Macroeconomic Deficits and Public Debt Sustainability in Nigeria

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Abstract: *The paper examined the sustainability of Public debt as well as the causal relationship between fiscal and trade deficits in Nigeria from 1960-2019. The unit root, cointegration and granger causality were employed for the test of sustainability of budget and trade deficits in the framework of Non-Ponzi Game. The paper sourced data from Debt Management Office, Central Bank of Nigeria and World Development Indicators Bulletins. Results from the analysis shows that the Nigerian public debt policies are not sustainable. This implies that revenue have performed far below expectation leading to advances of the government to depend on internal and external debt to meet expenditure demand; it also shows that import exceeds export in real goods as such weaken the domestic currency. In addition, the result shows that there is no causal relationship between fiscal and trade policy in Nigeria. it implies that the rising trade deficit and fiscal deficit has no implication on each other in the recent time. Hence, the paper suggested among others that the managers of the Nigerian economy should institute stringent fiscal reforms, put in place a seamless and efficient tax return filing procedures to raise tax receipts and vigorously address the corruption pathogen ubiquitous in the facets of the country to ease the effect deficit financing.*
Keywords: *Debt, Trade-deficit, fiscal-deficit, Non-Ponzi Game, Tax-efficiency*

I.   Introduction

The clamor to fast-track the pace of economic growth and improve the general welfare of citizens have pushed many countries to embracing arms of International Financial Institutions suchas Multilateral and Bilateral creditors like the International Monetary Fund (IMF), World Bank, London club, Paris club, Exim Bank of China, and the likes. A common denominator of these countries, particularly Nigeria is that, its estimated capital and recurrent expenditure conveyed by means of the fiscal budget are often predicated on an over ponderous and immoderate revenue receipts. Most times, their estimated revenues are not realizable due to unrealistic assumptions such as weak fundamentals and structural imbalances. Consequently, the mathematics of the discrepancies between revenue and expenditures adds to an unprecedented deficit. These recurring episodes has placed successive government of the less developed countries in a Cornelian dilemma with the option of either cutting expenditure in sync with revenue or borrowing to complement the deficiency in revenue. As a rule, no government wants to be seen or perceived as doing little or nothing. Hence, successive government in Nigeria have jettisoned the idea of cutting expenditure either to boost revenue and/or has chosen the lesser evil of borrowing to make up for the shortfall in revenue; which have led to the trajectory of Nigeria's debt profile and a subject of major concern.

Social scientist scholars have documented the issue of deficits, debt and current account imbalances with dissimilar views (Van Bon, 2014; Trachanas & Katrakilidis, 2013; Neaime, 2015; Akalpler & Panshak, 2019; Abu & Gamal, 2020; Bakarr, 2014; Eyide & Nzewi, 2018; Ndubuisi, 2019). The views echoes those propagated by early thinkers such as the Mundell-Fleming hypothesis that emphasizes that budget deficit deteriorates the current account or trade account; as well as those whose study proclaimed that decision makers are rational and forward thinking, thus dismissing any negative consequence of public debt on current account believing that government could borrow more and roll over her debt without any welfare cost or fiscal cost (Blanchard 2019; Barro 1974). The intuition is that, if the economy grows at a rate over and above the interest on her debt, then the economy can grow itself out of debt. This argument may not have properly addressed the Nigerian economic situation. For example, she has been in consistent battle with excessive debt servicing, debt burden and debt overhang. She has witness increasing poor internally generated revenue and heavy government expenditures (recurrent expenditure) and thereby creates the emergence of persistent budget deficits. These constant present of budget deficits had induced upward movement of domestic interest rates, which may had led to instability in her foreign exchange rate; deteriorating trade deficit (current account imbalance); inefficient export revenue from real outputs (excluding oil products) and high levels of imports dependent and thereby

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worsen our Balance of Payment (BoP). Using data from 1960 to 2019 this paper use the unit roots and cointegration to know whether public debt policy are sustainable in Nigeria and also to examine whether fiscal deficit contributed to trade deficits. In the event where our empirical results validate significant effects of fiscal deficits on current account, what will be the implication on interest rates, exchange rates and economic growth rates. Hence these results are expected to guide policy maker to fine tune fiscal, monetary and exchange rates policies to deter future deterioration of fiscal deficit on current account deficits. Given the nature of the Nigeria socio-political structure we expect that the predominance of military and civil regimes will play a crucial role on how debt policies are being managed; hence, we divided the data to observe the sustainability of debt policy and causal relationship between fiscal and trade deficits between the regimes. The paper is divided into four part, where part 1 deals with the introduction. Part 2 deals with literature review and debt structure in Nigeria. Part 3 handle data and methodology, part four results and discussion and the paper is conclude in part five with useful recommendations

