

Analysis of the effect of External Public Debt on Economic Growth in Nigeria

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Abstract

This study examines the effect of external public debt on economic growth in Nigeria utilizing time series secondary data extracted from Debt Management Office (DMO), Central Bank of Nigeria (CBN) Statistical Bulletin and National Bureau of Statistics (NBS) for the periods of 2007Q1 to 2020Q4. Employing the econometric methodology of the Johansen Co integration and Vector Error Correction Model (VECM), the study establishes long run relationships among the variables. The results show that while the relationship between bilateral debt and growth is negative and significant, multilateral debt has a positive and insignificant relationship with economic growth. The result further indicates that the relationship between commercial debt and economic growth is also positive and insignificant. Based on the findings of this study, it is recommended that: the Federal Government should give less priority to bilateral loans in funding growth through its deficit financing; the current approach to funding budget deficit through borrowing from multilateral source which provide long-term loan at a very low interest rate with long amortization period should be sustained; the aggressive use of commercial loans to fund deficit should be maintained subject to cost and risk involved.

Keywords: External debt, multilateral debt, commercial debt, bilateral debt, economic growth

JEL Classification: C32, E02, E12, H63

1. Introduction

In a modern national perspective, the need to grow the economy constantly increases and to achieve the desired economic growth, nations spend more through public expenditures. Public expenditures are generally financed by ordinary public revenue sources such as taxes, interest and penalties on unpaid taxes, duties, fees, para fiscal revenues as well as property and enterprise revenues. Large expenditures on infrastructure investments, war, development financing, natural disasters and economic crises coupled with low government revenue give rise to public sector budget deficit.

To address the negative gap between low revenue and a high expenditure, nation opts for borrowing. These borrowings are called public debt. Public debt can either be external or domestic. The debts contracted outside the shore of the country are referred to as external debt. In other words, they refer to a package that consists of a combination of financial, technical vis-a-vis managerial requirements emanating from outside the country, aimed at supporting economic growth and development and are repayable at pre-determined future date in foreign currency (Udoffia & Etido, 2016). Domestic debt on the other hand refers to the debt incurred within the country. In other words, it is the funds that government borrowed within the country mostly in the same domestic currency.

As some economists believe, nations borrow either from within or outside their territory to finance development projects that would have positive impact on its economy and that different countries have different motives for borrowing. As argued by Obudah and Tombofa (2013), the specific reasons why countries borrow are to finance budget deficit, management of debt

portfolio as well as deepening of financial markets with a view to mitigating the negative effect of debt on growth. Economic growth can be explained as the increase in the overall economic performance of a country during a given period. Basically, economic growth is usually measured by gross domestic product (GDP), which is the value of all final goods and services produced within a country in a given period.

There is a growing body of evidence in literature as to the mixed results and lack of consensus on the effect of public debt on growth potentials of a nation. While some economists believe that public debt hampers economic growth of a nation, others believe that public debt is a catalyst for economic growth and development. Theoretically, the Keynesian view on the relationship between debt and growth is positive. According to Keynesian economists, public debt can be applied to promote economic growth, through the funding of budget deficit which stimulates aggregate demand and increase in private investments. On the contrary, the Classical school of thought is against public borrowing due to its negative effect on interest rate thereby reducing private investment. They argue that debt and growth have a negative relationship. Their arguments are based on debt overhang effect of public debt – a situation where public debt rises above the country's ability to repay the debt.

Besides the disagreement at the theoretical level, empirical evidence as to the effect of external public debt on economic growth in Nigeria and indeed other countries exists. On the positive side, Ujuju and Oboro (2017) investigated the Nigeria debt structure and its effects on economic performance and the simple regression result indicated significant positive relationship between aggregate public debt and GDP. Muye, Kaita and Hassan (2017) on their part, examined the impact of debt on economic growth in Saudi Arabia for the period of 1969 to 2013 and the study revealed that public debt affects economic growth in a positive and statistically significant manner.

On the effect of aggregated external debt, Odubuasi, *et al.* (2018) and Balcilar (2012) empirically investigated the effect of external debt on the economic growth of Nigeria. The result of the analyses indicated that external debt stock has positive and significant effect on economic growth in Nigeria. Contrary to these findings, Ajayi & Edewusi (2020) and Ujuju and Oboro (2017) examined the relationship between external debt and growth in Nigeria and discovered that debt negatively effects growth. Further to these conflicting findings, other scholars found a mixed result on the relationship between external debt and economic growth. For example, on the disaggregated external debt, an attempt was made by Chinaemerem & Anayochukwu (2013) to examine its effect on economic development in Nigeria from 1964 to 2011. The study revealed positive effect of one component of external debt - London debt financing on economic growth while three components of external debt - Paris debt, Multilateral debt and Promissory note were found to have an inverse relationship with economic growth.

