nature of the oscillation suggested except for private consumption (PC). That means the actual values of direct tax (DT), indirect tax (IT), recurrent government expenditure (RGE), capital government expenditure (CGE) and private investment (PI) are close to their respective baseline simulation which is an indication of the ability of the model to forecast and replicate most of the critical turning points of the historical data.

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### Test of Hypothesis

From the regression analysis, the study reject null hypothesis that fiscal policy instruments has no significant impact on aggregate demand in Nigeria and accept the alternative that fiscal policy instruments has significant impact on aggregate demand in Nigeria. This is because; the instruments of fiscal policy are statistically significance in influencing aggregate demand as the probability values of government expenditure (0.0011) and taxation (0.0085) are all less than 0.05 government expenditure has a positive and significant influence on aggregate demand while tax is statistically significant and has impact on aggregate demand in Nigeria

### Conclusion and Recommendations

This study examines the impact of fiscal policy shocks on aggregate demand in Nigeria. Based on the findings, the study concludes that fiscal policy instrument has significant impact on aggregate demand in Nigeria.

Based on the findings and conclusion, the following suggested recommendations were made: The government should encouraged expansionary fiscal policy as it plays vital role in the development process of an economy. This will enable Nigeria government to increase her capital expenditure especially in the area of infrastructural development; reduction in both direct and indirect taxes as it improve the purchasing power of the people which stimulate growth. There is need for an improvement in government expenditure on health, education and economic services, as components of productive expenditure, to boost economic growth. There is the need for massive capital expenditure in productive ventures in Nigeria, especially on agriculture. Government should ensure that capital expenditure and recurrent expenditure are properly managed in a manner that it will raise the nation's production capacity and accelerate economic growth.

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**Appendix:  
ACTUAL AND SIMULATED VALUES**