II.   Literature Review

The twin deficits of budget and current account deficits could be considered as Siamese twins as the presence of one announces the other. A clear direction of causality is thus veritable for policy formulations. There has been evolution in theory that tries to explain this relationship. Mundell (1963) and Fleming (1962) proposed a model that tries to provide insight into this linkage. Though restrictive in nature, the Mundell-Fleming (M-F) model assumes absence of autarky and a perfect mobility of capital, suggesting increased liberty for the economy to lend or borrow from external sources at current market rate. The assumption that local interest rate vary exogenously with movement in global rate of interest fuels the stance that changes in exchange rate is responsible for adjustment in the macroeconomy (Vamvoukas & Spilioti, 2015). According to Handoyo, Erlando & Astutik (2020), the underpinning of the Mundell-Fleming model is that an increase in fiscal deficits, brought on by increasing public spending, drives up domestic interest rate. As the economy experience surge in interest rate when juxtaposed with foreign rates, domestic savings rise which prove to be inimical for local investments. With the induced surge in interest rate and assuming free mobility of capital, the domestic economy will experience influx of foreign capital causing its currency to appreciate. The effect exerted by rising interest rate on the value of the domestic currency is determined largely by the system of exchange rate in operation (Vamvoukas & Spilioti, 2015). Under a flexible exchange rate regime, the condition of rising interest appreciates the domestic currency, thus causing the current account to deteriorate as export become costlier and import cheaper. Like the Mundell-Fleming model, the Keynesian absorption theory leaned towards a uni-directional causation extending from fiscal deficit to current account deficit (Ali, Johari & Alias, 2014). The absorption theory presents a train of thought completely in variance to the M-F model. In the framework, the domestic absorption increases with rising fiscal deficits. This subsequently causes import to expand, thus impairing the current account position (Handoyo, et. al., 2020). Domestic absorption is viewed in the sense of summation of government expenditure, consumption, imports and investment.

The position of the current account changes in the amount equal to the difference in the change between real income and domestic absorption. This is expressed as:

$$\Delta(X - M) = \Delta Y - \Delta(C + G + I)$$

As argued by Ali, et. al., (2014) improvement in the current account balance is only attainable when domestic absorption falls short of output growth. This is plausible where an economy has excess capacity. In an economy like Nigeria, challenged by supply slowdown, the possibility of output expanding becomes bleak and such imbalances can only be corrected by decreasing absorption. In clear push away from these theories, the Ricardian Equivalence theory of Barro (1974) propose zero causal association between the twin deficits. Expressed in a simpler construct, the hypothesis asserts that the current account is unaffected by budget deficits. Vamvoukas & Spilioti (2015) and Blanchard (2017) state that household savings increases with rising deficits as economic agents fail to adjust their consumption to reflect tax cuts. This is in response to the government running a primary surplus in the future to pay for its debts. The reasoning behind the theory is easy to script. As taxes are cut, the resulting deficit fail to stimulate the economy, as such tax decreases will be succeeded by higher tax liabilities. In this light, since the surge in private savings compensate adequately for government dis-saving, the current account will not degenerate as the deficits increases.

Empirical Literature Review

The literature considered is all-encompassing as its coverage extends beyond Nigeria, considering studies that focused on other economic blocs. Studying a panel of 10 Asian developing countries, Van Bon (2014) shows an inverse relationship between fiscal and current account deficits. Their results eminent from the application of the generalized method of moments (GMM) and pooled mean group (PMG) statistical techniques on the series studied over the period of 1985-2012. Karunaratne (2010) provided empirical backing validating

the Pitchford hypothesis in Australia. With the use of unit roots, cointegration and vector autoregression, the work shows the unsustainability of current account deficits during the fixed exchange rate period. However, during the post 1983q4, coinciding with the floating regime, current account was sustainable. Employing a battery of linear and asymmetric cointegration techniques. The result of Trachanas & Katrakilidis (2013) leaned towards existence of the twin deficits hypothesis in the five insolvent European economies of Greece, Italy, Ireland, Portugal, and Spain (the GIIPS). Algieri (2013) presented contrary evidence. The homogeneous results of both the traditional granger and Toda-Yamamoto test dismissed the twin hypothesis, asserting that the Ricardian postulation holds sway in the GIIPS. Roy & Gupta (2013) argued against the prevalence of the Ricardian hypothesis in Bangladesh. They employ the vector autoregression (VAR) and granger technique, sampling past evolutions from 1973-2012, to show causation runs from trade deficit to budget deficit, mutatis mutandis. Murshed & Nijhum (2019) contradicts this revelation, as it exposes a one-way form of causation from budget deficit to current account imbalances in Bangladesh. On the Nigeria frontier, Imimole, Imoughele & Okhuese (2014) observed the external debt of Nigeria to be unsustainable. Their investigation, which relied on data from 1986 to 2010, and the technique of error correction model roped debt servicing, gross domestic product and exchange rate as exacerbating the external debt. Bakarr (2014) having observed the behaviour of the series from 1980 through 2012, contend a deteriorating current account deficit in the long run with increased political instability, real GDP and growing fiscal deficits in Sierra Leone. The short run causes of imbalances in the current account were budget deficits and war. The work of Elhendawy (2014) present a compass that highlight plausible evidence of the twin deficit hypothesis in Egypt. The granger test established a feedback linkage between the two variants of deficits. The stance of Chen (2011) circles around the unsustainability of the current account of France, US, Canada, UK and Italy. Employing a battery of stationary tests, the paper advances that the current account imbalances of the G-7 countries of Japan and Germany are sustainable.

