Fiscal Policy and Balance of Payments in Nigeria

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ABSTRACT

The paper examined the impact of fiscal policy on balance of payments in Nigeria. The objectives of the study were to; examine the impact of government capital expenditure, corporate tax and external debt on BOPs. Time series data from 1980 to 2015 was collected from CBN statistical bulletin. The applied the techniques of ADF unit root test, co-integration and vector error correction model. The results of the estimated model showed that all the time series were stationary at order one. Also, the dynamic model depicted by the co-integration result showed that there is a long run equilibrium relationship among the variables. Similarly, the vector error correction result showed that the coefficient of ECM has the hypothesized negative sign and statistically significant at 5% level. The current year's value of government capital expenditure showed that a percentage increase in government capital expenditure causes a favourable balance in BOPs by 65.5%. Moreover, the current year's value of corporate tax showed that a percentage increase in corporate tax decreases the balance in BOPs by 164.4%. The estimated VECM result further showed that a percentage increase in government external debt causes an increase in BOPs by 77.1%. From the discussion so far, it is obvious that fiscal policy measures are effective in achieving a favourable balance of payments in Nigeria. Based on these findings, the following recommendations amongst others were made; Expansionary policies on fiscal policy measures especially in government capital spending and corporate tax policy should be encouraged as they play vital role in the growth of industrial production and help to improve the BOPs in Nigeria. Also, government should avoid superfluous and uncreative borrowing that will serve as a leakage to the economy.

Key words: BOPs, VECM, ADF, Corporate Tax, External Debt, Capital Expenditure, Dynamic

I. INTRODUCTION

One of the foremost macroeconomic intents of every economy in the world is to use macroeconomic strategies to maintain a favorable balance of payment position and put the economy on a healthy competition with the international economies in order to safe guard the external value of national currency and as well avoid a protracted balance of payments problem. Meanwhile, fiscal and monetary policies are two key and well known macroeconomics policies.

They are otherwise known as economic stabilization or demand management policies and are used to reduce variations in aggregate spending which are important causes of fluctuations in economic activity (Tom-Ekine, 2014; Todaro and Smith, 2011). But fiscal policy is the principal focus in this paper. Fiscal policy as a tool for macro-economic management is a purposeful use of government revenue (mainly from taxes) and expenditure to manipulate the level of economic activities or to achieve some needed macro-economic goals in a country (Akpakpan, 1994). Fiscal policy could be expansionary or contractionary. It is expansionary if government expenditures are increased and taxes reduced while it is contractionary if government expenditures reduced and taxes increased.

In the meantime, the importance of the external sector lies in the fact that every nation engages in trade and payments and the external sector performance measures the health of an economy with other countries. In the light of this, the International Monetary Fund (IMF, 2006) gives both financial assistance and policy advice to countries that have experienced chronic balance of payments problem. Thus, the record of the monetary value of this trade

between a country and the rest of the world is termed balance of payments (Gbosi, 2007). Similarly, balance of payment is an accounting statement that summarizes the economic transactions between residents of the home Country and residents of all other countries (Gbosi, 2015).

According to Oloye (2012), fiscal policy is one of the means through which the government intervenes directly in the country's economic activities. In like manner, fiscal policy can also be employed to achieve macroeconomic goals of full employment, price stability, external balance as well as equitable distribution of wealth. Meanwhile, an examination of the Nigerian's profile shows that the pressure on the balance of payments persisted in the first half of 1994. An overall deficit amounting to ₦7,275.6 million was recorded in the BOP compared with ₦3,876.8 million in the deficit which substantially outweighed the surplus recorded in the current account. As in the previous year, the overall deficit was financed through the deferment of debt service obligations estimated at ₦24,906.4 million (\$1,138 million) falling during the reviewed period. As a result of this development, external debt fell from ₦29,093 million (\$1,329.3 million) at the end of December 1993 to ₦26,722.8 million (\$1,222 million) at the end of December 1994 (Gbosi, 2001). But the year 2008 falls in oil prices and economic meltdown in the world as a whole worsen the situation.

