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Effect of Public Debt on Inflation Rate in Nigeria

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Abstract
This study examines the effect of public debt on inflation rate in Nigeria for the periods of 1985 to 2020 using Autoregressive Distributed Lag technique to analyze the data. The study employs ex post facto research design with the use of time series secondary data. The study measures public debt with domestic and external debt while the consumer price index was used to measure the inflation rate in Nigeria. The study tests for stationarity of the time series secondary data with Augmented Dickey Fuller Test and the result of the results of the test suggest that domestic and external debts were stationary at first difference, except inflation rate that was stationary at level. The study found that domestic debt has significant positive effect on inflation rate in Nigeria, while external debt has no significant effect on inflation rate in Nigeria. Based on these findings, the study concludes that there is inflationary effect of domestic debt in Nigeria. The volume of domestic debt increases the price level. External debt has become an important source of budget deficit financing. Increases in government external debt tend to increase inflation in Nigeria. The study recommends that Government must increase her revenue base and lower its recurrent expenditure .Commitment to budget discipline should be encouraged for fiscal discipline on the part of the government and its agencies.

Keywords: Public Debt, Domestic Debt, External Debt, Inflation Rate

1. Introduction

The control of inflation is vital to the monetary and fiscal policy objectives of the government. Given the important role public debt plays in fiscal deficit financing, the relationship between public debt and inflation has emerged as a topical issue in the past decades. Policymakers have started wondering whether the changing levels of public debt have any influence on inflation. During the process of a country's development, inflation is inevitable. Monetary authorities, economists, as well as policy analyst have overtime worried over the adverse effects of inflationary pressure that emanate from public debts (Philip & Oseni, 2012). Historically, inflation is driven by oil price shock and increased food prices,

particularly in developing countries like Nigeria, leading to ineffectiveness of government in containing it. For example, Nigeria inflation reached a double digit in 2016 by 15.68%, 16.52% in 2017, 12.09%in 2018, 11.4% in 2019 and 12.88% in 2020 Central Bank of Nigeria [CBN], 2020). This implies that there is need for policymakers to be mindful of the rising inflation in Nigeria.

The rising trend in Nigeria's public debt has sparked some interest about the relationship between inflation and public debt. While some studies like (Nguyen, 2015; Martin, 2015; Romero & Marin, 2017; Aimola & Odhiambo, 2021) argue that public debt affects inflation, others such as (Taghavi, 2000; Essien, Agboegbulem, Mba & Onumonu, 2016) are of the view that public debt has no influence on inflation. As different countries resorted to public debt in order to raise additional financial resources unobtainable through taxes, theoretical and practical concerns to identify and assess the effects of public debt on different aspects of the economic and social life intensified in recent years.

With the current 'fast' depreciation of the naira, coupled with the increasing trend in inflation rates, this study analyses the effect of public debt on inflation rate in Nigeria. Although, the causes and consequences of a higher and rising inflation are many, this study focuses just on public debt (external and domestic). Public debt is a fundamental tool used by the governments in both developed and less developed countries to finance expenditure gaps. Proper and efficient utilization of the resources in the form of debt may enhance productive capacity and economic growth through development related projects. However, if the debt is not effectively utilized and managed, it creates problems for the economy.

Borrowing from the Central Bank has no direct cost but carries a serious risk of inflation due to excess aggregate demand caused by an increase in money supply. Therefore, if the government borrows directly from Central Bank, it is alike to printing money. It is a very inflationary approach and is not usually encouraged. Moreover, if the government has a loan from Central Bank to finance its expenditures and meet financial difficulties, it has to issue some treasury bills in exchange for debt. If the government fails to collect revenues through tax or non-tax sources and cannot service the debt, the money stock may increase excessively, involving inflationary issuing of money. However, there are some particular cases when public debt can lead to increase of the existing money supply and, thus, create favorable conditions for the manifestation of inflation. Also, when significant public debts are accumulated, public authorities could be more willing to reduce them by unconventional means, such as the amortization through inflation.

