

Original Article

An Appraisal of Stabilization Policy Measures and its Implication on Balance of Trade in Nigeria.

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Abstract - This study examined the effects of stabilization policy measures on the balance of trade in Nigeria for a 38-year time period spanning from 1980 to 2017. Stabilization policy measures were segmented into the money supply, interest rate, exchange rate, government expenditure, and government tax and they served as the explanatory variables in the model. The time-series data used for this work was sourced from the Central Bank of Nigeria (CBN) statistical bulletin and the National Bureau of Statistics (NBS). The study adopted the Auto Distributed Lags (ARDL)/ Bounds testing approach to cointegration to estimate the models. The test for unit root was carried out using the Augmented Dickey-Fuller (ADF) test for stationarity. The ADF test result showed that all the variables used in the study were stationary at first difference except for balance of trade which attained stationarity at levels. The Bounds test result revealed that the variables in the model have a long-run relationship. Evidence from the study showed that most of the stabilization policy indicators had a significant negative impact on the balance of trade in both the long-run and the short-run contrary to theoretical expectation save for interest rate which the inverse relationship was expected a priori. The absolute value of the ECT (-1) term shows a 128 percent speed of convergence to equilibrium. The study, therefore, recommends that the monetary authority should implement interest rate policies that encourage an investment-friendly economy in order to attract foreign investors into the economy thereby boosting the balance of trade position of the nation.

Keywords - Stabilization Policy, Balance of Trade, Autoregressive Distributed Lags, and Nigeria

I. INTRODUCTION

Every government in any economic system is saddled with the responsibility of initiating policies that are aimed at achieving macroeconomic goals. These goals amongst others include attainment of full employment, achievement of price stability, attaining sustained economic growth, achievement of exchange rate

stability, and most importantly the achieving external balance. Stabilization policies, therefore, refer to those actions or measures by the government and apex monetary authorities designed to achieve these macroeconomic goals. The economic goals can also be referred to as target variables while the policy variables used to achieve them are referred to as instrumental variables (Onuchuku, 2016).

Stabilization policy measures are mainly categorized into two; monetary policy and fiscal policy. Monetary policy refers to measures by monetary authorities aimed at influencing the availability, cost, and value of money in an economy. Fiscal policy on the other hand refers to the use of government expenditure and/or taxation to influence economic activities (Anochie, 2015). One of the aims of any nation's stabilization policy amongst others is to maintain external balance. It is expected in theory that the manipulation of monetary and fiscal policy instruments should help in the attainment of macroeconomic goals.

The maintenance of equilibrium in the balance of payment position and by extension, the balance of trade, is a major challenge that has been facing third world economies, Nigeria inclusive. A stable balance of trade regime will lead to an equilibrium in the balance of payments-especially if the capital and other accounts are properly managed to give a positive balance (Adedokun, 2016). That is to say that achieving a favorable trade balance plays a significant role in the economic development of any nation. This is because it gives an insight into a nation's international position. The relevance of international economic transactions has led to the recognition of the achievement of BOP equilibrium as an objective of economic stabilization.

A close examination of the Nigerian trade balance has shown the pressure which persisted from 1980 to 1983. An overall deficit of about N2.6 billion was recorded in 1982 as against the deficit of N0.975 billion recorded in 1980. Subsequent years have shown periodic deficits in the nation's balance of trade. 1998 for example recorded a deficit of N85.6 billion. 2015 and 2016



showed deficit records of N2,230.9 billion and N644.8 billion before bouncing back to a surplus of N3183.3 billion (CBN, 2017). The deficits in the external sector are a reflection of the expansion in domestic absorption that domestic supply could not meet (Iyeli, 2017). External imbalance hinders growth by constraining the supply of foreign commodities thereby discouraging capital inflows that can finance domestic investment. Various efforts by the government to reduce these deficits have not yielded much result. The main objective of this study, therefore, is to examine the relationship between stabilization policy indicators and the balance of trade in Nigeria.

Apart from the introduction, the rest of this study is structured into the literature review, materials and methods, results and discussion; and conclusion.

