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Debt, Debt Servicing and Economic Growth: An Empirical Analysis of Nigeria

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Abstract
Every economy in the world borrows. However, excessive borrowing may also make an economy to be a perpetually indebted nation, therefore before an economy borrows she should spell out the project the fund would be engaged in order to avoid over servicing of debt. We examined the nexus between debt, debt service and economic growth: an empirical analysis of Nigeria economy with data ranging from 2012 to 2019 that was extracted from debt management office and statistical bulletin of Nigeria using regression analysis to test our hypotheses with the help of e-view. Our findings revealed that debt with a statistical value of 0.2232, and debt servicing with a statistical value of 0.4134 are not the factors behind economic growth in Nigeria. We also found out that our independent variables debt (Internal and external), total debt servicing and inflation which served as control variables are on the increase with a statistical value of 0.8445.We therefore recommended that Government and those at the helm of policy making should engage in proper analysis on ways to invest borrowed fund/resources in profitable projects that will yield significant impact on the economic growth; and Policy makers should match borrowed fund/resources properly to avoid over servicing of borrowed funds.
Keywords: Debt, Debt Servicing, Economic Growth, Nigeria

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I. Introduction

Nigeria eminent the repayment of their Paris Club debt, believing that it has led to the new dawn which resources will be channeled towards the capital expenditure and bring about economic development . In 2015 the debt was $9.7 billion and in 2020 the debt profile rose to $27 billion. The debts were incurred by the current administration to finance multilateral, development bilateral and so on. The oil price slump makes the government to be unable to meet up with the country's huge infrastructural deficit in improving the economic development (Nairametrics, 2020).

In the work of Aderoju (2018), he expressed concerns on the loans that the past administrations got for project developments from either international or local financial institution. The external debt incurred in 1981 was #2.33 billion, in 1985 the figure increased to #17.30 billion. While in the year 1990 the external debt arose to #298.61 billion, in 1995 the external debt figure stood at #716.87 billion and the trend continues. There is no economy in the world that does not borrow. However, if the economy is not meticulous enough to map out strategies that will enable her to invest the intended fund into viable projects that will yield optimum returns to the economy, it may lead to a ripple effect on the economic growth.

In 2016 Central Bank of Nigeria Statistical Bulletin revealed the total debt payment for various years, in 1981 the figure was #1.03 billion and the figure increased in 1985 to #1.61 billion. In 1990 the figure rose drastically to #23.82 billion, the increment continues in 1995 at #51 billion. In 2000 the figures increased to #131.05 billion, in 2005 figure was #393.96 billion, although in the year 2010 the figure climbed to #415.66 billion and in 2015 the debt service payment totaled $10.3 billion and increased in 2020 to $84.57billion accumulating the subnational to $484.24billion in Q3 of 2020. The coronavirus that rocked the world paved way for the government to acquire more loans in Q3 of 2020, despite the loan 11 (eleven) states were unable to pay the #30,000 minimum wage and which most of the states reverted back to the #18,000 structure.

In order to avoid such effect, economists, finance analyst to mention but a few must be engaged to analyze the terms and conditions of the creditors, the pros and cons of the debts financing and the investment to engage the fund into before she can borrow. If these are not properly done by the aforementioned stakeholders, the economy may end up servicing debts and become a perpetually indebted nation to the creditor, hence fund which would have been used in implementing capital project in the economy may end up going into debt servicing.

Babatunde and Olayinka (2017) discovered that debt has a negative nexus with economic growth; hence debt is not a factor behind economic growth. However, they only employed external debt in their analysis. Peter, Denis and Chukwuedo (2013) stated that Nigeria's origin of borrowing can be traced to the colonial administration of 1958 and the introduction of different financial reforms which led to the establishment of different marketable public securities with aim of finance capital project and deficit budget, the Central Bank of Nigeria was given this mandate aforementioned and also the management of the fund. It is against the backdrop that the amount of loans from the respective lending institutions by the past and present government on the huge debt service payments been done over the years has yielded questions on their economic development.

However, there are existing consensus from scholars on the issue on the impact of debt and debt servicing on Nigeria's economic growth. The research of (Adesola, 2009; Chinaemerem & Anayochukwu, 2013; Didia & Ayokunle, 2020) which spanned from (1980- 2016) observed that foreign debt had positive impact on Nigeria's economic growth. While other scholars like (Lartey, Musah, Okyere & Yusif, 2018; Omodero & Alpheaus, 2019; Ndubisi, 2019) which spanned from (1980- 2017) revealed that foreign debt had a negative influence on the economic growth. The current study intends to ascertain the deposition of the above scholars.