Sims (2016) opined that persistent and growing fiscal deficit finance through public debt will eventually produce inflationary pressures, regardless of the policies followed by the Central Bank. Hence, debt-financed deficits will

require effective coordination with the monetary authority to avoid high and unstable inflation rates that may be harmful to macroeconomic stability. Aimola and Odhiambo (2018) averred that the effectiveness of monetary policy in controlling inflation critically depends on its coordination with fiscal policy, suggesting that granting Central Bank autonomy in the hope that it will insulate an economy from having to accommodate imprudent fiscal policies, may not be successful at curbing inflation. The Fiscal Theory of the Price Level, as embedded in the non-Ricardian policy shows that fiscal authority alone can dominantly influence inflation irrespective of monetary policy.

The relationship between public debt and inflation becomes even more important in a country such as Nigeria as changes in public debt levels tend to be linked to rising fiscal deficits. Although a number of studies such as (Taghavi, 2000; Ahmad, Sheikh & Tariq, 2012; Nastansky, Mehnert & Strohe, 2014; Nguyen, 2015; Martin, 2015; Romero & Marin, 2017; Aimola & Odhiambo, 2021) have attempted to examine the relationship between public debt and inflation using cross country data and country specific data that are outside the chores of Nigeria, very few studies have been conducted in Nigeria, such studies are the studies of (Essien, Agboegbulem, Mba & Onumonu, 2016; David & Emmanuel, 2017; Odior & Arinze, 2017) they used Vector Auto regression and Vector Error Correction Model, this current study departs from prior studies in Nigeria by adopting Autoregressive Distributed Lag Model which does not require all the variables to be stationary at first difference as the Johansen framework and it is still applicable if there are variables that are stationary at level and first difference in the data set. This indicates that not many studies have been conducted on the relationship between public debt and inflation in Nigeria where public debt has played a vital role in the funding of fiscal deficits in Nigeria. The main objective of this study is to examine the effect of public debt on inflation rate in Nigeria using data from 1985 to 2020. The specific objectives are to assess the effect of domestic and external debt on inflation rate in Nigeria.

The paper is structured into five sections. Section one is the introduction, section two stands for literature review, section three is methodology adopted for the study, section four is results and discussion, while section five is the conclusion and recommendation

2. Literature Review

2.1 Conceptual Review

2.1.1 Concept of Public Debt

Public debt occurs when a government borrows to offset its deficits or for the development of its economy. Public debt is an obligation of a government and is also referred to as sovereign or government debt. It is a term for all the money owed at any given time by any branch of the government.

Rosen and Gayer (2014) submit that public debt can be defined as transfer of money between future taxpayers and today's bond holders. Even if the debt is re-financed, future generations will have to pay interest related to borrowing. Thus, it seems that borrowing burden is inevitable to future generations. Public debt encompasses debt owed by the federal government, the State government, and even the municipal and local government. Public debt may include all the outstanding amount of loans borrowed and the bonds issued directly by the federal government and the loans guaranteed by it, as well as the loans and bonds borrowed or issued by parastatals, States and the central government.

2.1.2 Concept of Domestic Debt

Domestic debt is generated through borrowing from the domestic markets and it refers to the amount of debt held by domestic holders and is comprised of treasury bills, government bonds, corporate loans Martin (2015). Oshandami (2006) defines domestic debt as debt instrument issued by the federal government and dominated in local currency. In principles, state and local government areas can issue debt instrument, but their ability to issue such debt instrument must consist with the treasury certificates, federal government development stock and treasury bonds. Out of these, treasury bills, treasury certificate and development stocks are marketable and negotiable while treasury bonds ways and advances are not marketable but held solely by the Central Bank of Nigeria.

2.1.3 Concept of External Debt

External debt is the outstanding loan that one country owes to another country or institutions within that country. External debt also includes payments due to international organizations such as the International Monetary Fund. External debt is generated through borrowing from the international markets and is referred to the amount held by foreign holders and is made up of three categories of creditors; Bilateral, Multilaterals and commercials.

External debt is the amount, at any given time, of disbursed and outstanding contractual liabilities of residents of a country to nonresidents to repay principal, with or without interest, or to pay interest, with or without principal. From the point of view of the creditors, external debts can be classified into two broad categories, that is, official creditors and private creditors. Official creditors include international organizations, such as, the World Bank Group, while the private creditor includes the Euro-Dollar market and other international capital markets. Loans from these two sources usually come on "soft" and concessionary terms and have relatively longer maturity term and low rates of interest (Anyanwu, 1988).