II. LITERATURE REVIEW

A. Theoretical Review

a) Absorption Approach to Balance of Payment

This approach was initially propounded by Alexander (1952) and was later extended by Johnson (1958). According to them, a deficit in a country's balance of payment implies that the citizens are "absorbing" (consuming) more than they produce. Invariably, domestic expenditure on consumption and investment is higher than national income. Conversely, a surplus in the balance of payment shows that they are absorbing less which means that expenditure on consumption and investment is less than national income. The approach introduces the income effects to the analysis of devaluation effects. The proponents of this approach posit that devaluation would only have positive effects on trade balance if the propensity to absorb is less than the rate at which devaluation would induce increases in the national output of goods and services. There is therefore a need to achieve a conscious reduction of absorption capacity to accompany devaluation. Iyeli (2017) posits that increased productivity would increase income in an economic system with absorption.

b). Ricardian Equivalent hypothesis

The hypothesis explains that fiscal deficit has no effect on the external sector because consumers are considered to be forward-looking and would save any additional expenditure made by the government in order to pay expected future taxes by the government. They argued that governments could either finance their spending by taxing current taxpayers or through borrowing. In any case, if the spending is financed by borrowing, they must eventually repay this borrowing through increased taxes above what it would have been

in the future. Therefore, the choice is between tax now and tax later.

c) Mundellian Model of Internal and external stability.

The model emphasized the need for a monetary-fiscal policy mix to achieve internal and external balance. Put in other words, to achieve the balance of payments equilibrium, monetary policy should be paired with external balance while fiscal policy is paired with internal balance. According to Mundell, the assignment of monetary policy to external balance and fiscal policy to internal balance stemmed from the principle of effective market classification which explains that policies should be paired with objectives in which they have the most direct effect. Put differently, policy instruments should be assigned a target which they can reach relatively effectively. The theory however was not void of criticisms. One of the strong criticisms amongst others is that the proposed monetary and fiscal mix is only a palliative measure that lacks a real adjustment process to the balance of payment. According to the critics, the excess demand gap in the foreign exchange market is filled only by the capital low while income and prices are left unaffected (Wood, 1975).

B. Stabilization Policy Developments in Nigeria

a) Fiscal Policy in Nigeria

The stabilization policies in Nigeria are mainly fiscal policy and monetary policy. Fiscal Policy deals with taxation as a form of government revenue and government expenditure which is usually administered under the laws of a legislature and impacts directly on the goods market (Anochie, 2015). It is a purposeful tool used by the government to manipulate economic activities by raising revenue through taxation and other means and also the pattern of expenditure. Onuchuku (2016) in addition, argued that fiscal policy involves any attempt to regulate aggregate demand (C+I+G) in order to promote full employment without inflation. The fiscal policy simply put is the budgetary policy of the government relating to taxes, public expenditure public borrowing, and deficit financing (Sanni, 2012). One of the objectives of fiscal policy amongst others is to maintain a healthy balance of payment position in order to safeguard the external value of the national currency (Ewubare and Obayori, 2015). The absence of a viable fiscal policy can trigger capital flight which can be detrimental to external balance (Shuaib *et al*, 2013).

In Nigeria, fiscal policy is being managed by the federal ministry of finance which is headed by the coordinating minister of the economy. The ministry manages and controls the public finance of the nation (FMF, 2015).

Specifically, the ministry annually prepares the national budget showing the revenue and expenditure estimates. The ministry also monitors the oil and non-oil revenue accruing to the nation through taxation and other means.