Neaime (2015) who studied 7 European countries in a Present Value Constraint (PVC) framework settled for, excluding Germany, the introduction of austerity measures in other G-7 countries owing to the unsustainability of their budget deficits. The paper resigns to the sustainability of fiscal policies in France and Germany. Studying 28 European countries in a panel framework, the evidence from Siničáková, Sulikova & Gavurova (2017) upon adoption of the granger test points to presence of the twin imbalances in the Euro zone. Gnimassoun & Coulibaly (2014) provided proof of sustainability of the current account of 44 sub-Saharan Africa countries. They espoused that a flexible exchange rate policy contributes immensely to the sustenance of the current account. Neaime (2014) using the econometric techniques of unit root and cointegration show that the public debt of Lebanon is unsustainable. The result depicts a worsening current account balance as fiscal deficits rises.

Vicissitudes in exchange rate tend to have un-identical consequence(s) on an array of macroeconomic variables. Hall, et al., (2010) in a panel framework considered 10 emerging market economies (EMEs) and 11 developing countries not categorized as EMEs, shows using the generalized method of moments (GMM) and time-varying coefficient (TVC) the insensitivity of export of EMEs to exchange rate volatility. In a specific approach, Erda et al., (2014) found agricultural export positively affected by variability in exchange rate, with its impact on agricultural import found to be negative.

On a micro basis, Cheung & Sengupta (2013) avers that firms that export services in India are more susceptible to exchange rate risk. Their study also furnished proof of significant decrease in Indian firms' export shares invoked by currency appreciation and currency volatility. Indistinguishable conjecture was reached in the work of Demir (2013) using a dynamic panel data technique. The GMM result suggest exchange rate volatility stiffens the growth of firms in Turkey.

Solow's hypothesis highlighted the influence of capital on economic growth. Confronted with the dynamics in revenue generation, countries resort to external or internal financial institutions to bridge the saving-investment gap and fund expenditure. Malik, et al., (2010) using the ordinary least squares (OLS) method, empirically investigated the impact of external debt on the economic growth of Pakistan. It was shown that external debt exercise deleterious consequence on the economy of Pakistan. This discovery was resonant in these studies (Atique & Malik, 2012; Farhana & Chowdhury, 2014). Awan, et al., (2011) showed using a VEC model that the growth in Pakistan's external debt is positively influenced by exchange rate. Sheikh, et al., (2010) presented a variant position empirically providing proof to support domestic borrowing as the OLS result conveyed economic growth in Pakistan to be positively impelled by stock of domestic debt. Exploring the causation between public debt and economic growth in a sample of OECD countries, Panizza & Presbitero (2014) found evidence of no causation. In a multivariate analysis, Kasidi & Said (2012) furnished proof buttressing the promotion of economic growth in Tanzania through external borrowing. Karagol (2012) experimentally conveyed that debt servicing has capability to slow down growth in Turkey. These studies affirmed similar relation (Malik, et al., 2010; Sheikh, et al., 2010; Kasidi & Said, 2013).

Evidence from the ordinary least square (OLS) estimator used by Ogba (2014) is that the deterioration of trade imbalances expands the deficit size of the Nigerian budget. Olatunde & Temitope (2017) who sampled annual series from 1981 to 2015 avers that fiscal deficits represses sectoral output in Nigeria. Amaghionyeodiwe

& Akinyemi (2015) in a vector error correction (VEC) framework empirically validated the prevalence of the twin hypothesis and that the Mundell-Fleming postulations resonates in Nigeria. The inquisition made by Akalpler & Panshak (2019) and Abu & Gamal (2020) buttresses these findings.