The continual imbalances in the external sector of the Nigerian economy seemingly suggest that more need to be done by government fiscal policy vis-à-vis her tax revenue, capital expenditure as well as external and domestic borrowing so as to stimulate both capital and current accounts balance in order to engender economic growth and development. Similarly, over the years, different adjustment mechanisms to balance of payments disequilibrium have been developed, namely, the monetary approach, the elasticity's approach and the absorptions approach (Du Plessis, Smit and McCarthy, 1998). Although the monetary policy approach to the balance of payment has been commended by many for explaining the balance of payments, but it has been criticized by some scholars as an approach that ignores fiscal policy measures such as budget deficit and other parts of international trade in determining the balance of payments (Iyoha, 2001).

Arising from above, the following questions were raised; what is the impact of corporate tax on BOPs in Nigeria? Does government capital expenditure impact on BOPs in Nigeria? What is the impact of external debt on BOPs in Nigeria? It is the answers to these pertinent questions that necessitated an examination of fiscal policy measures and balance of payments in Nigeria during the period of 1980 - 20015. The specific objectives of this study are to: examine the impact of government capital expenditure on balance of payments in Nigeria; examine the impact of corporate tax on balance of payments in Nigeria and examine the impact of external debt on balance of payments in Nigeria.

II. LITERATURE REVIEW

Theoretically, Keynesian advances strong argument for the primary role of fiscal action and suggested that active government policy could be effective in managing the economy. They believed that an increase in government spending adds directly to aggregate demand. But a decrease in tax level has a direct relationship with in disposable income, which in turn increases aggregate demand. Thus, they concluded that increase in government spending and tax reduction work through the multiplier effect. Also, Keynes (1934) argued that government borrowing adds to wealth which increases spending.

Moreover, Keynesian approach to balance of payments was based on elasticities and 'absorption theories' of balance of trade and payments while the elasticities approach affirms that devaluation of rate of exchange affects BOPs, the absorption approach affirms that increase in domestic expenditure on goods will increase output. Thus, fiscal policy can affect the current account by changing the relative price of non-tradables which induces higher government spending on non-tradable. Fiscal contraction can reduce interest rates, including on external debt, thereby improving the current account balance. At the same time, lower risk premium can also increase capital inflows, which can boost demand and real appreciation pressures and eventually worsens the current account.

Empirically, Onuchuku, Ofoezie and Nteegah (2006) examined fiscal policy measures and macroeconomic stability in Nigeria from 1980-2004. The econometrics method of multiple regression was used in analyzing the impact of government expenditure, revenue and debt on GDP, BOP, inflation and unemployment. The results showed that a

weak relationship exists between fiscal policy variables and macroeconomic stability. Specifically, a negative relationship exists between government tax and BOPs.

Ewubare and Obayori (2015) investigated fiscal policy measures and balance of payments in Nigeria. The study utilized aggregate annual data from 1980 to 2012 and analyzed the data with the co-integration/ECM method. The findings showed that the variables were stationary and co-integrated using Augmented Dickey Fuller (ADF) unit root test and Johansen cointegration techniques respectively. The parsimonious ECM result revealed that government tax revenue has positive and significant effect on BOPs in Nigeria, while government expenditure and debt have negative and significant impact on BOPs in Nigeria based on the magnitude and the level of significance of the coefficient and p-value.

Egwaikhide (1997) investigated the effect of budget deficit on the current account balance in Nigeria from 1973 to 1993 using Ordinary Least Square (OLS) regression model and Simulation model. The empirical result showed that there is a direct relationship between budget deficit and current account balance in Nigeria. Attiya (2010) empirically investigated the effects of fiscal policy on the current account and the other macroeconomic variable such as real output, interest rate and exchange rate in Pakistan from 1960-2009 using structural Vector Autoregressive (VAR) approach. The finding showed that fiscal policy shock in the form of budget deficit increase the current account balance. Somia (2011) examined the relationship between the current account deficit and budget deficit in Pakistan over the period of 1971 to 2008 with the use of Autoregressive Distributed Lag (ARDL) approach. The results submitted that there was indeed a long run relationship among the variables in the model and a stable long run relationship between budget deficit and current account deficit.