Nigeria, like other oil-dependent nations, is faced with the challenge of implementing fiscal policy in an environment with highly volatile oil revenue flows which has the capacity of spilling into the budget (Baunsguard, 2003). Over the years, fiscal volatility has been transmitted to the rest of the economy with negative implications for the economy. Government revenue and expenditure in Nigeria have been influenced by oil-driven volatility. During periods of the oil boom, revenue and expenditure increases remarkably. The reverse is however the case when oil price and production decline although usually with a lag effect. The effects of such “booms and dooms” driven fiscal policies are transmitted to the rest of the economy. This has resulted in the failure of public expenditure to diversify the non-oil sector and also reduce poverty (Baunsguard, *ibid*). In Nigeria also, there is a weak revenue base as a result of the high marginal tax rate with a narrow tax base which has led to low tax compliance. A major challenge of fiscal policy in Nigeria is tax evasion. Tax evasion affects the government's political and economic programs. In practice, fiscal policies do not work in isolation, they are implemented alongside monetary policies.

b) Monetary policy in Nigeria

Monetary policy refers to the deliberate or conscious actions taken by the monetary authorities, usually central banks, to regulate the quantity, value, availability, and cost of money in an economy with a view to achieving specific macroeconomic objectives. Robinson (2014) argued that an effective monetary policy is assessed according to its ability to maintain not only monetary and economic stability but also in increasing the utilization of the country's economic resources and securing the highest degree of welfare in the economy. Monetary policy in Nigeria is anchored by the Central Bank of Nigeria (CBN) through the Monetary policy Committee headed by the governor of CBN. The committee meets regularly to set objectives in line with the economic situation prevalent in the nation. They make decisions to lower, maintain or raise policy rates as the case may be through the use of open market operations (OMO) (Anochie, 2015). The strategy of monetary policy in Nigeria requires modifying the amount of base money in circulation through continuous market transactions which in turn affects other market variables like an exchange and interest rates. To strengthen the stabilization of the

naira exchange rate and interest rate, the CBN has relied on the policy framework of market base techniques driven by increased bank credit to the domestic sector (Enoma *et al*, 2011). The distinction between the different monetary policy strategies lies primarily with the set of targets, instruments, and variables employed by the Central Bank to achieve set objectives. Basically, monetary policy strategies are classified into; monetary targeting, price level targeting, inflation, and exchange rate targeting. The Central Bank of Nigeria (CBN) however uses basically two frameworks namely exchange rate targeting and monetary targeting in the implementation of its monetary policy (Onuchuku *et al*, 2018). Monetary policy in Nigeria has transitioned over the years covering both the direct and indirect era. The exchange rate target was adopted between 1959 and 1973 while the monetary targeting was adopted from 1973 till date. The monetary targeting included direct monetary control which spanned from 1973 to 1993 and indirect control from 1993 till date. Independent monetary policy however did not commence till 1979. The switch in target did not change or stop the objectives of the monetary policy (CBN, 2016).

Some scholars have advocated the use of stabilization policies to correct distortions in the economy while some others have opposed it. According to the advocates of the use of stabilization policies, when Gross Domestic Product (GDP) falls below its natural rate, expansionary monetary/fiscal policy should be used to prevent a recession. Conversely, when GDP rises above its natural rate, contractionary monetary /fiscal policy should be used to reduce an inflationary boom. Those against the use of stabilization policies argue that because monetary and fiscal policies have lagged, such policies may destabilize the economy instead of helping it.

c) The Concept of Balance of Trade

Balance of trade, also known as trade balance is the difference between the monetary value of goods and services sold to other countries and that purchased from other countries. Simply put, it is the difference between a country's exports and imports for a given period of time (Merovci *et al*, 2014). The trade balance is the largest component in determining a country's current account. A trade surplus or positive trade balance occurs when the country's exports exceed its imports while a trade deficit or negative trade balance is when the reverse is the case.

Some scholars have argued that a positive or negative trade balance does not necessarily reflect a healthy or weak economy as the case may be. According to them, the benefits of a trade surplus amongst other factors depend on the trade policy decisions prevalent in that

country. The balance of trade is important because it shows the competitiveness of a country in the global marketplace, giving a basis for comparison with the rest of the world.

C. Empirical Literature

Hossein and Bahram (2015) set forth in their study to examine the impact of monetary and fiscal policies on trade balance of payment in Iran for the period 1979-2012 using autoregressive technique and vector Error correction method (VECM). The result from the study showed that government spending had a positive effect on imports of goods implying that government expenditure through the importation channel worsens the balance of trade. Here, an increase in government expenditure is seen as an increase in effective demand which partly led to good importation. Also, there was a negative impact of liquidity as it injected into imports which in turn worsened the balance of trade.