Research Hypotheses

The hypotheses are presented in null form as follows;

$\mathbf{H_{01}}$**:** Debt (external and internal) does not have significant effect on Nigeria's economic growth

$\mathbf{H_{02}}$**:** Total debt service does not have significant effect on Nigeria's economic growth

$\mathbf{H_{03}}$**:** Inflation does not significantly effect on Nigeria's economic growth

The paper is structured on five sections; first section deals with the introduction, the next section deals with the review of related literature, section three focus on the methodology, section four explains the data analysis and discussion of finding and section five deals with the summary of findings, recommendation and conclusion.

II. Review of Related Literature

Theoretical Foundation

The study hinges on the Overhang Debt Theory;

Overhang Debt Theory

Overhang Debt refer to increase in debt burden that a government cannot access additional debt to take care of futuristic projects. The existence of huge debt can cause the government from accessing new debt even though there is a substantial investment to finance. According to Chukwujekwu, Umemezilem & Anichebe (2018) affirmed that debt overhang is presented when the country debt accumulation is greater than its strength and the ability of future repayment. Adedoyin, Babalola, Otekinri, & Adeoti, (2016) cited in Omodero, Alpheaus (2019) opined that debt overhang is when a country's debt profile is greater than the financial capability in keeping up with the debt agreement in the debt servicing with the repayment schedules.

Myers (1977) explained debt overhang as an unsustainable debt that hinders investment, arising from the fact that the benefits gained by the company using high risky funding accrue primarily to current debt holders instead of shareholders. In other words, high level of public debt is crowding out private investment.

Empirical Review

Didia and Ayokunle (2020) examined external debt, domestic debt and economic growth of Nigeria economy with data covering from 1980 to 2016 with data employed from Central Bank of Nigeria and the World Bank using the vector error correction model and found out that domestic debt has a statistically significant positive relationship with economic growth in the long run. However, external debt was not statistically significant and also showed a negative relationship with economic growth hence their study revealed that domestic debt appears to be more beneficial in terms of economic growth in Nigeria than external debt as interest paid on domestic loans remains in the country and could be put into further productive economic use.

Omodero and Alpheaus (2019) employed nominal gross domestic product, foreign debt stock, foreign debt servicing, inflation rate, and exchange rate variables to investigate the effect of foreign debt on Nigeria economic growth using the causal research design and the data ranging from 1997 to 2017 that was extracted from the World Bank and central bank of Nigeria statistical bulletin with the help of ordinary least squares regression technique and found out that foreign debt exerts a significant negative influence on economic growth while foreign debt servicing has a strong and significant positive impact on economic growth, therefore recommended a more meaningful borrowing pattern and revenue generation through viable capital investments as the remedy for a foreign debt crisis in the country.

Ndubuisi (2019) extracted data from Nigeria central bank statistical bulletin and examined external debt and economic growth in Nigeria using a long run analysis approach with data from 1985 to 2017 using Johansen co-integration, vector error correction model (VECM) and granger causality test and found out that debt service payment has negative and insignificant impact on Nigeria's economic growth while external debt stock has negative and significant effect on economic growth. The causality test indicates no-directional causality between external debt and gross domestic product, therefore recommended that policy-makers should reformulate the external debt management strategy to minimize sovereign risk through diversification of the external borrowing.

Lartey, Musah, Okyere and Yusif (2018) investigated the impact of public debt and economic growth with evidence from Africa using the cross-sectional design. They employed 50 African countries with data ranging from 1980 to 2015. The ordinary least square estimation technique for a static panel regression model and the generalised method of moment estimation technique for a dynamic panel regression model was used in their analysis and found out that: there is a statistical significant negative relationship between public debt and economic growth; the relationship between public debt and economic growth is non-linear; inflation and government consumption expenditure have a statistically significant negative relationship with economic growth however capital formulation, population growth and openness of trade have a statistically significant positive relationship with economic growth.

Babatunde and Olayinka (2017) investigated external debt and Nigerian economic growth by employing the autoregressive distributed lag approach with data ranging from 1981- 2014 and found out that external debt is negatively related to economic growth and also found out that one per cent increase in export will decrease the real GDP by 0.25 per cent in the long run and also found out that external debt does not cause economic growth statistically, therefore they recommended that adequate measures be put in place to ensure that borrowed resources are expended on development that will promote capital projects.

Ugochukwu, Okafor and Christian (2016) investigated the effect of external borrowing and foreign aid on economic growth in Nigeria with data ranging from 1980 to 2013 that was obtained from central bank of Nigeria statistical bulletin by employing ordinary least square technique multiple regression model, Unit Root test, Augmented Dickey-Fuller and Johansen Co-integration test were employed to determine the long-run relationship between the variables and error correction method was also used and found out that external debt, foreign aids has a positive and significant effect on economic growth however foreign aid statistically insignificant, their study revealed that foreign aid has been beneficial to Nigeria but has not been much felt.