2.1.4 Concept of Inflation Rate

Inflation rate is another measure of macroeconomic stability and one of the important macroeconomic variables that affect the decision of foreign investors in Nigeria. Inflation refers to the annual percentage changes in consumer prices, and it has been employed in past studies on public debt and macroeconomic stability (Bilan & Roman, 2014).

Dornbusch, Fischer and Startz (2011) define inflation as the percentage rate of increase in the general price level. Meanwhile, Bilan & Roman (2014) defines inflation as an increase in the overall level of prices.Inflation rate occurs when the buying power of a currency falls due to a rise in prices for goods and services in the economy (Comley, 2015). More so, inflation increases production when the economy is functioning at capacity since there is additional spending and ultimately raising the demand for products and services. The interest expense on working capital is considerably increased and this encourages borrowing and lending in the economy.

2.2 Empirical Review

Oshandami (2006) investigated the relationship between public debt and inflation in form of panel data for 71 countries from 1963 to 2004 using OLS regression estimation and VAR model. Estimated results indicated that the relationship holds strongly in indebted developing countries, weakly in other developing countries, but generally not in developed economies.

Ahmad, Sheikh and Tariq (2012) investigated the impact of domestic debt on inflation in Pakistan for the period 1972 to 2009. The data used for the study were taken from the various issues of the Annual Reports of the State Bank of Pakistan and the Economic Survey of the Ministry of Finance of the government of Pakistan. The study adopted the OLS estimation technique to analyse the data. The study detected that domestic debt and domestic debt servicing enhanced the price level in Pakistan. The effect of the volume of domestic debt and domestic debt servicing on price level is found to be positive and statistically significant.

Faraglia et al. (2012) examined the impact of government debt maturity on inflation using dynamic stochastic general equilibrium model in the United States of America. The result showed that persistence and volatility of inflation depends on the sign, size and maturity structure of government debt and remains significantly incomplete even with long bonds and inflation which plays a minor role in attaining debt sustainability. The study concluded that issuing long term debt does enable governments to use inflation more to achieve fiscal sustainability. However, the relative impact on inflation is modest and the relative importance of inflation in achieving fiscal sustainability is modest whatever the length of maturity.

Hilscher, Raviv and Reis (2014) examined the effect of public debt on inflation. The study adopted an ex-ante research design. By applying this method to the United States in 2012, the study estimated the impacts of higher inflation on the fiscal burden. Their estimation result indicated a decade of repression combined with high inflation could wipe out almost half of the debt. The work of Akitoby, Komatsuzaki and Binder (2014) studied the influence of inflation on the public debt in the seven largest IMF- advanced economies in the world: Canada, France, Germany, Italy, Japan, the United Kingdom and the United States. The results of stimulation indicated that if inflation were to fall to zero for five years, the average net debt would increase by about 5 percentage points over the next five years.

Bilan and Roman (2014) analyzed the relationship between public indebtedness and inflation in 22 countries. It identified the channels through which these effects are occurring, it determines the conditions of their manifestation and evaluates their relevance for different developed and developing contemporary economies. Although promoting irrational public borrowing may lead to inflation, such a correlation proved to be quite difficult to identify in the practice, especially for currently developed economies.

Sinclair (2010) analysed the implications of public debt on economic growth and inflation in a group of 52 African economies between 1950 and 2012. The study used time series data from 1950 until 2012, the results indicated public debt has a positive impact on inflation. It means that the high public debt leads high inflation. The empirical study of Nastansky, Mehnert and Strohe (2014) used quarterly data for Germany over period of 1991 to 2010 to empirically investigate the interaction between public debt and inflation. The study analysed the transmission from public debt to inflation through money supply and long-term interest rate within a VECM estimated by Johansen approach. The estimated results showed that the public debt level has a significantly positive effect on consumer prices.

Nguyen (2015a) investigated the relationship between public debt and inflation for 60 developing countries in Asia, Latin America and Africa over the period of 1990 – 2014 via the estimation method of difference panel GMM Arellano-Bond. The estimated results showed that in the direction from public debt to inflation, public debt has a significantly positive effect on inflation while in the opposite direction; inflation has a significantly negative effect on public debt.