Okoro (2013) assessed the effects of deficit financing on the balance of trade in Nigeria for the period 1980-2008 using the Granger-Causality and Vector Auto-Regression (VAR) techniques. The short-run dynamic result shows that a positive relationship exists between deficit financing and trade balance (surplus). The long-term result however revealed that an increase in deficit financing reduced the trade deficit in Nigeria. The result, therefore, implied that in the short run, deficit financing can be used by the government to improve trade while deficit financing could be used to reduce the trade deficit in the long run if properly managed by the government.

Wakeel & Ullah (2013) in analyzing the impacts of budget deficit on macroeconomic aspects of Pakistan employed the 3 stage Least Square method. From their findings, it was observed that changes in imports and exports are affected by the relative prices and exchange rate respectively which in turn depends on the money supply. In conclusion, the study states that increasing government expenditure to achieve higher output will eventually result to trade deficits.

Akpaung and Babalola (2013) examined empirically the effects of real exchange rates on the balance of trade in Nigeria. The short-run dynamics indicated that the trade balance model is capable of adjusting back to its long-run equilibrium path after short-run distortion. The results from the study implied that real exchange rate adjustment alone may not ensure a favorable balance of trade in Nigeria despite evidence of a long-run relationship between the trade balance and real exchange rate because of the weak evidence of causality between the two variables. Celebi &

Culha (2013) investigated the effects of government expenditure shocks on the real exchange rate and balance of trade in Turkey from 2002.I-2012.IV using a structural Vector Autoregressive (VAR) framework. It can be depicted from their analysis that a positive shock to government expenditure is capable of appreciating the exchange rate and deteriorating the balance of trade.

Egwaikhide, (1999) examined the effects of budget deficits on the trade balance in Nigeria using a macroeconomic model for the period 1973-93. The result indicates that budget deficits arising from increased government spending adversely affect the balance of trade irrespective of whether it is money financed or by external borrowing.

Onafowora *et al* (2006) employed the generalized impulse response analysis and vector error-correction techniques to examine the “twin deficits” phenomenon in Nigeria. Evidence from their study showed a positive relationship between trade and budget deficits in Nigeria refuting the Ricardian Equivalence Hypothesis. They argued that an increase in government deficit will lead to an increase in aggregate demand and the domestic rate of interest.

Using the Autoregressive Distributed Lag (ARDL) approach to cointegration, Shahbaz *et al.* (2012) investigated the relationship between changes in the real exchange rate and trade balance in Pakistan. Their study showed the existence of a long-run relationship between the series and the non-existence of the J-curve relation. The implication of their finding is that currency depreciation deteriorated Pakistan’s trade balance.

In exploring the long-run links between net foreign asset position, the trade balance and the real exchange rate, Lane and Milesi-Ferratti (2002) focused on a sample of 20 OECD countries spanning from 1970 to 1998. Findings from their study showed a negative long-run relationship existing between the trade balance and real exchange rate. The study further revealed the significance of the difference in rates of returns on external assets and liabilities in determining the dynamics of net foreign assets.

As observed by Bhattarai and Armah, (2005), the exchange rate has been a tool used for regulating trade and capital flows by many developing economies, which persistently show deficits in the balance of payments position due to the structural gaps between the volumes of imports and exports where the economies tend to have inelastic demand for both imports and exports. Also, the growth rate of imports is

usually greater than that of exports which eventually increases trade imbalances.

III. MATERIALS AND METHOD

A. Nature and Source of Data

The dataset for this research work was time-series data from secondary sources spanning from 1980 to 2017. The data was sourced from the Central Bank of Nigeria (CBN) statistical bulletin and the National Bureau of Statistics.