It is pertinent to mention that most of the existing literatures - Ajayi and Edewusi (2020); Ujuju and Oboro (2017); Odubuasi, Uzoka, and Anichebe, (2018); Balcilar (2012); and, Hasan (2015), with the exception of Chinaemerem and Anayochukwu (2013), focused attention on the relationship between aggregate external debt and economic growth. Apart from the mixed results and lack of consensus in the findings of these researches, most of the studies have done so without any simultaneous reference to the effect of disaggregated external debt - multilateral debt, bilateral debt and commercial debt on economic growth. Additionally, there is also evidence that even the analysis conducted by Chinaemerem & Anayochukwu (2013) the period covered as well as the variables used in their study are no longer current. As the debates on the effect of disaggregated external debt attract few studies with conflicting and mixed results, the researcher's interest to examine in detail, the dynamic effect of disaggregated external debt on economic growth in Nigeria serves as the motivation for this study. Therefore, the question that needs answer is: to what extent does the disaggregated external debt affect economic growth in Nigeria?

This study is fundamentally different from other previous studies as its main objective is to empirically examine the relationship between disaggregated external public debt and economic growth with a view to exploring the effect of each component of external public debt on economic growth in Nigeria for the period 2007Q1 to 2020Q3. The period for the study is selected because of the availability of recent quarterly external debt data; sustainability of external public debt; and, post Paris and London Clubs debt exits which brought about dramatic change in the composition of the total debt portfolio from about 16:84 in 2007Q1 to 38:62 in 2020Q3 for external and domestic debt respectively.

2. Literature Review

2.1 Concept of External Debt

Amone, Bandiera and Presbitero (2015) describe external debt as that part of a country's debt borrowed from foreign lenders, including commercial banks, governments or international financial institutions. In other words, external debts are funds sourced from outside the nation's border usually in foreign currency and are interest-bearing to finance specific project(s) in the borrowing country that will bring about developments and growth. External debt becomes necessary when domestic financial resources of a country become inadequate to finance public goods that increase welfare and engender economic growth. According to Ogbeifin (2017), external debt arises as a result of the gap between domestic savings and investment. As the gap widens, debt keeps piling up as countries continue to borrow to stay afloat. He further defines Nigeria's external debt as the debt owed by the public and private sectors of the Nigerian economy to non-residents and citizens that is payable in foreign currency, goods and services. This definition is not well defined because, in some cases, there are foreign loans that are denominated in Naira. Further, the private sector debt is no longer part of the public debt in Nigeria as no guarantee is issued by the Federal Government to that effect. It is also pertinent to note that external debt does not have to be paid back in the currency in which it is borrowed. This is because there are some loans that have a basket of currencies used for repayment.

A bilateral debt in general is a simple loan arrangement between a single borrower and a single lender. Such loans are called "bilateral" because there are only two parties to the loan, each with an obligation to the other: In this case, one country will provide a specific amount of money under the terms of the loan agreement, and the other will repay the money as provided for in that same agreement (Mauro, 2015; and, Merritt, 2017). This study conceptually sees bilateral debt as the quarterly summation of all outstanding loans obtained by Nigeria from a single lender(s) under mutual agreement within the period of 2007Q1 to 2020Q3. Specifically, the bilateral debt is made up of loans from China (Exim Bank of China), France (Agence Francaise Development), Japan (Japan International Cooperation Agency), India (Exim Bank of India), Germany (Kreditanstalt Fur Wiederaufbau).

Public and publicly guaranteed multilateral debt include loans and credits from the World Bank, Regional Development Banks, and other Multilateral and Intergovernmental Agencies. Excluded are loans from funds administered by an international organization on behalf of a single donor government; these are classified as loans from governments (The World Bank, 2020). Although this definition is globally recognised, it is not only the World Bank and the IMF or regional bank loans that constitute multilateral loans. For example, Islamic Development Bank is classified as part of Nigeria multilateral loans. Contextually, this study perceives the word multilateral debt as the quarterly accumulated portion of Nigeria's external debt owed to Multilateral Agencies within the period of 2007Q1 to 2020Q3. Such Multilateral Agencies include: The World Bank Group (International Development Association and International Bank for Reconstruction and Development); IMF; African Development Bank Group (African Development Bank and Africa Growing Together Fund); Arab Bank for Economic Development in Africa; European Development Fund; Islamic Development Bank; and, International Fund for Agricultural

Development.