Tombofa, Edoumiekumo & Obudah (2013) utilizing a cointegration regression approach with the sample range of 1981-2010, showed economic growth deterred by external debt. This inference was established in several studies (Eyide & Nzewi, 2018; Onakoya & Ogunade, 2017; Okungbowa, Oligbi & Iyoha, 2018; Emerenini & Nnanna, 2015; Iyoha, Ighodaro & Oligbi, 2016; Ijeoma, 2013; Asogwa, Okechukwu & Onyekwelu, 2018; Adamgbo, 2016). In clear contrast to these studies, external debt has been found instrumental to spur economic growth in Nigeria (Sanibi, et al., 2016; Onyema, 2018; Dauda, Akintunde & Onyeka, 2019; Sulaiman & Azeez, 2012; Okoye, 2019). Occupying the centre of the dichotomy, some studies detected absence of significant causation between external debt and economic growth (Ndubuisi, 2019; Abdullahi, Aliero & Abdullahi, 2013; Yousuo & Azebi, 2017).

The Nigeria Debt Structure and Literature review

The trajectory of Nigeria's debt profile has been on the ascendancy and a subject of concern. The outset of the subtle and continuous increase in Nigeria's debt stock is traceable to the early 1920s. The then British government on the behalf of Nigeria secured a loan amounting to £5.7 million with an annual interest of 2.5 per cent and repayment period of 20 years. The ascendancy continued and by the dawn of 1936, an additional loan of £4.89 million was procured, culminating to a public debt stock of £9.89 million. The debt burden continued unabated, as the country's debt stock rose to £21.24 million by the end of 1952. With the end of the colonial rule and a debt burden in the region of £17 million, Nigeria further acquired a loan of about $31 million from the Paris club of creditors; priced at an interest rate of 3.5 per cent annually, payable over 20 years (BudgIT, 2019).

The periods succeeding the colonial rule has seen tremendous growth in Nigeria's debt stock. With a combination of influencers like volatile crude oil price and unpaid interests, Nigeria's external debt to all her creditors rose to $19 billion in 1985. As at the end of 2004, the debt portfolio rose further to $36 billion. A relapse in the growth of debt stock was witnessed in 2005 when the Nigerian government struck an agreement with the Paris Club of creditors to buy back $30 billion of Nigeria's $32 billion external debts by means of a lump sum payment of $12 billion. This historic episode drastically reduced her debt stock, as external debt stock dropped to $3.4 billion in 2007 (Adedoyin, et al., 2016; Omodero & Alpheaus, 2019).

The benefit of this feat was short-lived as the debt stock profile rose with successive governments. Available data divulged a consistent increase in both domestic and external debt. In 2011, outstanding domestic debt stood at N5.623 trillion. This rose to N7.904 trillion and N8.837 trillion in 2014 and 2015 respectively. External debt as at the end of 2013, 2014 and 2015 was $8.82 billion, $9.71 billion and $10.72 billion respectively (DMO, 2019). Nigeria's total debt profile grew from N12.6 trillion in 2015 to N25.7 trillion in the second quarter of 2019, representing a 104 per cent increase. In advance of the coronavirus pandemic, Nigeria was to receive a loan of $22.7 billion from external creditors (equivalent to N6.923 trillion) ensuing from the endorsement of the National Assembly which would have reportedly catalyzed her debt stock to N33.78 trillion. The growth in debt profile could be substantiated with the argument that debt has growth-inducing potentials with literature providing empirical evidence (Sulaiman & Azeez, 2012; Saifuddin, 2016; Onyema, 2018; Thao, 2018; Dauda, et al., 2019).

The rising trend in debt stock has chain effects as the debt service payments increases with the growth in the size of debt (Udi, et al., 2018). Statistics from the Debt Management Office (DMO) validates this rationalization. In the fiscal year 2008, N471.275 billion was expended on domestic debt service. This leapfrogged to N886.809 billion in 2014. Analysis within the range 2015-2019 revealed that the amount committed to servicing of both domestic and foreign debts rose with each successive fiscal budget. A total of N943 billion was spent on debt service in 2015. Debt servicing gulped N1.36 trillion in 2016; N1.66 trillion in 2017; N2.23 trillion in 2018, and N2.14 trillion in 2019. Reports indicated that a total of N1.6 trillion was spent on domestic debt servicing from January to December of 2019 (DMO, 2019). In July 2019, a total of N202.54 billion was incurred in servicing four of the five major domestic debt instruments (Nigerian Treasury Bills; Treasury Bonds; Federal Government of Nigeria Bonds; FGN Saving Bonds; and FGN Sukuk), N172.66 billion spent in August, and N231.67 billion in September across the five instruments (DMO, 2019). In the fiscal budget for 2020, domestic and foreign debt service is expected to gulp about N2.7 trillion.