B. Model Specification

The model has its independent variables as money supply, interest rate, exchange rate, government expenditure as well as government tax while balance of trade is the dependent variable. It is therefore specified in econometric form as follows:

$$\text{LnBOT}_t = \alpha_0 + \alpha_1 \text{LnMSS}_t + \alpha_2 \text{LnINR}_t + \alpha_3 \text{LnEXR}_t + \alpha_4 \text{LnGXP}_t + \alpha_5 \text{LnGTX}_t + U_t \quad (1)$$

Where: BOT = Balance of Trade

MSS = Money Supply

INR = Interest Rate

EXR = Exchange Rate

GXP = Government Expenditure

GTX = Government Tax

μ_t = Random Variable

α_0 = Intercept

$\alpha_1, \alpha_2, \alpha_3, \alpha_4$ & α_5 = Estimated parameters of the independent variables

C. Method of Data Analysis

Autoregressive Distributed Lags Model

The Autoregressive Distributed Lags (ARDL)/bound test approach to co-integration, proposed by Pesaran *et al* (2001) was adopted in this study to determine whether the underlying time series variables have a long-run relationship. The null hypothesis of no cointegration is tested against the alternative hypothesis of cointegration. restating equation (1) as an ARDL model we have:

$$\Delta \text{BOT}_t = \pi_0 + \sum_{i=1}^p \theta_{1i} \Delta \text{BOT}_{t-i} + \sum_{i=0}^p \theta_{2i} \Delta \text{MSS}_{t-i} + \sum_{i=0}^p \theta_{3i} \Delta \text{INR}_{t-i} + \sum_{i=0}^p \theta_{4i} \Delta \text{EXR}_{t-i} + \sum_{i=0}^p \theta_{5i} \Delta \text{GXP}_{t-i} + \sum_{i=0}^p \theta_{6i} \Delta \text{GTX}_{t-i} + \delta_1 \text{BOT}_{t-1} + \delta_2 \text{MSS}_{t-1} + \delta_3 \text{INR}_{t-1} + \delta_4 \text{EXR}_{t-1} + \delta_5 \text{GXP}_{t-1} + \delta_6 \text{GTX}_{t-1} + \varepsilon_t \quad (2)$$

Where Δ denotes the difference operator

π_0 is the vector of the intercept

θ_1 - θ_6 is the short-run dynamic coefficient

δ_1 - δ_2 is the long-run coefficients of the explanatory variables

ε_t is the error term

The null hypothesis of no cointegration is tested under the asymptotic distribution of the F-statistic. From the ADL model in equation (2), the null and the alternative hypotheses are expressed respectively below:

$$H_0: \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \delta_6$$

$$H_1: \delta_1 \neq \delta_2 \neq \delta_3 \neq \delta_4 \neq \delta_5 \neq \delta_6$$

Pesaran *et al* (2001) and Narayan (2005) reported two sets of critical values. One critical value requires that all the variables in the ARDL model are I(0), while, the other assumes that the variables are I(1). If the computed F-statistic is greater than the upper bound I(1) of the critical value, the null hypothesis of no cointegration would be rejected. However, if it falls below the lower bound, the null hypothesis of no cointegration cannot be rejected. The test is however inconclusive if the F-statistic falls in between the bounds.

IV. RESULTS AND DISCUSSION

A. Descriptive Statistics on variables of the Study

The summary of the descriptive statistics for the variables in the study is presented in the table below.

Table 1. Descriptive Statistics of variables
Source: Authors' Computation

Statistics	BOT	MSS	EX	IN	GXP	GTX
Mean	1321.17	4 4779324.	82.36	17.50	1663920.	1213665.
Maximum	5822.60	2414063	0	2 305.95	31.65	8302103.
Minimum	2230.900	11856.60	0.54	8.43	9636.500	5819.100
Std. Dev.	2015.02	9 7374949.	84.06	5.06	2126809.	1534491.
Skewness	0.82	1.45	0.88	0.16	1.27	1.06
Kurtosis	2.43	3.75	3.27	3.41	3.76	2.70
Sum	50204.6	1.82E+0	3129.8	665.2	6322894	4611925
Observations	3	8	8	2	8	8
	38	38	38	38	38	38