Commercial debt is any debt owed on a commercial term. In relation to government borrowing, commercial external debt may be referred to as the debt issued in a country and currency that is different from that of the country issuing the debt. This may include Euro-Bond and Diaspora Bond. Commercial debt is a major source of loan for some countries. For example, Ethiopia, Mozambique, Rwanda, Senegal, Tajikistan, and Tanzania have all issued commercial public debt since 2010, generally denominated in U.S. dollars (Essi, Celik, Patrick, & Proite, 2019). In this study, commercial debt is the quarterly summation of loans secured by Nigeria from Private Creditors such as Euro Bond and Diaspora Bond Holders and other loans (different from multilateral and bilateral debts) on commercial terms within the period of 2007 Q1 to 2020 Q3.

Economic growth is defined as the increase in the real output per inhabitant, at the level of an economy within a period of time (Hassan, *et al*, 2015). It measures growth in monetary terms and looks at no other aspects of development (Ayres & Warr, 2002). Traditionally, aggregate economic growth is measured in terms of Gross National Product (GNP) or Gross Domestic Product (GDP). Al-Dughme (2019) argues that there are many developments that have improved the social and economic situation of many countries in the world; among these developments are the multiplicity of technological means, the development of various tools and devices in various agricultural and industrial fields. The more of these developments, the greater the desire to raise levels of growth and rates in production and consumption, which is important for all countries (Aziri, 2017).

2.2 Overview of Nigerian External Debt (2007 – Q3, 2020)

The Nigerian's external debt component was at its peak in 2005. Prior to 2007, its external debt profile characterised by some ills ranging from arrears in service to unsustainable position. Considering the fact that the external and total public debt were not sustainable and were above all threshold of Debt-GDP ratio, the Nigerian Government under the Olusegun Obasanjo administration in collaboration with other International Bodies initiated a move to reduce the external debt profile. After series of campaign, Nigerian Government reached an agreement with its major external creditors – The Paris Club who granted Nigeria a conditional debt relief of \$18 billion after full settlement of the remaining \$12 billion debt by year end 2006, leaving a balance of about \$3.6billion to non-Paris Creditors (Augustine, 2016).

Table 1. Trend in the External Debt Stock by Creditor Type 2007 – Q3, 2020 (USD Million)

YEAR	Multilateral Debt	Bilateral Debt	Commercial Debt	Total
2007	3,080.91	184.9	388.4	3,654.21
2008	3,172.87	182.42	365.07	3,720.36
2009	3,504.51	181.6	261.19	3,947.30
2010	4,217.76	163.2	197.81	4,578.77
2011	4,568.92	453.83	643.82	5,666.57
2012	5,267.42	703.03	556.63	6,527.08
2013	6,275.20	1,025.70	1,521.00	8,821.90
2014	6,799.36	1,412.08	1,500.00	9,711.44
2015	7,560.43	1,658.00	1,500.00	10,718.43
2016	7,988.22	1,918.05	1,500.00	11,406.27
2017	10,241.44	2,372.00	6,300.00	18,913.44
2018	11,014.34	3,091.68	11,168.35	25,274.37
2019	12,660.38	3,847.41	11,168.35	27,676.14
Q3, 2020	16,741.82	4,075.00	11,168.35	31,985.17

Source: Debt Management Office, 2020

The post debt relief era, the epoch after the Paris' creditors had reduced the country's external debt profile in 2005 is witnessing yet another rise in the country's external debt profile, an indication that lessons have not been learnt from the past. The Table 1 shows the annual steady increase in external debt from \$3.65billion at end 2007 to \$32.00billion at end quarter three in 2020, suggesting a return to another foreign debt burden in a little distant time (Augustine, 2016). The Table shows Nigeria's rising external debt and the figures show that Nigeria's external debt as at end 2007 was \$3.65billion and this steadily increased to \$32billion as at Q3, 2020. The breakdown of the external debt by Creditor type as at Q3, 2020 shows that 52.34% was owed to Multilateral Creditors, 12.74% was owed to Bilateral Creditors and 34.92% owed to Commercial Creditors.

2.3 Empirical Review

Empirically, studies conducted on the nexus between external debt and economic growth are many in the literature for both developing and developed nations. For example, Chinaemerem and Anayochukwu (2013) employed Vector Error Correction Model to examine the effect of disaggregated foreign debt on economic development in Nigeria from 1964 to 2011. The study discovered that Multilateral debt (private creditors) - London Club debt financing has positive impact on economic growth while Paris Club debts has negative effect on growth in Nigeria. The paper suggested for the cancellation of debt service by the Nigerian government. It is noted that all the independent variables of the study – Paris and London Club debts as well as Promissory Notes, with the exception of Multilateral debt (World Bank loans), were no longer outstanding as they were all repaid before the year of the study - 2011. That is to say, the study should have used multilateral debt (World Bank loans) as a proxy for external debt. Additional pitfall for this study is that, apart from the non-inclusion of 2013 debt data despite its availability, the researcher failed to understand that the strategy of debt service forgiveness or cancellation in Nigeria has passed long time ago. The researcher should have noted that, in the world of today, there is no compromise as to the prompt settlement of debt service to the external creditors or investors, especially Euro bond and Diaspora bondholders. Any attempt to seek for debt service cancellation would send a wrong signal to investors that Nigeria is at the risk of default and a signal of the debt service default, especially on instruments like Eurobond, attracts a severe sanction on the borrower.