Nguyen (2015b) investigated the effects of public debt on inflation with control variables of money supply, real GDP per capita, private investment, budget revenue, government investment, government current expenditure and trade openness in 15 developing economies of Asia in the period of 1990 to 2012. The estimated results from both methods of Pooled Mean Group estimation and panel

differenced GMM Arellano – Bond regression showed that public debt has statistically positive effects on inflation.

Martin (2015) analysed the independence of Central Bank under relationship between debt and inflation in USA. The smaller anticipated policy distortions implemented by a more independent central bank would make the fiscal authority trade-off higher current deficits for lower future deficits. As a result, in the long run, a higher level of public debt will lead to an increase in inflation. The study suggests that imposing a strict inflation target would lower inflation permanently and prevent the primary deficit from political distortions.

Romero and Marin (2017) examined the relation between public debt, economic growth, money supply growth and inflation. The study used a panel dataset of annual data for 52 countries spanning 1965 to 2014. The study found that for countries whose public debt is already high, further increases in public debt are inflationary. In Ghana, David and Emmanuel (2017) examined the relationship between inflation and domestic debts using linear regression method. The study adopted a quantitative research approach. The study used annualized data from the period of 2007-2011. All data were taken from bank of Ghana. A simple linear regression model was used. The results revealed that a significant variation in interest rate is explained by domestic debt. It was found that a significant variation in inflation can be accounted for by domestic debts.

The empirical study of Mohanty and Panda (2019) investigated the macroeconomic effects of public debt in India using a Structural Vector Autoregression framework for the period from 1980 to 2017. The results of the Impulse response functions showed that public debt has an adverse impact on economic growth, a positive impact on long-term interest rate and a mixed response on investment and inflation in India. It is also found that the domestic debt has a more adverse impact on the economy than external debt in India.

Aimola and Odhiambo (2021) investigated the impact of public debt on inflation in Ghana using annual data during the period 1983–2018. The study used the ARDL bounds testing approach to co-integration and an error correction model to examine this linkage. The co-integrating regression results reveal evidence of a stable long-run relationship between inflation and the explanatory variables in the presence of a structural break. The findings also showed a positive and significant impact of public debt on inflation.

The work of Harmon (2012) studied the impact of public debt on three major economic indicators such as inflation, GDP growth and interest rates in Kenya on the period 1996 to 2011. The study adopted descriptive research design and simple linear regression models, the study found that there is a weak positive relationship between the public debt and inflation while links between public debt and GDP growth as well as public debt and interest rates are found to be negative.

Mehmet (2016) examined the influence of external debts on inflation in Turkey from 2003 to 2015. The effect of external debt is measured by means of a simple linear regression analysis using both the consumer price index and the producer price index. The results showed that both consumers and producers are negatively affected by external debt in terms of inflation. The study of Essien, Agboegbulem, Mba and Onumonu (2016) examined the impact of public sector borrowings on prices, interest rates, and output in Nigeria. It utilized a Vector Autoregressive framework, the Granger causality test, impulse response, and variance decomposition of the various innovations to study the impact. It found that shock to external debt stock increases prime lending rate, but with a lag. However, the level of external and domestic debt over the period of this study had no significant impact on the general price level and output.

Odior and Arinze (2017) examined the dynamic relationship between inflation, public debt and exchange rate for Nigeria from 1980 to 2016. VECM and Granger-Causality technique to empirically investigate the relationships in the short and long run. The short run results showed that the past values of inflation and domestic debt significantly influences the current value of inflation. The result also showed that the explanatory variables have negative influence on inflation in the long-run.

3. Methodology

The source of data for this study is the Central Bank of Nigeria statistical bulletin. The population of the study consists of the statistical or stochastic variables. Each value of the variables depends on the economic and political climate prevailing in one time-period, as explained by Gujarati (2003). The independent variables are domestic debt and external debt while the dependent variable is inflation rate. The Autoregressive Distributed Lag (ARDL) was used as the technique of analysis for the data. ARDL approach has the advantage that it does not require all variables to be 1(1) as the Johansen framework and it is still applicable if there are 1(0) and 1(1) variables in the data set. There may be either integrated first order 1(1) or 1(0). The structural model is stated thus:

$$INF = f(DODT, EXTD) \quad \text{.....1}$$

The ARDL model of equation (1) is specified as:

$$\Delta logINFL_{t-1} = \propto_0 + \sum_{g=1}^{k-1} a_{1i}\, \Delta logINFL_{t-i} + \sum_{h=1}^{k-1} a_{2i}\, \Delta logDODT_{t-i} + \sum_{i=1}^{k-1} a_{3i}\, \Delta logEXTD_{t-i} + a_4 \Delta logINFL_{t-i} + a_5 \Delta logDODT_{t-i} + a_6 \Delta logEXTD_{t-i} + \mu_t \quad \text{.....2}$$