III. Data and Methods

This paper tested for twin deficits in macroeconomics, fiscal and trade deficits. The data for the paper are collected from the Central Bank of Nigeria (CBN) Statistical Bulletin various issues, Debt Management Office (DMO) Bulletin and the World Development Indicators (WDI). The paper followed the spirit of Neaime (2014) on the empirical framework of Non-Ponzi Game (NPG) and replicated same with Nigerian data. The NPG or Transversality condition assumed that the present value of government debt should converge to zero in

the indefinite future that is, Debt shall grow more slowly than the rate of interest. It is in the light of this position that we used information on Government Expenditure, Government Revenue, Export, Import, External Debts and ratio of External Debt to Export for the paper.

The stationarity properties of the data are tested with the conventional Dickey-Fuller (DF) (1979) equation and results validated with works of Philip-Perron (PP) (1987). The test methods are chosen above other unit root test in literature because they report the same hypothesis. We equally observed that the DF test is parametric whereas the PP test is nonparametric making it a good choice for validation of our results. The outcome of the unit roots tests is reported on table 1. The tests are carried out with references to the three assumptions specified for unit root (Random walk, constant and trend assumption). The maximum lag-length where provided by the researcher and the optimal lag-length selected automatically from the software. On the issues of cointegration we follow the methods developed by Engel & Granger (1987), twostep cointegration techniques and the methods of maximum likelihood by Johansen & Julius (1990). Further test on the causality suggested that when the order of integration of the variables are mixed, Granger causality should be test based on the work of Toda-Yamamoto (TY). It is emphasized in literature that one of the problems associated with the estimations of a multivariate macroeconometric model is the lag length selections. There are at least six benchmarks identified in econometric literature: The Akaike Information Criterion (AIC), the Schwarz Information Criterion (SIC), the Hannan–Quinn Criterion (HQC), the general-to-specific sequential Likelihood Ratio test (LR), a small-sample correction to that test (SLR), and the Lagrange Multiplier (LM) test. Econometric scholars have suggested the SIC procedures for lag-length selection in small sample multivariate econometric models and the AIC for large sample multivariate econometric models; however other scholars have shown empirical evidence an opposite conclusions (Sun, Ford, & Dickson, 2010). Immediately, after observing the stability conditions of the variables in the models, we relied on the SIC for the selection of lag-length. The estimated models are satisfied after meeting the mathematical requirement of stability, or stationary conditions (i.e., is the roots of the companion matrix must be inside the unit circle in absolute value), it must meet the LR criterion, it must pass the miss-specification tests (i.e., residual normal distribution, autocorrelation, ARCH and heteroscedasticity).

Model Specification
Model for VAR

$$lnX_t = \alpha_0 + \sum_{i=1}^{k} \alpha_{1j} lnX_{t-i} + \sum_{j=1}^{k} \alpha_{2j} lnY_{j-i} + \varepsilon_{1t} \qquad (1)$$

$$lnY_t = \beta_0 + \sum_{i=1}^{k} \beta_{1i} lnY_{t-i} + \sum_{j=1}^{k} \beta_{2j} lnX_{t-i} + \varepsilon_{2t} \qquad (2)$$

Vector Autoregression (VAR) model is best when all the series are integrated at order I(0) or stationary.

Model for VECM

$$lnX_t = \alpha_0 + \sum_{i=1}^{k} \alpha_{1j} lnX_{t-i} + \sum_{j=1}^{k} \alpha_{2j} lnY_{j-i} + \lambda_1 ECM_{t-1} + \varepsilon_{1t} \qquad (3)$$

$$lnY_t = \beta_0 + \sum_{i=1}^{k} \beta_{1i} lnY_{t-i} + \sum_{j=1}^{k} \beta_{2j} lnX_{t-i} + \lambda_2 ECM_{t-1} + \varepsilon_{2t} \qquad (4)$$

When the series are integrated at order I(1) and cointegration ascertained, then causality should be tested with Vector Error Correction Model (VECM).

Model for VAR-in-1st-Differences

$$\partial lnX_t = \alpha_3 + \sum_{i=1}^{k} \alpha_{4i} \partial lnX_{t-i} + \sum_{j=1}^{k} \alpha_{5j} \partial lnY_{t-j} + \varepsilon_{3t} \qquad (5)$$

$$\partial lnY_t = \beta_3 + \sum_{i=1}^{k} \beta_{4i} \partial lnY_{t-i} + \sum_{j=1}^{k} \beta_{5j} \partial lnX_{t-j} + \varepsilon_{4t} \qquad (6)$$

VAR in 1ST difference have been suggested for situations where the series are purely I(1) and non-cointegrated.