Paul (2017) explored the effect of Nigeria's foreign loan on economic growth from 1985 to 2015, using Error Correction Test; the study found that foreign debt stock has a significant and positive effect on economic growth. Part of the recommendations offered is that government should use foreign loans on developing infrastructure. The recommendation of the study was not well crafted because not all external loans should be tied to productive projects. Going by the provision of Fiscal Responsibility Act 2007, Section 41(1)(a), external loans could be applied for human development. Most of the World Bank loans - like Fadama projects are for human development.

Gurara, Presbitero and Sarmiento (2018) while looking at the role of MDBs on terms loan deals, focused attention on loan pricing. The study showed that MDBs' participation is associated with higher borrowing costs and longer maturities —indicating willingness to fund a high-risk programme which may not be financed by the private sector—but it is also associated with lower spreads for riskier borrowers. Overall, the study found that MDBs could crowd in private investment in developing countries. The implication of borrowing from the MDBs according to this study is that it has an indirect impact on the economic growth.

Broccolini, Lotti, Maffioli, Presbitero and Rodolfo Stucchi (2019) used data on syndicated lending to a large sample of developing countries between 1993 and 2017 to estimate the mobilization effects of multilateral development banks (MDBs). The study found a positive and significant direct and indirect mobilization effects of multilateral lending on the number of deals

and on the total size of bank inflows. The study further indicated that the economic effects are big, suggesting that MDBs can play a significant role in mobilizing funds for financing with a view to promoting economic growth.

Applying an econometric technique of Vector Error Correction Model (VECM), Ajayi and Edewusi (2020) explored the influence of public debt on economic growth of Nigeria from 1982 to 2018 and found that foreign debt, including multilateral loans exert a negative long run and short run effect on economic growth in Nigeria. In line with these findings, the study recommended that appropriate policymakers should design measures for effective management of domestic loans and that the government should ensure that procured public debts are challenged towards yielding investment in the country. Further, government should, through monitoring committees, ensure that public debts are committed to the provision of basic social services and amenities necessary for the advancement of communities in Nigeria. One major drawback of this study is that period of the study should have included the year 2019 as data for the external debt was readily available on the DMO's website at the time the study was conducted. It is important to note that from this review, very few studies specifically focused on the effect of Multilateral debt on economic growth.

Nwannebuikwe (2016) used co-integration test and ECM as well as Ordinary Least Square method to investigate the effect of foreign loan on output in Nigeria. The results demonstrated that foreign loan has negative and positive relationships with GDP at long run and short run, respectively. The study recommended that the DMO should make sure that loans are used on the projects for which the loans were obtained and, also a borrowing threshold should be set and enforced for Central governments and Sub nationals. The researcher here failed to understand that the responsibility of the project monitoring resides with the Federal Ministry of Finance not the DMO. Most of the literature reviewed so far in this study have not captured the effect of bilateral loan on output, notwithstanding the availability of bilateral debt data on the DMO website.

Mbah, Umunna and Agu (2016) evaluated the effect of foreign loan on economic growth in Nigeria for the period 1970-2013. Applying an ARDL technique, the study found that foreign loans have negative effect on output. The study recommended that government should pursue a culture of savings and initiate ways that will encourage foreign direct investment through financing developmental projects by foreign investors instead of direct borrowing. The title of the paper should have been, "Effect of External Debt Sustainability on Economic Growth in Nigeria". Reason being that all proxies of the external debt were foreign debt sustainability indicators. In addition, the study did not disaggregate the external public debt into its various components.

Employing another method of analysis - Structural Vector Auto Regression (SVAR) approach, Maithreerathna, Mummullage, Chamika, and Gunasinghe (2019) assessed the impact of debt on economic growth in Sri Lanka between 1960 and 2016. The study confirmed that external debt, including bilateral loans have a positive but insignificant relationship with GDP growth. Tuncer (2019) empirically analysed the effect of external debt on economic growth in Turkey between 1970 and 2016 and observed that while openness and consumer price index have a negative impact on economic growth, the external debt has a positive impact. In line with these findings, the study recommended for keeping openness and the consumer price index under control to increase economic growth with the help of external debt. The study did not factor years 2017 and 2018 into its analysis and that no attempt was made to disaggregate the external debt with a view to determining the impact of each source of external debt.