III. METHODOLOGY

The data for the study is essentially sourced Central Bank of Nigeria (CBN, 2015) statistical bulletin as well as National Bureau of Statistics publications for relevant years. This study adopts the econometric analysis of ADF unit root test, Johansen co-integration test and Vector Error Correction Method (VECM) to determine the impact of fiscal policy on balance of payments in Nigeria. Also, post estimation tests were carried out to ascertain if the statistical criteria of the estimated model are met, authenticate if parameters are reliable and as well as certain if the general model are good for policy recommendation. Specifically the Wald test and normality test were conducted.

Model Specification/Analytical Framework

Theoretically, the model was based on Keynesian fiscal policy approach to BOPs which state that fiscal contraction can reduce interest rates, external debt as well as tax rate on corporation, thereby improving the current account balance. The theory is functionally stated as;

$$Q = f(G, T, D) \quad (1)$$

Where; Q is the BOPs, G is government expenditure, T is tax and D is government debt. Conversely, the model was based on the one proposed by Ewubare and Obayori (2015) who decomposed fiscal policy measures into total government; expenditure (GXP), revenue (GTR) and debt (GTD) on BOPs. Thus, $BOP = f(GXP, GTR, GTD)$

(2)

The current model used government capital expenditure, corporate tax and external debt variables that have direct bearing on BOPs as functional stated below:

$$BOP = f(GCX, GCT, GED) \quad (3)$$

The linear form of the model is stated thus;

$$BOP = \beta_0 + \beta_1 GCX + \beta_2 GCT + \beta_3 GED + e \quad (4)$$

The study tried the log-linear specification. In this respect the multiplication version was used. Thus, the equation is

$$BOP_t = Q \cdot GX_t^{\alpha 1} GC_t^{\alpha 2} GE^{\alpha 3} e^u \quad (5)$$

The natural log of both sides of (4) will be taken as:

$$\ln BOP_t = \beta_0 + \beta_1 \ln GCX_t + \beta_2 \ln GCT_t + \beta_3 \ln GED_t + e \quad (6)$$

Where; BOP = Balance of Payments, GCX= Government Capital Expenditure, GCT= Corporate Tax, GED= Government External Debt, e = Error Term, t = Time Frame, β_0 = Autonomous components of BOP, β_1, β_3 = slopes of Fiscal Policy (GCX, GCT and GED)

IV. RESULTS

Analysis of Random Walk or Time Series Properties of the Variables

Properties of time series or random walk help to ascertain the significance of the variables at either intercept or the combination of intercept and trend as well as none.

Table 1: Time Series Properties of the Variables

Variable	t-stat		Prob		Decision
	@ INTERCEPT (C)	@ TREND	@ INTERCEPT (C)	@ TREND	
Ln(BOP)	-0.802424	2.931340	0.4279	0.0060	Time series @ Trend
Ln(GCX)	39.74035	19.79077	0.0000	0.0000	Time series @ C and Trend
Ln(GCT)	42.43421	32.20364	0.0000	0.0000	Time series @ C and Trend
Ln(GED)	20.91422	5.856328	0.0000	0.0000	Time series @ C and Trend

Source: Authors' Computation from (E- view 9.0)

The time series properties in Table 1 showed that the variables (GCX, GCT and GED) have time series at both intercept and trend. This is because their respective t-statistics and probability values were statistical significant at 5% level at intercept and trend. Meanwhile the variable (BOP) has time series at trend only. This is because the t-statistics and probability value was statistical significant at 5% level at trend. Thus, it can be concluded that all the variables do not have common time series properties. Therefore, the ADF unit root test for the variables (GCX, GCT and GED) was conducted at intercept and trend while BOP was conducted at none since it has it random walk at only trend.

Unit Root Test

The unit root test help to test for the order of integration of the time series(Dickey & Fuller, 1979). This ADF test was used for this purpose

Table 2 Augmented Dickey Fuller Unit Root Test

Variable	ADF Test @ Level	Critical Value			ADF Test @ 1 st Diff	Critical Value			Order of Integration
		1%	5%	10%		1%	5%	10%	
BOP	-2.1889	-2.6347	-1.9551	-1.6109	-3.8988	-2.6347	-1.9551	-1.6109	1(1)
GCX	-2.2203	-4.2529	-3.5485	-3.2071	-11.7192	-4.2529	-3.5485	-3.2071	1(1)
GCT	-0.1999	-4.2436	-3.5443	-3.2047	-6.6430	-4.2539	-3.5485	-3.2071	1(1)
GED	-2.1910	-4.2436	-3.5443	-3.2047	-7.1879	-4.2529	-3.5485	-3.2071	1(1)

Source: Authors' Computed Result Using (E-Views 9.0)

The stationarity of each of the series is presented in Table 2 using the ADF tests depicted that all the variables are homogenous of order one. Therefore, they are made stationary by first differencing prior to subsequent estimations to forestall spurious regressions.