The descriptive statistics in table 1 above revealed that the money supply, interest rate, and exchange rate averaged N4.78 trillion, 82.36%, and 17.5% respectively. The result further showed that the balance of trade was N1.3trillion on average. Government expenditure recorded a mean value of N1.67 trillion while government tax averaged N1.2 trillion. Balance of trade grew to a maximum of N5.82 trillion, money supply recorded a maximum value of N24.1 trillion. The exchange rate and interest rate had maximum values of 305.95% and 31.65% respectively. Government expenditure grew to a peak of N8.3 trillion while government tax recorded a maximum value of N4.8 trillion. The standard deviations for the variables were N2.01 trillion for the balance of trade, N7.37 trillion for the money supply, 84.06% for the exchange rate, and 5.06% for the interest rate. Government expenditure and government tax had respective standard deviations of N2.12 trillion and N1.5 trillion.

B. Unit Root Test

The unit root test for stationarity was conducted and the result is presented below.

Table 2. Unit Root Test Results for Stationarity

Variables	Levels Constant, Linear Trend	Prob.	1 st Difference Constant, Linear Trend	Prob.	Order of Integration
BOT	-4.529	0.005	-2.176*	0.030	I(0)
MSS	0.861	0.999	-5.533***	0.000	I(1)
INR	-2.460	0.344	-5.465***	0.000	I(1)
EXR	-1.728	0.717	-4.719**	0.003	I(1)
GXP	-0.329	0.985	-3.832*	0.030	I(1)
GTX	-2.894	0.179	-2.176*	0.030	I(1)

Test critical values:	%level	Constant	Constant, Linear Trend
	1% level	-3.626	-4.234
	5% level	-2.945	-3.540
	10% level	-2.611	-3.202

Source: Authors' Computation

Data on each series were tested for stationarity so as to avoid the problem of spurious regression. For this study, the Augmented Dickey-Fuller (ADF) was used to test the null hypothesis of a unit root at a 5 percent level of significance. The null hypothesis of a unit root is rejected in favor of the stationary alternative in each case if the test statistic is more negative than the critical value. A rejection of the null hypothesis means that the series does not have a unit root. The result of the test as shown in table 2 above shows that all variables were stationary at first difference except balance of trade that was stationary at levels showing that the variables are mixed integrated.

C. ARDL Form and Bounds Test Results

Performing the cointegration test is necessary in order to establish whether or not, a long-run relationship exists between the variables. However, since the unit root test conducted showed that the series was integrated of a different order, I(0) and I(1), Tuaneh, (2019) reported that the Johansen technique of cointegration would no longer be valid and could not be applied. The bounds test proposed by Pesaran, Shin, and Smith was appropriate. The Long Run Autoregressive Distributed Lagged Form and Bounds Test for cointegration on each model were conducted and presented below;

Table 3: ARDL Bounds Test Result

F-Bounds Test		Null Hypothesis: No levels relationship			
Test Statistic	Value	Sign.	I(0)	I(1)	Conclusion
Asymptotic: n=1000					
F-statistic	7.073521	10%	2.26	3.35	Reject the Null
K	5	5%	2.62	3.79	
		2.5%	2.96	4.18	
t-statistic	-4.544974	10%	-2.57	-3.86	Reject the Null
		5%	-2.86	-4.19	
		2.5%	-3.13	-4.46	
		1%	-3.43	-4.79	

As presented in the table above, the analysis of the long-run relationship between the balance of trade and stabilization policy indicators is seen. The computed F-statistics (7.0735) and t-statistics (in absolute terms) are greater than the upper bound critical values at a 5 percent significance level, (3.9 and -4.19 respectively). Hence, the null hypothesis of a levels relationship will not be accepted. It is therefore concluded that there is a long-run relationship between the variables.