α_1, α_2 and α_3 examine the short run dynamic relationship while α_4, α_5, and$\alpha_6$investigate the long-run relationship between dependent variable and independent variables. The lag length or order of the variables was selected by using Akaike Information Criteria (AIC). The AIC is often preferred as it gives the

heaviest penalties for loss of degree of freedom. AIC also imposes a larger penalty for additional coefficients. Since co-integration was established among the variables, the study proceeded to examine the long run effect and the short run dynamics using the Error Correction Term (ECT) equation as follows;

$$\Delta logINFL_{t-1} = \propto_0 + \sum_{g=1}^{k-1} a_{1i}\, \Delta logINFL_{t-i} + \sum_{h=1}^{k-1} a_{2i}\, \Delta logDODT_{t-i} + \sum_{i=1}^{k-1} a_{3i}\, \Delta logEXTD_{t-i} + ECT + \varepsilon_t \quad \ldots\ldots 3$$

Where;
logINFL = log of Inflation Rate
logDODT = log of Domestic Debt
logEXTD= log of External Debt
Δ = Difference Operator
Σ = summation
ECT_{t-1} = lagged Error Correction Term and
ε_t =Error Term

4. Results and Discussion

Table 1: Descriptive Statistics

	INFL	DODT	EXTD
Mean	19.16889	3544.643	5120.665
Median	12.39	1247.870	334.1450
Maximum	72.84	16023.89	33348.08
Minimum	5.39	27.95000	189.0400
Std. Dev.	17.68851	4698.694	8447.484
Jarque-Bera	22.53689	11.18350	43.03578
Probability	0.000013	0.003729	0.000000
Observations	36	36	36

Source: Eviews 10 Output, 2021.

Table 1 above shows the mean of Inflation Rate (INFL), Domestic Debt (DODT) and External Debt (EXTD) for the period under study. The mean of Inflation Rate is 19.16889; Domestic Debt is 3544.643 while that of External Debt is 5120.665. The maximum value of INFL, DODT and EXTD are 72.84, 16023.89 and 33348.08 respectively. The minimum value of INFL, DODT and EXTD are 5.39, 27.95 and 189.04 respectively.

Table 2: Correlation Analysis

Variables	LOG(INFL)	LOG(DODT)	LOG(EXTD)
LOG(INFL)	1		
LOG(DODT)	-0.2590 0.1745	1	
LOG(EXTD)	-0.2662 0.2920	0.5868 0.000	1

Source: Eviews 10 Output, 2021.

The correlation matrix is used to determine the relationship between the dependent and independent variables; it is also used to examine the relationship among the independent variables of the study to detect multicollinearity problem. Domestic debt has an insignificant negative relationship with inflation rate, a one percentage increase in domestic debt will translate to 25% decrease in inflation rate in Nigeria. Likewise, external debt has an insignificant negative relationship with inflation rate; a one percent increase in external debt will translate to 26% decrease in inflation rate in Nigeria. The relationship between domestic debt and external debt is 58%. The relationship among the independent variables is not too high to cause multicollinearity among them. There correlation coefficient between domestic debt and external debt is not greater than 0.8, hence there is could be no problem of multicollinearity of data.

Table 3: Unit Root Test Result

Level			**First Difference**			
Variables	ADF Test Statistic	Critical Value @ 5%	ADF Test Statistic	Critical Value @ 5%	Max Lag	Order of Integration
LogINFL	-4.865192	-3.548490			1	1(0)
LogDODT	-2.718449	-3.548490	-4.347348	-3.552973	1	1(1)
LogEXTD	-1.574119	-3.544284	-5.688612	-3.548490	1	1(1)

Source: E-views 10 Output, 2021.