On his part, Silva (2020) assessed the effect of the Portuguese external debt on economic growth for the period 1999–2019 period using econometrics on quarterly data. The study found a positive and significant increase of external debt on economic growth. The study recommended

for the reduction in external debt through a positive current account, to assign external debt to tradable sectors that will obtain a higher return on investments, and to shift external funding from debt instruments to equity ones. The study did not disaggregate the external public debt into its various components to determine the effect of each source of debt. In addition, the recommendation of this study is observed to be weak in the sense that the equity financing being advocated has its own disadvantage too.

Chinaemerem and Anayochukwu (2013) employed Vector Error Correction Model to evaluate the effect of disaggregated foreign debt on economic development in Nigeria from 1964 to 2011. The study discovered that Commercial debt – Promissory Notes have negative relationship with economic growth and suggested debt service cancellation and global marketing participation to encourage survival of SMEs in Nigeria. The variable – Promissory note has been fully serviced and including it as one of variables in the study seems to be of no value. See Broccolini, Lotti, Maffioli, Presbitero and Rodolfo Stucchi (2019); Maithreerathna, Mummullage, Chamika, and Gunasinghe (2019); and, Tuncer (2019).

Ujuju and Oboro (2017) empirically assessed the effect of public borrowing structure of Nigeria and its economic growth covering the years 1990 to 2015 with the objective of exploring the structural effect of public debt on Nigeria GDP. Using dependent variable – GDP and Independent variables – total debt, domestic debt and external debt, the study applied multiple and single regression techniques to analyse the data and the findings indicated that external debt has substantial and negative effect on output, while domestic debt has significant and positive influence on output in Nigeria. The paper observed that public debt could be used in forecasting changes in Nigeria's economic situation. One of the recommendations as offered by the study is to use more of domestic debt through new domestic debt instruments instead of external debt in funding deficit. One major drawback of these studies is that the periods covered by the studies did not include the immediately preceding year(s) despite the fact that data for the external public debt for those respective years was readily available on the website of the DMO at the time of conducting the respective researches. See also Mbah, Umunna and Agu, 2016.

Gachungal and Kuso (2018) examined the effect of external debt and economic growth from 1990 to 2016 in 38 Sub-Saharan countries and the results from the Generalized Method of Moment indicated that the economies of Sub-Saharan Africa are negatively affected by external debt. In addition, foreign debt, especially the commercial debt, was found to be more harmful to middle income countries compared to their low-income countries. The findings implied that increased external loans have not positively impacted on economic growth instead it increases the financing gap problem. The study suggested that given the role of external debt and its economic impact, it is imperative that attention be given to its management. The recommendation offered by the study did not clearly state the type of management needed for foreign and internal debt.

Odubuasi, Uzoka, and Anichebe (2018) while focussing on Nigeria, used ECM to empirically investigate the influence of foreign loan on the economic growth between 1981 and 2017. The results indicated that foreign loan has positive and significant effect on economic growth in Nigeria and recommended for adequate application of foreign debt on capital expenditure to stimulate the Nigerian economy. The recommendation of this study - application of foreign debt on capital expenditure may be in conflict with the provision of Fiscal Responsibility Act 2007, Section 41(1)(a) which permits for application of external debt on human development instead of capital expenditure only.

Silva (2018) analysed the impact of public and private sector external debt on economic growth within 1999 to 2014 in Portugal and discovered that private foreign debt has positive affect on the GDP while public foreign debt has negative effect on the GDP and the total factor productivity. The study did not offer any recommendation. In addition, the time series analysis

did not capture the data for three years: 2015; 2016; and, 2017 rendering the result of the study as obsolete at the time of publication.

Based on the empirical review, the study has identified some gaps. The major gaps identified are: that none of researches considered the simultaneous effect of the three components of external public debt on economic growth in Nigeria; that the period covered by the past studies are no longer current; and that some of the independent variables used – Paris and London Club components of external debt have been redeemed. Consequently, this study intends to fill these gaps by assessing the simultaneous effect of the components of the external debt on economic growth using the most recent time series data.

2.4 Theoretical Review

2.4.1 Keynesian Theory of Public Debt and its Economic Effect

Keynesians are economists and their beliefs on the dynamics of the economy represent an extension of the theories of the English Economists - John Maynard Keynes (1883-1946), (Ojong & Owui, 2013). Keynesian theory of public debt is on the assertion that government borrowing to finance budget deficit stimulates output, especially in times of recessions, by absorbing excess savings and boosting aggregate demand (Salsman, 2017). The Keynesian doctrine changes the liberal principles that the other schools of thought heavily rely upon. In particular, in response to the economic downturn of those times, the Keynesians attach great importance to the government, whose interference in the economy not only are no longer accused, but are encouraged to support the actions of the market and to correct its imperfections (Bilan, 2016).