Model for TY

$$lnX_t = \alpha_{20} + \sum_{i=1}^{k} \alpha_{21i}lnX_{t-i} + \sum_{i=k+1}^{k+dmax} \Phi_{22j}lnX_{t-j} + \sum_{j=1}^{k} \alpha_{23i}lnY_{t-i} + \sum_{j=k+1}^{k+dmax} \Phi_{24j}lnY_{t-j} + \varepsilon_{2t} \quad (7)$$

$$lnY_t = \alpha_{30} + \sum_{i=1}^{k} \alpha_{31i}lnY_{t-i} + \sum_{i=k+1}^{k+dmax} \Phi_{32j}lnY_{t-j} + \sum_{j=1}^{k} \alpha_{33i}lnX_{t-i} + \sum_{j=k+1}^{k+dmax} \Phi_{34j}lnX_{t-j} + \varepsilon_{3t} \quad (8)$$

IV.   Results and Discussion

Following the framework of Neaime (2014) we observed that fiscal and exchange rates policies in Nigeria are not sustainable. This deduction is reached because the series on government expenditure, government revenue, budget deficit and debts (domestic, external and total debt) which are instrument of fiscal police are not stationary on the basis of the three criteria of unit root tested (see table 1.). The results imply that the Non-Ponzi Game assumption is violated such that debt and fiscal policy in Nigeria are not sustainable over the period of study. We equally noticed that, the series on exports, imports and the ratio of external debts to exports which are the instrument of trade policy are not stationary on the basis of the three criteria they were subjected to. However, trade deficit exhibits mixed results in the present of the two tests. That is, PP test could not have verified the DF test results in the present of random walk and constant. Thus, we could only ascertain that the Non-Ponzi Game assumption is violated and that debt and trade policy in Nigeria is not sustainable over the period of study.

The cointegraion test was used for the verification of the results of unit root tests and the selections of appropriate models for causality test in the study as identified in literature. Part I of table 2 shows the test of short-term and long-term relationship between government revenue and expenditure in Nigeria. The empirical evidence suggested that there is no-long relationship between government expenditure and revenue, that is, the both series are swerving making fiscal policy unsustainable in Nigeria. The absent of cointegrating relationship confirmed by the Johansen technique shows that the both instrument of government policy diverge irrespective of the timeframe. The outcome of the unit root and cointegration results indicates that government revenue, especially tax revenue has performed far below expectation leading to advances of the government to depend on internal and external debt. Thus, the government of Nigeria should reduce spending (especial recurrent spending) in the near future and/or improve sources of revenue collection as to bridge the gap between budget deficits. Part II of table 2 reports the cointegration relationship between export and import. Empirical evidence suggested that there is no relationship between the instruments of trade policy in Nigeria within the study period. The validation of no cointegration by the Johansen technique indicates that the instrument of trade policy in Nigeria swerved. The observation in this paper are equally validated by empirical works of other scholars, for instance our finding is in-line with the empirical evidence of Karenarantne (2010), Chen (2014), Sinicakova et al, (2017) and Imimole et al, (2014) whose studies show unattainability of current account balance in various economies. However, our result agrees less with the observation of Gnimassoun & Coulibaly (2014) that current account deficits are sustainable in about 44 sub-Saharan African countries. The outcome is that unsustainability of the current account ratio exposes how the Nigerian economy is more import dependent, that is, import exceeding export in real goods and as such weaken the domestic currency. Hence, we can assume that the Nigerian internal (budget) and external (current account) deficits are unsustainable for the study period.

Table 1: Unit Roots Test

	Panel I: Test Random Walk							
	DF				**PP**			
Variables	Levels	FD	5%		Levels	FD	5%	Decision
CAB	-1.62	-9.49**	-1.95		-2.59**	-9.56**	-1.95	I(1)
BDF	3.96	-4.43**	-1.95		7.60	-4.28**	-1.95	I(1)
EXP	2.46	-6.09**	-1.95		2.19	-6.25**	-1.95	I(1)
IMP	2.89	-3.29**	-1.95		2.21	-6.26**	-1.95	I(1)
EDT	0.86	-4.92**	-1.95		0.85	-4.88**	-1.95	I(1)
DDT	1.62	-2.00**	-1.95		1.79	-3.41**	-1.95	I(1)
EDT/EXP	-1.65	-9.14**	-1.95		-1.60	-9.09**	-1.95	I(1)
GEX	3.34	-2.63**	-1.95		2.02	-5.65**	-1.95	I(1)
GRE	2.45	-6.51**	-1.95		2.02	-6.67**	-1.95	I(1)
	Panel II: Test Constant							
	DF				**PP**			
Variables	Levels	FD	5%		Levels	FD	5%	Decision
CAB	-1.93	-9.40**	-2.92		-2.94**	-10.12**	-2.91	I(1)
BDF	3.35	-4.60**	-2.92		6.62	-4.48**	-2.91	I(1)
EXP	-0.57	-7.61**	-2.92		-0.56	-7.62**	-2.91	I(1)
IMP	-0.23	-7.74**	-2.92		-0.22	-7.73**	-2.91	I(1)