Table 3 shows the stationarity test of the variables used in the study. the Augmented Dickey-Fuller Test results revealed that domestic debt and external debt are not stationary at level; they became stationary after first difference 1(1) at 5 percent level of significance. But all the variables are integrated at the same order of I(1), that is first difference, this study proceeds to conduct the co-

integration tests to determine the long run relationships among the variables. It is also observed that INFR is stationary at level because the ADF test statistics of -4.865192 is more than critical value of -3.548490 at 5% level of significance.

Table 4: ARDL-Co-integration Test Results

Test Statistic	Value	Signif.	I(0)	I(1)
F-Statistics	6.393256	10%	2.63	3.35
K	2	5%	3.1	3.87
		1%	4.13	5

Source: E-views 10 Output, 2021.

The Tables 4 above presents the result of the ARDL bound test approach to Co-integration. The result revealed that there is presence of co-integration among the variables. The f-statistics value of 6.393256 is greater than the lower bound value of 3.1 and upper bound values of 3.87 at 5% level of significance. Hence, there is a sufficient proof of the presence of a long-run equilibrium relationship between domestic debt, external debt and inflation rate in Nigeria between 1985 and 2020. The result thus shows that domestic and external debts have long run relationship with inflation rate in Nigeria within the period under study.

Table 5: ARDL Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(INFL(-1))	0.395207	0.141559	2.791816	0.0099
DLOG(DODT)	-1.191046	0.687180	-1.733237	0.0954
DLOG(DODT(-1))	1.154597	0.655688	1.760893	0.0905
DLOG(EXTD)	0.168789	0.220346	0.766019	0.4508
DLOG(EXTD(-1))	-0.375229	0.222911	-1.683314	0.1048
Ecm(-1)	-0.747314	0.139638	-5.351802	0.0000
R-squared	0.548058	Mean dependent var		0.023874
Adjusted R-squared	0.467355	S.D. dependent var		0.659686
S.E. of regression	0.481455	Akaike info criterion		1.534779
Sum squared resid	6.490381	Schwarz criterion		1.804137
Log likelihood	-20.09124	Hannan-Quinn criter.		1.626638
Durbin-Watson stat	2.039517			

Source: E-views 10 Output, 2021.

The result presented in table 5 revealed that, current period of DODT has negative and significant effect of the INFL which is the dependent variable and it has insignificant effect on INFL the POV. One period lag of DODT has positive

and insignificant effect on INFL. Also, current period of EXTD has positive and insignificant effect on INFL while one period lag of EXTD has negative and insignificant effect on INFL.

As expected, the lagged error correction term is negative, less than unity and statistically significant at 5 percent. The coefficient revealed that once there is disequilibrium in the system, it takes an average speed of 75% to adjust itself back towards long-run equilibrium level. This finding was collaborated by Odior and Arinze (2017) who asserted that a highly significant lagged error correction terms proves the existence of long-run relationship between the variables and its ability to adjust from disequilibrium state towards equilibrium level. The coefficient of determination (R-square), which was used to measure the goodness of fit of the estimated model, indicates that the model is reasonably fit in prediction. It showed that 54 percent changes in inflation rate were collectively due to domestic debt and external debt while 46 percent unaccounted variations was captured by the white noise error term.

4.1 Post Estimation Tests

Table 6: Post Estimation Diagnostics Tests

Test	P-Value
Heteroskedasticity Test	0.2159
Serial Correlation LM Test	0.5535
JB Normality Test	0.3200

Source: E-views 10 Output, 2021.

The result as presented in the above table revealed that there were no evidences of heteroskedasticity, serial correlation, and the data are normally distributed in the estimated ARDL-ECM model have the *p-values* of 0.2159, 0.5535 and 0.3200 respectively. They were found to be greater than 0.05 level of significance.

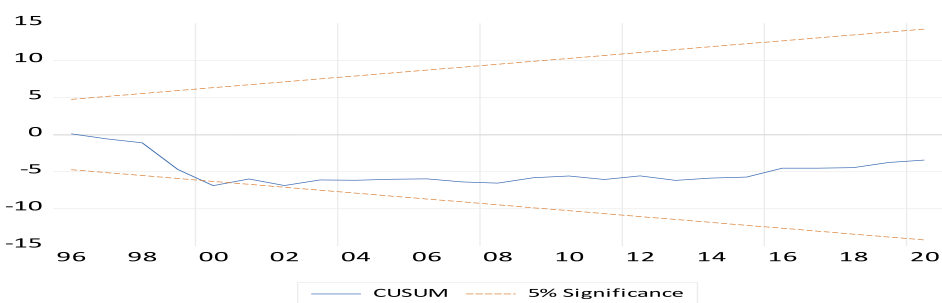

Figure 1: Cusum Stability Tests
Source: E-views 10 Output, 2021.