On the economic effects of public indebtedness, the Keynesian view differs from other economists, as public borrowing is no longer blamed for its disastrous effect on the economy. According to Keynes (1982) public debt is an indispensable tool that guarantees balanced growth of the economy. There are two points to support the change in perspective. On one hand, by agreeing to the extension of the scope of the government roles, public spending ceases to represent an unrecoverable consumption of resources, negatively impacting on the national wealth of the nation as a whole.

The intervention of public authorities in value adding activities like public works, on the contrary, helps avoid negative impact on economic growth. On the other hand, the reconsideration of the involvement of government, in the sense of accepting the task of countering disturbing economic and social phenomena, gives new meanings to government borrowing, as ways of intervention to correct imbalances and enhance economic growth. Although Keynes on his part supports government borrowing, its application is subject to periods of economic downturn (Bilan, 2016). This study adopts the Keynesian theory on public indebtedness that asserts positive connection between public debt and economic growth, and it is on this that the study's a priori expectation is built on.

3. Methodology

The research design adopted for this study is specifically *Ex post facto* research design. This study uses a quarterly time series data covering the period 2007Q1 to 2020Q3. The variables of the study are: Independent variables - bilateral external debt, multilateral external debts and commercial external debt; and, dependent variable - gross domestic product. Data for the study is obtained from the Debt Management Office and National Bureau of Statistics quarterly reports, in addition to journal articles and other publications of the DMO. A Descriptive statistic is used to explain the data. A stationarity test, using Phillips-Perron (PP) unit root test, was conducted to test for the presence of unit root in the time series data. In addition, Johansen Co integration test was carried out to investigate possible correlation among the variables of this study. This approach is preferred in this study, as it allows the researcher to estimate a dynamic error correction specification, which provides estimates of both the short and the long run dynamics

(Johansen, 1988). The data obtained is also analysed using Ordinary Least Square through Eviews 10 Statistical Package.

The model is specified as follows:

$$GDP = f(BED, MED, CED).....(1)$$

The econometric form of equation (1) is represented as:

$$GDP_t = \alpha + \beta_1 BED_t + \beta_2 MED_t + \beta_3 CED_t + \mu.....(2)$$

Where: GDP= Gross Domestic Product; BED= Bilateral External Debt; MED= Multilateral External Debt; CED= Commercial External Debt; α =Intercept or Constant; β = Slope of the regression line with respect to the independent variables; μ =Error Term. The a priori expectations of the model are that all the slopes are expected to be greater than zero as adopted from the work of Chinaemerem and Anayochukwu (2013). Thus, β_1 to $\beta_3 > 0$.

The Co integration model of the study is represented by:

$$\Delta GDP_t = \mu + \sum_{i=1}^{n-1} \Gamma_i \Delta GDP_{t-i} + \sum_{i=0}^{m-1} \gamma_1 \Delta BED_{t-i} + \gamma_2 \Delta MED_{t-i} + \gamma_3 \Delta CED_{t-i} + ECM_{t-1} + \varepsilon_{t.....(3)}$$

Where: GDP= Gross Domestic Product; BED= Bilateral External Debt; MED= Multilateral External Debt; CED= Commercial External Debt; and ECM = Error-correction coefficient; ε = Error term; Δ = First difference operator; μ =Intercept or Constant; $t-i$ = Time lagged; $\gamma_1- \gamma_3$ = coefficient of independent variables.

4. Data Analysis and Discussion of findings

4.1 Unit Root Test

To examine the existence of a stochastic non-stationarity in the series, the research establishes the order of integration of individual time series through the Phillips-Perron (PP) unit root tests. The variables tested are GDP, BED, MED and CED with results as presented in Table 2 above. From the Table, it can be seen that GDP, BED, MED and CED are found to be non-stationary at level as their p-values are all above the 0.05 significant level. Further test indicates that GDP, BED, MED and CED are found to be stationary at first difference, that is, at order I(1). The PP test statistics are greater than their respective tabulated values and their p-values are all below the 0.05 significant level for this study. Since the variables are found stationary at first order I(1), the Johansen approach to co integration is applied to determine the long run relationship among the variable

Table 2: Unit Root Test Result

Variables	At Level		At First Difference		Order of Integration
	Adj. T-Statistic	Prob. Values	Adj. T-Statistic	Prob. Values	
<i>GDP</i>	-2.824319	0.0615	-15.18844	0.0000	I(1)
<i>BED</i>	5.573012	1.0000	-5.130872	0.0001	I(1)
<i>MED</i>	4.254996	1.0000	-4.103962	0.0021	I(1)
<i>CED</i>	-0.008361	0.9952	-6.454138	0.0000	I(1)

Source: Researchers' Computation 2021.