Co-integration Test

The Johansen co-integration test was used to examine the long run relationship among the variable at 5% level (Johansen,1988).

Table 3 Johansen Co-integration Test Result

Eigen value	Trace Statistics	5% critical value	Prob. **	Hypothesis of CE(s)
0.576702	62.77735	47.85613	0.0011	None *
0.471175	34.40793	29.79707	0.0137	At most 1 *
0.278871	13.38370	15.49471	0.1015	At most 2
0.075617	2.594760	3.841466	0.1072	At most 3

Source: Authors' Computed Result Using (E-Views 9.0)

The results of the Trace statistics revealed the existence of two co-integrating vectors in the model. This is because the computed values of the Trace test statistics are greater than their corresponding critical values at 5% level. Thus, the null hypothesis (H0) of no co-integration among the variables was rejected. Since the series are co-integrated, then the need for co-integration regression model to reflect the long run behaviour of the regressors.

Estimation of Co-integration Regression Result

The Dynamic Least Squares (DOLS) was used to find the long run behaviour of the estimated regressors or explanatory variables

Table 4 Co-integration Regression Result

Variables	Coefficient	T-Statistics	T-Table	Probability
C	7555.441	0.076210	2.0395	0.9400
Ln(GCX)	3.793897	4.416383	2.0395	0.0003
Ln(GCT)	-12.93802	-4.296272	2.0395	0.0004
Ln(GED)	-0.150513	-1.223411	2.0395	0.2354
R ² =0.9479	DW-Stat= 1.8717			

Source: Authors' Computation Using (E-Views 9.0)

The estimated co-integration regression model in Table 4 showed that the coefficient of determination is 95%. This showed that the independent variables in the regression model jointly explained 95 percent of the systematic variation BOP. Meaning that the regressors have high explanatory power by extension the estimated model is a good fit. Also, the coefficient of government capital expenditure is positively signed and statistically significant with BOP at 5% level. Similarly, the coefficient of corporate tax appears with the hypothesized negative sign and statistically significant with BOP at 5% level. Also, the coefficient of external debt is negatively but statistically not significant with BOP at 5% level. The Wald test for coefficient restrictions indicated that the independent variables are jointly significant in explaining variation in the dependent variable

The Error Correction Test

Now, to be able to determine the short-run behavior of the variables, the error correction model via the VECM was examined.

Table 5 Vector Error Correction Result

Dependent Variable: BOP

Variables	Coefficient	T-Statistics	T-Table
D(BOPC(-1))	0.655218	2.70559	2.0395
D(BOPC(-2))	0.218023	0.72935	2.0395
C	-68878.4	-0.26573	2.0395
Ln(GCX(-1))	0.655218	2.70559	2.0395
Ln(GCT(-1))	-1.644585	-0.03969	2.0395
Ln(GED(-1))	0.771484	2.81334	2.0395
ECM	-0.65847	-4.3170	2.0395
Akaike AIC	29.86964	Schwarz SC	30.32313
R ² =0.54591	F-stat=2.130025	DW-Stat= 1.9717	

Source: Authors' Computation Using (E-Views 9.0)