Variables	DF Levels	FD	5%	PP Levels	FD	5%	Decision
EDT	-0.95	-5.68**	-2.92	-0.94	-5.69**	-2.91	I(1)
DDT	-2.32	-6.29**	-2.92	-2.60**	-6.25**	-2.91	I(1)
EDT/EXP	-2.15	-9.05**	-2.92	-2.16	-9.01**	-2.91	I(1)
GEX	-0.94	-8.35**	-2.92	-0.94	-8.31**	-2.91	I(1)
GRE	-1.00	-8.25**	-2.92	-1.00	-8.24**	-2.91	I(1)

Panel III: Test Constant and Trend

	DF			PP			
Variables	Levels	FD	5%	Levels	FD	5%	Decision
CAB	-2.34	-9.30**	-3.49	3.39	-9.97**	-3.49	I(1)
BDF	1.90	-5.0**	-3.49	3.77	-4.80**	-3.49	I(1)
EXP	-2.08	-7.56**	-3.49	-2.13	-7.57**	-3.49	I(1)
IMP	-2.19	-7.67**	-3.49	-2.31	-7.66**	-3.49	I(1)
EDT	-1.03	-5.65**	-3.49	-1.32	-5.65**	-3.49	I(1)
DDT	-1.38	-6.59**	-3.49	-1.51	-6.63**	-3.49	I(0)
EDT/EXP	-2.09	-9.01**	-3.49	-2.09	-9.01**	-3.49	I(1)
GEX	-1.64	-8.41**	-3.49	-1.78	-8.41**	-3.49	I(1)
GRE	-1.87	-8.18**	-3.49	-2.04	-8.18**	-3.49	I(1)

Source: Author Computations from E-view Results. Note that ** ≤0.05 level of significance.

Table 2: Cointegration Test

Part I: Cointegration Test: Fiscal Policy Actions (Government Revenues and Expenditures)

Johansen & Julius Test						Engel & Granger Test					
Hypothesis		Critical Values									
Null	Alterative	Trace Stat.			5%			ADFa			ADFbc
		1970	2000	1961	1970	2000	1961	1970	2000	1961	1970	2000	1961
r=0	r ≥ 1	18.77	8.25	13.25	15.49	15.49	15.49	-4.14	-2.35	-3.31	-4.13	-4.30	-3.28
r≤1	r = 2	2.93	1.82	4.29	3.84	3.84	3.84	(-1.95)	(-1.96)	(-1.95)	(-3.51)	(-3.69)	(-3.49)

Part II: Cointegration Test: Trade Policy (Exports and Imports)

Johansen & Julius Test						Engel & Granger Test					
Hypothesis		Critical Values									
Null	Alternative	Trace Stat.			5%			ADFa			ADFbc
		1970	2000	1961	1970	2000	1961	1970	2000	1961	1970	2000	1961
r=0	r ≥ 1	19.58	11.60	22.29	15.49	15.49	15.49	-3.10	-1.64	-4.32	-3.02	-2.39	-4.23
r≤1	r =2	2.97	4.69	4.62	3.84	3.84	3.84	(-1.95)	(-1.96)	(-1.95)	(-3.51)	(-3.69)	(-3.49)

Source: Author Computations from E-view Results. Note that **ADFa** and **ADFbc** indicates DF test with random walk and constant+Trend assumptions.

Table 3: Causality Tests on Budget and Current Account Deficit

	Part I: Period of 1961 to 2018					
Hypothesis	No. Obs	D.F	Chi-sq[1]	P. Value	Decision
CAB does not Granger Cause BDF	56	1	7.3822**	0.0066	Bidirectional Causality
BDF does not Granger Cause CAB	56	1	6.0956**	0.0136	

	Part II: Period of 1970 to 2018					
Hypothesis	No. Obs	D.F	Chi-sq[1]	P. Value	Decision
CAB does not Granger Cause BDF	49	1	6.3838**	0.0115	Bidirectional Causality
BDF does not Granger Cause CAB	49	1	5.4835**	0.0192	

	Part III: Period of 1980 to 2018					
Hypothesis	No. Obs	D.F	Chi-sq[1]	P. Value	Decision
CAB does not Granger Cause BDF	39	1	4.9293**	0.0264	Bidirectional Causality
BDF does not Granger Cause CAB	39	1	4.6478**	0.0311	

	Part IV: Period of 2000 to 2018					
Hypothesis	No. Obs	D.F	Chi-sq[1]	P. Value	Decision
CAB does not Granger Cause BDF	19	1	1.7476	0.1862	No Causality
BDF does not Granger Cause CAB	19	1	3.5763	0.0586	

Source: Author Computations from E-view Results. Note that ** ≤0.05 level of significance.