Chinaemerem and Anayochukwu (2013) examined the impact of external debt financing on economic development in Nigeria with data ranging from 1996 to 2011 that was extracted from central bank of Nigeria statistical staple of 2012, the time series variable properties of their study were stationary and co integrated, their study revealed that London debt financing possessed positive impact on Nigeria economic growth while Paris debt, Multila and Promissory note were inversely related to economic growth in Nigeria, therefore they recommended that debt service cancellation and global marketing participation to encourage survival of other businesses and SMEs in Nigeria.

Peter, Denis and Chukwuedo (2013) investigated domestic debt implication on Nigeria economic growth with data ranging from 1980 to 2011 using the error correction, unit root and co-integration test and their study revealed that domestic debt and credit have a significant and direct relationship with GDP and that debt servicing has inverse relationship with GDP and also government expenditure has a direct but not significant relationship with Gross domestic product, therefore recommended that domestic debt should be invested in productive sector of the economy precisely in the real sector.

Adesola (2009) empirically reviewed the effect of external debt service payment practices on sustainable economic growth and development in Nigeria covered from 1981 through 2004 using the ordinary least square (OLS) regression. The study found that debt payment related to London club, Paris club, Promissory notes and other creditors had positive and significant impact on the GDP. He suggested that the loan from London club or other creditors by the government should serve as means of opening trade and investment that will enhance the private sector.

Nigeria internal and external debt has been on the increase since she got her independence from 1960 till date, this has drawn the attention of the researchers to investigate the impact of debt and debt servicing on economic growth employing data from 2012 to 2019. Babatunde and Olayinka (2017) in their study of Nigeria economy of external debt vis a vis economic growth opined that debt is not a factor behind economic growth however they only employed external debt in their analysis and their data ranged from 1981- 2014. This was also seconded by Ndubuisi (2019) who opined that debt service payment has negative and insignificant impact on Nigeria's economic growth. Saifuddin (2016) investigated public debt and economic growth of Bangladesh economy with data from 1974 to 2014 by using Augmented Dickey-Fuller test to examine whether time series data are non-stationary and found out that public debt is positively related to both investment and economic growth.

III. Methodology

The study adopted the ex-post facto research design, secondary data were selected from debt management office and statistical bulletin of Nigeria, this approach was to ensure data used are reliable as the researchers have no power to manipulate the data. Descriptive statistics and regression analysis was carried out by the researchers using E-view. The hypotheses were tested using the analysed result from the study; the decision rule was to reject the null hypotheses if the calculated p-value is less than 5% (0.05).

Model Specification

The model adopted for this work conforms to the one used by some other researchers such as Lartey, Musah, Okyere and Yusif (2018), Chukwujekwu, Umemezilem and Anichebe (2018) and Bingilar, Edoumiekumo, Kpolode, and Nkak (2020) as stated below:

$GDP = f\ (logDEBT,\ logTDS,\ INFR)$

Expressed in econometric form below with log transformation of some of the variables:

$$Log\ GDP = \alpha + \delta_1\ logDEBT + \delta_2\ logTDS + \delta_3\ INFR + u$$

Where:
Log GDP = Log of gross domestic product
DEBT = Log of Debt, this include external and internal
TDS = log of Total debt service
INFR = inflation rate
α = Constant term
u = stochastic error term

IV. Results of Data Analysis and Discussion

The data used in this study were extracted from debt management office Nigeria and Central Bank Statistical Bulletin.

4.1 Table 1 (operationalizing variables)

YEAR	logGDP	logDEBT	logTDS	INFR
2012	7.777644	6.878192	4.95759	12.22
2013	7.800846	7.001915	5.924486	8.48
2014	7.827064	7.050887	5.965618	8.06
2015	7.839	7.100498	6.034769	9.01
2016	7.83207	7.23955	6.125897	15.68
2017	7.835633	7.336975	5.563091	16.52
2018	7.843855	7.38716	6.352005	12.09
2019	7.84729	7.437772	6.33648	11.4

Source: Debt management office and Statistical bulletin Nigeria.

The above data (table 1) showed that since from 2012 to 2019 gross domestic product (GDP) which represents economic growth is increasing with 2019 having the highest value 7.84729. The debt (External and internal) has been on the increase with almost at par with the gross domestic product, 2019 has the highest value 7.437772 of debt. In the same vein the total debt service value has been on the increase since from 2012 to 2019, inflation which served as a control variable has also been on the increase, however 2017 has the highest rate 16.52.