The results of the Vector Error Correction Model presented in Table 5 showed that in the short-run, the current year's value of government capital expenditure (GCX) has a positive and significant effect on BOPs. Thus, a percentage increase in government capital expenditure causes a favourable balance in BOPs by 65.5%. Also, $t\text{-stat}; 2.70559 > t\text{-tab}, 2.0395$. Thus, the alternative hypothesis which states that there is a significant relationship between government capital expenditure and BOPs was accepted. The finding alludes to the empirical work of Ewubare and Obayori (2015) on fiscal policy measures and BOPs in Nigeria. Moreover, the current year's value of corporate tax (GCT) has a negative but insignificant effect on BOPs. Thus, a percentage increase in corporate tax decreases the balance in BOPs by 164.4%. Also, in absolute term $t\text{-stat}; 0.0397 < t\text{-tab}, 2.0395$. Thus, the null hypothesis which states that there is no significant relationship between corporate tax and BOPs is accepted. The finding alludes to the empirical work of Onuchuku, Ofoezie and Nteegah (2006) who affirms that a negative relationship exists between government tax and BOPs. The estimated VECM result further shows that the current year's value of government external debt (GED) has a positive and significant effect on BOPs. Thus, a percentage increase in government external debt causes an increase in balance in BOPs by 77.1%. Also, $t\text{-stat}; 2.8133 > t\text{-tab}, 2.0395$. Thus, the alternative hypothesis which states that there is a significant relationship between government external debt and BOPs was accepted. The coefficient of ECM has the hypothesized negative sign and statistically significant at 5% level. Thus, the long run equilibrium position can be achieved instantaneously in the case of the short run disequilibrium in the system. Meaning that the speed of adjustment depicted by the coefficient of ECM is 65.8%, which implies that about 66% of the disturbance in the short run is corrected each year. Also, the R^2 of 55% shows that the model is a good fit.

Analysis of Diagnostic Tests

The diagnostic test was carried out to ascertain the statistical criteria of the estimated model and authenticate the reliability of the estimated parameters for good for policy recommendation.

Table 6 Wald Test for Coefficient Restriction in the Co-integration Test

Test statistic	Value	Df	Prob
F-stat	4.566886	(4, 20)	0.0088
Chi-square	18.26754	4	0.0011
Normalized Restriction	(= 0)	Value	Std. Err.
C(1)		-1428871.	874919.3
C(2)		1803020.	808910.0
C(3)		-494858.6	294887.1
C(4)		5408908.	2783888.

Source: Authors' Computation Using (E-Views 9.0)

The Wald test result showed that the probability value (0.0088) of the F-statistic (4.5669) is less than 0.05, indicating that all the independent variables in the estimated model are jointly significant in explaining favourable balance of payments in Nigeria over the study period.

Table 7 Normality Test

Component	Jarque-Bera	Df	Prob
1	17.04105	2	0.0002
2	1.380507	2	0.5014
3	2.624079	2	0.2693
4	2.516279	2	0.2842
Joint	47.25145	55	0.7618

Source: Authors' Computation Using (E-Views 9.0)

The normality test showed that the error terms are normally distributed. This is because the probability value (0.7618) of the Jarque-Bera statistic (47.25145) is greater than 0.05.

From the analysis above, the result of the post estimation tests are welcoming as they meet the statistical criteria and authenticate the reliability of the estimated model for policy formulation and recommendation.

V. CONCLUSION

The study focuses on the impact of fiscal policy on BOPs in Nigeria. The BOPs is seen as an indicator of growth in the developmental processes of the economy. The study regressed fiscal policy proxied by government capital expenditure, government corporate tax and government external debt on balance of payments via the co-integration and vector error correction model on a time series data from 1980 to 2015. The results of the estimated model showed that all the time series were stationary at order one. Also, the dynamic model depicted by the co-integration result showed that there is a long run equilibrium relationship among the variables. Similarly, the vector error correction result showed that the coefficient of ECM has the hypothesized negative sign and statistically significant at 5% level. Thus, the long run equilibrium position can be achieved instantaneously in the case of the short run disequilibrium in the system at the speed of adjustment of 65.8% per year.

From the discussion so far, it is obvious that fiscal policy measures are effective in achieving a favourable balance of payments in Nigeria. The study concluded that the success of fiscal policy in promoting favourable BOPs depends on a well-articulated government capital expenditure, corporate tax and external debt. It is therefore recommended amongst others that expansionary policies on fiscal policy measures especially in government capital spending should be encouraged as they play vital role in the growth of industrial production and help to improve the BOPs in Nigeria. Government fiscal operation through favourable corporate tax policies should be encourage in order to enhance the production in the real sectors, so as to create more employment opportunities and increase the BOPs position as well as the growth of the economy. Government should avoid superfluous and uncreative borrowing that will serve as a leakage to the economy.

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