The CUSUM stability tests in Figure 1 revealed that the model is stable and the regression equation is correctly specified as the plots of the charts lie within the critical bounds at 5% significant level.

4.2 Statistical Test of Hypothesis

The hypotheses formulated in this study were tested using Wald test (f-statistic) and *p*-value. The level of significance for the study is 5%, for a two tailed test. The Wald test computes a test statistic based on the unrestricted regression and tests for the joint significance of the coefficients. The Wald statistic measures how close the unrestricted estimates come to satisfying the restrictions under the null hypothesis. If the restrictions are in fact true, then the unrestricted estimates should come close to satisfying the restrictions.

Thus;

H_0: $\beta_0 = 0$ (Null hypothesis)

H_1: $\beta_1 \neq 0$ (Alternative hypothesis)

Table 7: Wald Test Results

Wald Test Statistics	Null Hypothesis	F-Statistic	P-Value
DODT	C(2)=C(3)=0	3.786791	0.0366
EXTD	C(4)=C(5)=0	1.278654	0.2960

Source: E-views 10 Output, 2021.

From the Wald-test in table 7, the calculated f-value for domestic debt (DODT) is 3.786791 and its probability value is 0.0366. Since the probability value is less than 0.05 at 5% level of significance, it thus falls in the rejection region and hence, we will reject the first null hypothesis (H_{01}). The result thus shows that domestic debt has a positive significant effect on inflation rate in Nigeria. From the Wald-test, the calculated f-value for external debt (EXTD)is 1.278654 and its probability value is 0.2960. Since the probability value is more than 0.05 at 5% level of significance, we will accept the second null hypothesis (H_{02}). The result thus shows that external debt has no significant effect on inflation rate in Nigeria.

4.3 Discussion of Findings

The parameter estimate of domestic debt was found to have a positive significant effect on inflation rate in Nigeria within the period under study. It demonstrated that if domestic debt goes up, price level also goes up. The effect of domestic debt on inflation rate is positive and statistically significant. This finding

supports the fiscal theory of the price level, which posits that government debt adds to household wealth. Hence, the demand for goods and services would increase exacting price pressures. The reason may be that when government borrows directly from domestic sources to finance its expenditures, money supply increases then price level increases. This finding is in line with what Ahmad, Sheikh and Tariq (2012); Lopes, Ferreira-Lopes and Sequeira (2014); Nastansky, Mehnert and Strohe (2014); Nguyen (2015); Martin (2015); Romero and Marin (2017); Aimola and Odhiambo (2021)who found that domestic debt has significant positive effect on inflation rate.

But, contrary to the finding of Taghavi (2000) who found that domestic debt has no significant effect on inflation in the short run. The Wald test result on table 7 above revealed that external debt is positively related to inflation, though not significant, indicating that as external debt increases, and inflation also increases, though the result is not significant. This finding is in line with the empirical works of Taghavi (2000); Essien, Agboegbulem, Mba and Onumonu (2016); Mehmet (2016).

5. Conclusion and Recommendations

This study concludes that there is inflationary effect of domestic debt in Nigeria. The volume of domestic debt increases the price level. The rise in domestic debt in Nigeria is attributed to government budget deficit. In order to finance budget deficit, government has to resort to different sources of deficit financing which ultimately creates inflation. External debt has become an important source of budget deficit financing. Increases in government external debt tend to increase inflation in Nigeria. The following recommendations are put forward by this study

i. Government must increase her revenue base and lower its recurrent expenditure. Consequently, it is recommended that government borrowing should not be used for purposes that could inflate the economy, such as recurrent expenditures, but should be channeled towards the provision of basic infrastructure and goods that would increase the level of economic activities.

ii. Commitment to budget should be encouraged for fiscal discipline on the part of the government and its agencies. Hence, government should be prudent when considering increases in external debt to minimize inflation. However, the improper use of external debt can have a negative impact on the dynamics of economic development by increasing inflation to two digits which will not be favourable to our economy.

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