4.2 Co-integration Test

The Trace test of Johansen co integration shows there are four indications of co integration at 0.05 significance level as shown in its Trace statistics of none, At most 1, At most 2, At most 3 (77.52734, 46.91074, 23.07559 and 6.006562) are greater than their respective 0.05 critical values (47.85613, 29.79707, 15.49471 and 3.841466), while the p-values (0.0000, 0.0002, 0.0030 and 0.0142) are below the 0.05 level of significance for this study. Also, the maximum Eigenvalue test of Johansen co integration confirms there are four indications of co integration at 0.05 significance level as shown in its Max-Eigen statistics of none, At most 1, At most 2 and At most 3 (30.61660, 23.83515, 17.06903 and 6.006562) which are greater than their respective 0.05 critical values (27.58434, 21.13162, 14.26460 and 3.841466), while its p-values (0.0198, 0.0203, 0.0175 and 0.0142) are all below the 0.05 level of significance. Since there is co integration in the two criteria of Johansen co integration test, it implies there is long run relationship between bilateral external debt, multilateral external debts, commercial external debt and gross domestic product. This suggests the use of Vector Error Correction model.

Table 3: Johansen Co integration Analysis

Unrestricted Co integration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.438797	77.52734	47.85613	0.0000
At most 1 *	0.362193	46.91074	29.79707	0.0002
At most 2 *	0.275343	23.07559	15.49471	0.0030
At most 3 *	0.107145	6.006562	3.841466	0.0142

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Co integration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.438797	30.61660	27.58434	0.0198
At most 1 *	0.362193	23.83515	21.13162	0.0203
At most 2 *	0.275343	17.06903	14.26460	0.0175
At most 3 *	0.107145	6.006562	3.841466	0.0142

Max-eigenvalue test indicates 4 cointegrating eqn(s) at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-values

Source: Authors' computation, 2021

4.3 External public debt and economic growth in Nigeria

The error correction term equation which shows the cointegrating relationship between variables, signifies long run effect. This is indicated by the bilateral external debt t-statistics of 3.57031, multilateral external debt t-statistics of 6.62468 and commercial external debt t-statistics of 2.34047 which are all above 2, establishing the long run relationship among bilateral external debt, multilateral external debts, commercial external debt and gross domestic product.

The result in Table 4, shows that bilateral external debt has a negative and significant effect on gross domestic product at lag one because the t-statistic of 2.56428 is greater than 2, indicating that increase in bilateral external debt will decrease gross domestic product to the extent of -7.91%. Therefore, the study rejects null hypothesis, which states that bilateral external debt has no significant effect on gross domestic product in Nigeria. The effect of bilateral debt on growth is not in conformity with the a priori expectation of the study and is in line with the findings of

Mbah, Umunna and Agu (2016) but contrary to the works of Silva (2020); Tuncer (2019); Odubuasi, Uzoka, and Anichebe (2018); Paul (2017); and, Sulaiman and Azeez (2012) who discovered positive and significant effect of external debt on growth.

According to the statistics in Table 4, the multilateral external debt shows a positive and insignificant effect on gross domestic product at lag 2 because its t-statistics of 0.07883 is less than 2, indicating that increase in multilateral external debt will increase gross domestic product to the extent of 0.09%. Therefore, the study accepts the null hypothesis, which states that multilateral external debt has no significant effect on gross domestic product in Nigeria. Further, the Table 3 shows that commercial external debt has a positive and insignificant effect on gross domestic product at lag one as its t-statistics of 0.04196 is less than 2, indicating that increase in commercial external debt will increase gross domestic product to the extent of 0.03%. Therefore, the study accepts the null hypothesis which states that commercial external debt has no significant effect on gross domestic product in Nigeria.

Conclusively, the positive nexuses of external multilateral and commercial debts with economic growth in Nigeria imply conformity to the economic a priori expectation of the study and these conclusions are in line with the findings of Lotti, Maffioli, Presbitero, Rodolfo and Stucchi (2019) who discovered positive impact of debt (multilateral) on growth but contrary to the works of Ajayi and Edewusi (2020); Abdur Rauf and Amara (2017); Festus and Saibu (2019); Ujuju and Oboro (2017); and, Gachungaland Kuso (2018) who observed negative effect of debt on growth.

The Table 4 also shows that the previous year's deviation from long run equilibrium is corrected in the current period at an adjustment speed of 1.4%. The coefficient of determination (R^2) is 0.748086, implying that the components of external debt BED, MED and CED explain variation on gross domestic product to the extent of 75%, while the remaining variation was explained by other variables not captured in the model.