Table 3 shows the short run causal effects of fiscal and trade deficits in Nigeria. The test was conducted with recourse to the political economy of Nigeria. The data were grouped into two (1961-1999 and 2000-2019). This is because the political economy of Nigeria was basically controlled by excessive presence of military rule from 1963 to 1999, whereas from 2000 to 2018 the political economy of the country experienced successive civil rule. The distinctions of the political economy of the country are important due to the Axiom of the Odious Debt. The short run granger causality tests indicate bidirectional causal effects between trade deficit and budget

deficit in Nigeria within the military rule (i.e., bidirectional causality in the periods of 1961-2018, 1970-2018 and 1980-2018.). The finding is in-line with results of Elhendawy (2014) using the Egyptian data. There is a strong impact of current account deficits on trade deficit and vice versa. That is the raise in budget deficit have increased trade deficit in Nigerian during the military regime. There were no causal effects between trade deficit and budgets deficit in the era of civil rule in the country. The empirical results are plausible because the reduction of imports of real goods in favour of export started in the late 1960 with increasing budget deficit in the early 1970s to 1999. The rise in fiscal deficit have gave birth to low national saving and increase interest rates, as such lead to the weakening of the domestic currency and deficit current account balance in the military regime. This result is trace to the notion that budgets deficit was finance by current account deficit and in turn current account deficit were finance by natural resource rents (crude oil revenue). Thus, there was a strong bidirectional linkage between the twin macroeconomic deficits in Nigeria in the military era. However, the deviation of the results in the civil rule can be credited to the 2005 heavy debt write-off and heterogeneous exchange rates policy in place. Where trade (current account) deficits are been finance by the drawing from external reserved to ease pressure on the domestic currency and budget deficit finance by the higher revenue from natural resource especially within the 2000 and 2014. In rent time, the rise in budget deficits in the country coursed by the drastic shortfall in crude oil prices (especially within 2015 to 2020); and the increased interest rates and dampen national saving; government external purchases have further widened the trade deficit and the deflation of the country's foreign reserves. Nevertheless, the maintaining of higher interest rates has attracted foreign investment into the economy as a result improving the value of the domestic currency and adding to the country external reserves and a relative favourable exchange rates policy.

V. Conclusion and Recommendations

In this paper, we examined the sustainability of the twin macroeconomic deficits in Nigeria from 1961 to 2018. We collected data from CBN bulletin, DMO office and WDI bulletin. The unit root test, cointegration test and Granger causality were used for the test of sustainability of public debt (internal and external) as well as budget and trade deficits in the framework of the Non-Ponzi Game. We observed that public debt polices in Nigeria are not sustainable and as well violated the NPG assumption, it shows that rising trade deficit and fiscal deficit has no implication on each other in the recent time and play less in the exchange rates policy of the country. This is due to the nature of exchange rates regime (Heterodox monetary and exchange rates policy) practice within 2000 to 2018. Bidirectional causality was observed between the twin macroeconomic deficit within the period of 1961-2018, 1970-2018 and 1980-2018 whereas we could not find any causal relationship between the twin macroeconomic deficits in the period of 2000 to 2018. Although the heavy debt burden in Nigeria was written-off in 2005, the country has started accumulating more debt to the tune of about 25.7 trillion Naira in 2019. The huge accumulation of debt and debt servicing (internal and external) from 2009 to 2020 implies that Nigeria would have to rely on external financing to fund her expenditures. This will worsen the current account balances, budget deficits, exchange rates and intensify the pressure on the Central Bank of Nigeria to devalue the domestic currency as such further depletion of the external reserves in the near future.

To manage the future effects of the huge debt and debt servicing, trade deficits and current account deficit, policy makers will have to:

i.   Prop up the volume of domestic saving through the medium of deficit reduction, domestic interest rate reduction, and encouraging households to save.
ii. The nation managers need to institute stringent fiscal reforms, put in place a seamless and efficient tax return filing procedures to raise tax receipts and vigorously address the corruption pathogen ubiquitous in the facets of the country.
iii. The managers of the economy should be foresighted by providing immediate substructures and buffers that could dilute the attendant futuristic depreciation of exchange rate.

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