D. Long Run ARDL Test Result

Following the mixed integration of our series, the ARDL was applied and the results are shown in the table below;

Dependent Variable: BOT

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN MSS	-1139.201	561.7611	-2.027910	0.0522
LN INR	-4443.479	1234.150	-3.600437	0.0012
LN EXR	-1685.812	773.2512	-2.180161	0.0378
LN GXP	5235.814	1292.960	4.049479	0.0004
LN GTR	-1428.427	855.0367	-1.670603	0.1059
C	10898.72	6921.635	1.574588	0.1266

Table 4: Long Run ARDL Test Result

The result of the long-run coefficients as shown in the table above revealed that the coefficient of the money supply was negatively related to the balance of trade contrary to *a priori* expectation. The relationship was statistically significant at the 10 percent level. The implication of this is that a unit increase in money supply decreased the balance of trade by 1139.2 units. Interest rate exerted a very significant negative relationship on the balance of trade in line with theory. The argument here is that higher interest rates have the capacity of worsening the balance of trade (if demand is relative prices elastic) because it makes exports more expensive and imports cheaper. The exchange rate had a significant negative impact on trade balance contrasting *a priori* expectation. This is in line with the submission of Okoro (2013) & Lumengo (2017) but was at variance with the study by Rose (1991) on five major OECD countries and Wilson & Kua (2001) on Singapore and USA. The rationale behind this is that an increase in the exchange rate of the naira to the US dollar (which implies a depreciation of the currency) will cause the foreign price of exports in the country to fall making it more competitive. As a result, domestic goods become cheaper and imports more expensive thereby leading to an improvement in the balance of trade. Government expenditure exerted a significant negative influence on the balance of trade contrary to theoretical expectations. By implication, it means that if

government expenditure increases by a unit, the balance of trade will equally increase by 5235.8 units. Government tax revenue impacted negatively on the balance of trade in contrast to expectations implying that a one percent increase in government taxes dropped the balance of trade by 1428.4 percent.

E. Short-run dynamic model result

The result of the short-run dynamic model of balance of trade is depicted in the table below.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(BOT(-1))	0.825020	0.221199	3.729767	0.0012
D(LN MSS)	-1457.881	1713.903	-0.850620	0.4041
D(LN INR)	-4513.784	1843.884	-2.447977	0.0228
D(LN EXR)	-1048.274	884.4108	-1.185280	0.2486
D(LN EXR(-1))	2195.065	697.0237	3.149197	0.0047
D(LN EXR(-2))	-149.9547	699.6942	-0.214315	0.8323
D(LN GXP)	4744.045	1145.585	4.141154	0.0004
LN GXP(-1)	16.18708	91.12286	0.177640	0.8606
D(LN GTR)	-1180.286	1094.297	-1.078579	0.2925
D(LN GTR(-1))	-2484.589	779.6510	-3.186797	0.0043
D(LN GTR(-2))	-1294.298	585.5540	-2.210382	0.0378
ECM3(-1)	-1.283727	0.354371	-3.622550	0.0015
C	81.34156	1300.792	0.062532	0.9507

Table 5: Summary of the short-run ECM

Balance of trade in the one lagged period appeared with a positive sign implying that balance of trade in the previous year contributes positively to its current year's value. Money supply impacted negatively on the balance of trade although not significantly contrary to *a priori* expected and in line with the long-run result. The implication of this is that both in the long run and short run, the money supply did not impact positively on the trade balance in Nigeria for the period covered by the study. The interest rate on the other hand had a significant negative impact on the balance of trade. It is evident from the study that both in the long run and in the short run, interest rates impacted negatively on the balance of trade in Nigeria for the period covered by the study as expected in theory.

The exchange rate had mixed effects on the balance of trade. Its current and lag two-period have a non-significant negative impact on the balance of trade while the lag one period has a significant positive relationship with trade balance. By implication, it

means that an appreciation in the exchange rate of the naira in the long run improved trade balance while in the short run, it was detrimental to the balance of trade. This finding is at variance with the submission of Olugbon *et al* (2017). In line with the long-run result, the coefficient of government expenditure and its one-period lagged value contributed positively to the balance of trade contrary to *a priori*. This is consistent with the findings of Okoro (2013) but not in line with the submissions of [Wakeel & Ullah (2013), Cebi & Culha (2013), and Loanna (2017)]. Government tax for the current period, lag one and two periods turned out with a negative sign suggesting a deterrent effect on the balance of trade. The coefficient of the error correction term appeared with the right sign and was highly significant at a 1 percent level indicating that 128 percent of any disequilibrium in the previous year is reconciled in the current year. In other words, the divergence from short-run to long-run equilibrium in capital account balance was 128 percent in a year.