Table 4: Vector Error Correction Model

Standard errors in () & t-statistics in []				
Cointegrating Eq:	CointEq1			
GDP(-1)	1.000000			
BED(-1)	43.95036			
	(12.3099)			
	[3.57031]			
MED(-1)	-20.44505			
	(3.08619)			
	[-6.62468]			
CED(-1)	2.589222			
	(1.10629)			
	[2.34047]			
C	568.3424			
Error Correction:	D(GDP)	D(BED)	D(MED)	D(CED)
ECM(-1)	-0.013807	-0.007755	-0.006825	-0.043580
	(0.02757)	(0.00134)	(0.00585)	(0.00506)
	[-0.50082]	[-5.78635]	[-1.16729]	[-8.61902]
D(GDP(-1))	-0.147862	0.001830	-0.037377	0.051460
	(0.09567)	(0.00465)	(0.02029)	(0.01755)
	[-1.54556]	[0.39351]	[-1.84205]	[2.93275]
D(GDP(-2))	-0.855025	0.009949	0.029776	0.043096
	(0.10184)	(0.00495)	(0.02160)	(0.01868)
	[-8.39544]	[2.00945]	[1.37847]	[2.30717]
D(BED(-1))	-7.909022	0.469097	2.550110	0.198600
	(3.08431)	(0.14994)	(0.65417)	(0.56569)
	[-2.56428]	[3.12858]	[3.89823]	[0.35107]
D(BED(-2))	6.198807	0.178365	1.726218	2.063174
	(3.94375)	(0.19172)	(0.83645)	(0.72332)
	[1.57181]	[0.93035]	[2.06373]	[2.85235]
D(MED(-1))	-1.057018	-0.057937	0.126103	-0.545986
	(0.82265)	(0.03999)	(0.17448)	(0.15088)
	[-1.28490]	[-1.44872]	[0.72274]	[-3.61862]
D(MED(-2))	0.089703	-0.153246	-0.537304	-0.926775
	(1.13792)	(0.05532)	(0.24135)	(0.20871)
	[0.07883]	[-2.77027]	[-2.22626]	[-4.44058]
D(CED(-1))	0.027639	-0.150166	-0.234360	-0.201326
	(0.65866)	(0.03202)	(0.13970)	(0.12080)
	[0.04196]	[-4.68981]	[-1.67761]	[-1.66655]
D(CED(-2))	-0.831932	-0.059069	-0.082356	-0.567406
	(0.69975)	(0.03402)	(0.14841)	(0.12834)
	[-1.18890]	[-1.73645]	[-0.55490]	[-4.42108]
C	437.4343	45.36061	56.35425	204.1658
	(168.878)	(8.20973)	(35.8183)	(30.9739)
	[2.59024]	[5.52522]	[1.57334]	[6.59154]
R-squared	0.748086	0.565572	0.625020	0.692326
Adj. R-squared	0.694105	0.472481	0.544667	0.626395
F-statistic	13.85819	6.075435	7.778450	10.50089
Akaike AIC	16.24510	10.19739	13.14367	12.85304
Schwarz SC	16.62034	10.57263	13.51891	13.22828
Number of coefficients		44		

Source: Author's computation (2012) using Eviews 10

5. Conclusion and Recommendations

This study examined the effect of disaggregated external debt on economic growth in Nigeria for the period 2007Q1 to 2020Q3. Based on the findings of the study, it can be concluded that there is an existence of equilibrium relationship between bilateral external debt, multilateral external debts, commercial external debt and gross domestic product in Nigeria. The study also found that bilateral external debt has a negative and significant effect on gross domestic product. This means that the use of bilateral external debt to fund budget deficit in Nigeria will not automatically influence growth of the economy. The study, in addition, found that multilateral external debt has positive but insignificant effect on gross domestic product, implying that an increase in multilateral external debt will increase economic growth and the result is in conformity with the economic a priori expectation of the study. While the study also found that commercial external debt has a positive and insignificant effect on gross domestic product. This suggests that borrowings from multilateral and commercial external sources are contribute to the growth of the economy in Nigeria. This result is in conformity with the economic a priori expectation of the study. The study finally discovered that the three components of the external debt (independent variables) explain the variation in gross domestic product to the extent of 75%.

Based on the findings of this study, it is recommended that:

- i. The Federal Government should give less priority to bilateral loans in funding its budget deficit as high exposure to bilateral loans may not be health to the economy.
- ii. As regards to the multilateral loans, the Federal Government should continue borrowing from this source because its strong influence in lowering the average cost of borrowing for the Government; and,
- iii. The Federal Government should continue borrowing from the external commercial window subject to cost and risk involved.

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