4.2 Descriptive statistics (Table 2)

	LOGGDP	LOGDEBT	LOGTDS	INFR
Mean	7.825425	7.179119	5.907492	11.68250
Median	7.833852	7.170024	6.000194	11.74500
Maximum	7.847290	7.437772	6.352005	16.52000

Minimum	7.777644	6.878192	4.957590	8.060000
Std. Dev.	0.024024	0.201188	0.458276	3.172132
Skewness	-1.138395	-0.092776	-1.140103	0.372317
Kurtosis	2.924873	1.642121	3.345108	1.824501
Jarque-Bera	1.729804	0.626089	1.772813	0.645426
Probability	0.421093	0.731217	0.412134	0.724182
Sum	62.60340	57.43295	47.25994	93.46000
Sum Sq. Dev.	0.004040	0.283336	1.470116	70.43695
Observations	8	8	8	8

Source: *Authors computations E-view, 2020.*

Table 2 above showed the mean values (7.825425, 7.179119, 5.907492 and 11.68250) of gross domestic product (LOGGDP), debt internal and external (LOGDEBT), Total debt servicing (LOGTDS) and inflation rate (INFR) respectively. From the following operationalizing variables above in table 2, inflation rate has the highest 16.52000 maximum while total debt servicing has the lowest 6.352005 maximum. In the same vein, inflation rate has the highest 8.060000 minimum value while total debt servicing has the lowest 4.957590 minimum value. Inflation rate is the most dispersed 3.172132 while gross domestic product 0.024024 is least dispersed.

4.3 Data analysis and hypothesis testing (Table 3)

Dependent Variable: LOGGDP
Method: Least Squares
Date: 10/12/20 Time: 11:44
Sample: 2012 2019
Included observations: 8

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.164094	0.262169	27.32619	0.0000
LOGDEBT	0.077158	0.053564	1.440477	0.2232
LOGTDS	0.019252	0.021114	0.911829	0.4134
INFR	-0.000541	0.002587	-0.209251	0.8445

R-squared	0.838113	Mean dependent var	7.825425
Adjusted R-squared	0.716698	S.D. dependent var	0.024024
S.E. of regression	0.012787	Akaike info criterion	-5.573878
Sum squared resid	0.000654	Schwarz criterion	-5.534158
Log likelihood	26.29551	Hannan-Quinn criter.	-5.841779
F-statistic	6.902875	Durbin-Watson stat	1.589772
Prob(F-statistic)	0.046401		

Source: *Authors computations E-view, 2020.*

Table 3 above showed that our R-squared is 0.838113 which indicated that the variables for the analysis are 84% correlated and our Adjusted R-squared is 0.716698 which means that 72% of the variation in the dependent variable (Gross domestic product) can be explained by the independent variables (debt, total debt servicing and inflation rate). Overall the model is statistically significant 0.046401, the model is selected through Akaike info criterion -5.573878, table 3 above also indicated that the variable are auto correlated with a Durbin-Watson stat of 1.589772 which seconded the R-squared is 0.838113 above.

From the OLS statistical analytical outputs in Table 3, the following inferences were deduced from the regression result:

1. Debt (internal and external) has no significant impact on Nigeria's Economic growth (GDP).

The result showed that Debt (internal and external) has no significant impact on Nigeria Economic growth (GDP) 0.2232, which accepted our null hypotheses for the study, since the value is greater than 5% significant level. The result is in line with Babatunde and Olayinka (2017) which opined that debt has no significant on economic growth.

2. Total debt servicing (TDS) has no significant impact on Nigeria's Economic growth (GDP).

The above result revealed that total debt servicing (TDS) is statistically insignificant 0.4134 with respect to gross domestic product (GDP) which is greater than 5% significant level, therefore our null hypotheses will be accepted i.e., Total debt servicing (TDS) has no significant impact on Nigeria economic growth (GDP).

3. Inflation rate (INFR) has no significant impact on Nigeria's Economic growth (GDP).

The result depict that inflation is statistically insignificant 0.8445 with respect to Nigeria Economic growth (GDP) which is greater than 5% significant level, which therefore accepted our null hypothesis stated above. The result is in line with the findings of Aderoju, (2018)

V. Conclusion and Recommendations

The study empirically explored the debt servicing and economic growth: an empirical analysis of Nigeria economy with data ranging from 2012 to 2019 that was obtained from debt management office and statistical bulletin of Nigeria using regression analysis to test the data obtained. Our findings revealed that debt and debt servicing is not the factor behind economic growth in Nigeria, we also found out that our independent variables debt (Internal and external), total debt servicing and inflation which served as control variable is on the increase.

The study suggest that the government and those at the helm of policy making should engage in proper analysis on ways to invest borrowed fund/resources in profitable project that will yield significant impact on the economic growth; and Policy makers should ensure that borrowed fund/resources are managed properly to avoid over servicing of borrowed funds.

Research Contribution

Borrowing to finance a project is not bad, however excessive borrowing may make an economy to use its resources needed to finance other crucial project in servicing debts. Therefore, Nigeria should do a critical analysis of terms and conditions of the creditors, invest her borrowed fund into viable and impactful projects that will yield optimum returns, and also try to reduce borrowing and look out for other sources of generating revenue instead of resorting to borrowing.

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