F. Post Estimation Test Result

Test Conducted	Test Statistic	Prob. Value	Null Hypothesis	Conclusion
Jarque-Bera	12.92	0.156	Normally distributed	Normally distributed
Breusch-Godfrey Serial Correlation LM	0.297	0.746	No serial correlation	No serial correlation
ARCH Heteroskedasticity	1.785	0.191	Homoskedasticity	Homoskedastic

Table 6. Summary of the Post estimation Test result

The test for normality of the residuals of our dynamic model using Jarque –Bera shows that the residuals are normally distributed at a 5 percent significance level given that the probability value (0.156) of the Jarque-Bera statistic (12.92) is greater than 0.05. The Breusch-Godfrey LM test for serial correlation showed that the residuals are not correlated. In other words, the null hypothesis of no serial correlation in the residuals cannot be rejected at a 5 percent level as the probability value (0.746) of the LM statistics (0.297) exceeds 0.05. Similarly, the heteroscedasticity test was done using the Autoregressive Conditional Heteroscedasticity (ARCH) test. The result indicates that the residuals have equal spread over the sample period, i. e., they are homoscedastic.

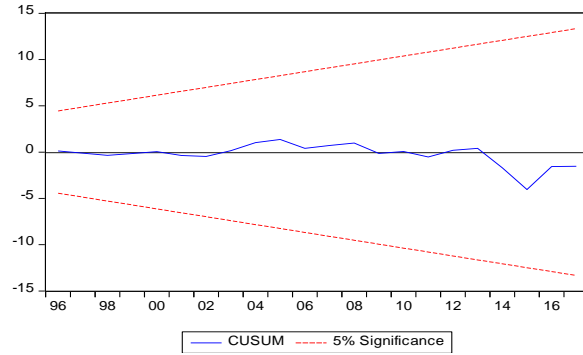


Fig. 1 CUSUM Test of Stability

The stability of the parameters in the dynamic model was examined using the plot of the Cumulative Sum of Recursive Residuals (CUSUM). The CUSUM in the figure above stayed within the 5 percent critical line, indicating the constancy or stability of the regression estimates throughout the period covered by the study. All these tests point to the fact that predicting changes in the balance of trade based on the explanatory variables can be achieved with a high level of accuracy and reliability.

V. CONCLUSION

The study, therefore, examined the relationship between stabilization policy indicators (specifically, monetary and fiscal policy) and the balance of trade in Nigeria for a 38-year time period, 1980 to 2017. The analysis started by examining stochastic characteristics of each time series by testing their stationarity using the Augmented Dickey-Fuller test which showed that all the variables were integrated at order I(1) except balance of trade which was stationary at levels. The ARDL model was used to estimate the coefficients of the parameters for both the short-run and the long-run. The F-statistics obtained from the bounds cointegration test show a stable long-run relationship among the balance of trade, money supply, interest rate, exchange rate, government expenditure, and government tax. It was revealed that most of the stabilization policy indicators had a significant negative impact on the balance of trade in both the long-run and the short-run, except for interest rate where the inverse relationship was expected *a priori*. The implication of this is that high-interest rates reduced trade balance in the long-run and short-run as well. In view of this, the study, therefore, concluded that a favorable interest rate is a key factor in achieving a favorable trade balance. The study, therefore, recommends that the monetary authority should implement interest rate policies that encourage an investment-friendly economy in order to attract foreign investors into the economy thereby boosting the balance of trade position of the nation. Also, the Nigerian government should embark on a

realistic diversification plan to enhance the productive base of the nation and also create awareness of the need for an enhanced export culture in the economy.

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