Debt Servicing To Revenue Ratio (DSR) in the Context of Fiscal Space, Barro-Ricardian Equivalence and Debt Sustainability in Nigeria (General Outlook and Trend)

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Abstract

The study examined general outlook and trend on debt servicing to revenue ratio (DSR) in the context of fiscal space, Barro-Ricardian equivalence and debt sustainability in Nigeria using descriptive statistics and quantitative analysis in line with Mugun (2021) recommendation that Sub Saharan African countries should exhibit restrain in contracting new external debt since total debt servicing was associated with decline in economic growth. Nigeria's debt service/ratio (97% as at December, 2021) which is abysmally high as against the World Bank prescribed debt service to revenue ratio of not more than 22.5 per cent. Which means in Nigeria, for every N100 earned or generated, it spend N97 in debt servicing. The debt-servicing ratio to revenue generation including both internal and external debts grows rapidly. This is an abysmal case of revenue challenge that may lead to debt sustainability problem if not properly managed. The study considered both subsidy and tax reform as inevitable in the short and medium term because Nigeria fiscal space is untenable. It is worth noting that this paper supported the Barro-Ricardian equivalence proposition that huge debt servicing via budget deficits implies debt-finance reduction in government revenue. Optimal debt policy, optimal national saving, management of government debt with instruments of varying maturities. Need to look keenly into area of grants, that can clearly provide some fiscal space, in contrast to borrowing, where debt sustainability considerations are relevant, Nigeria governments can do private partnerships to create more fiscal space to finance infrastructure investment that normal budgetary ceilings would limit. The study makes recommendations on improving government revenue, creating fiscal space for infrastructural development and ensuring sustainable deficit and debt levels through an efficient and effective debt management plans.

Keywords: *Barro-Ricardian equivalence, debt servicing, debt servicing to revenue ratio (DSR), debt sustainability, fiscal space and revenue*

JEL Classification Codes: B52, H63, H80, H69, H62, H0

1.0 Introduction

Two of the most common measures adopted by government to stimulate the economy are increasing government borrowings and implementing tax cuts. According to Osodiuru, Odo, Ugwuoke, and Chikwendu (2018), Barro-Ricardian equivalence proposed that government could stimulate the economy through increase in debt for financing of government spending while the demand remains constant. However, the Management of government debt is a worldwide issue being examined by the executives and legislatures of main developing and developed nations (Maslov, 2015). Debt management and or servicing have relationship with government revenue generation and utilization, Asaolu, Akinadewo & Oyedokun, 2020; Osodiuru et al., 2018).

There have been concerns about Nigeria's rising debt profile. According to Debt Management Office (DMO) and as at December, 2021. , a review of Creditors shows that 48.6% of the country's external debt is owed to multilateral organizations, with $3.46 billion being owed to the the International Monetary Fund (IMF); $11.97billion owed to the International Development association (IDA) of the World Bank; $1.55billion in debt to the Africa Development Bank amongst other sources. Bilateral debts include $3.63billion from EXIM Bank of China; $561.6million (France); $71.79million (Japan); $164.27million (Germany) and $33.48million from EXIM Bank of India. Nigeria's debt service-to-revenue ratio which stood at a staggering 118.9 percent from January to April 2022, has been ranked the worst in the world by the Economist Intelligence Unit (EIU). According to EIU, at ₦3.1 trillion, the government deficit in January to April, 2022 was almost double its income and stemmed from a 50.9 percent shortfall in revenue relative to budget, despite an underspend of 18.3 percent. The EIU confirmed that Nigeria's fiscal position is untenable despite high international oil prices.

Debt service refers to the portion of national budget funds allocated for paying country's debt obligation including the principal payments and interest payments. The 2022 budget has a deficit of about ₦6.25 trillion and it is expected to be serviced and financed by new borrowings, privatization proceeds and drawdown on loans secured for specific projects. According to 2022 budget, the deficit which represents 3.46 percent of gross domestic products would be financed mainly by domestic debt: ₦2.47trillion; Foreign debt: ₦2.59trillion' multi-lateral/bilateral loan drawdowns: N1.16trillion and privatization proceeds: ₦90.73billion. According to Jadoon and Sarwar (2015), debt servicing is eating a significant amount of tax revenue and it is generally accepted that if debt grow larger than country's paying capacity it slow down the economic progress and high level of debt servicing may reduce the government expenditure on health and education. In the same vein, Budget deficit is projected to be N5.62trillion in 2021 up from N5.60trillion in 2020.This represents 3.05% of estimated GDP, which is marginally above the threshold of 3% stipulated in the Fiscal Responsibility Act (FRA), 2007. We consider this level of deficit necessary to sustain our recovery from recession, as well as ensure that critical ongoing infrastructure projects are completed. The deficit will be mainly financed by new foreign and domestic borrowings of N4.89trillion, N90.73billion from Privatization Proceeds, and N638.32billion drawdowns on existing project tied loans.

The total federally distributable revenue is estimated at ₦12.72 trillion while total revenue available to fund the 2022 Federal budget is estimated at ₦10.13trillion. Oil revenue is projected at ₦3.16trllion, Non-oil taxes are estimated at ₦2.13trillion and Federal Government

Independent revenues are projected to be ₦1.82trillion. It is expected that the total fiscal operations of the Federal Government will result in a deficit of ₦6.26trillion. This will represent 3.39% of the estimated Gross Domestic Product (GDP), slightly above 3% threshold set by the Fiscal Responsibility Act, 2007. According to Heller (2005), judgments on fiscal space are inherently country specific, requiring detailed assessments of a government's initial fiscal position, its revenue, debt servicing cost, expenditure structure and the characteristics of its outstanding debt obligations.

Various studies indicated divergent views on the interconnectedness among debt servicing, total revenue generation, debt sustainability and fiscal space Total Debt Service, Capital and Inflation on economic growth Public investment Budget Deficit Macroeconomic variables Current account Balance (Mugun, W., (2021) Philip, D. S., (2021) Muli, J. M., & Ocharo, K. N., (2018) Jadoon, A. K., & Sarwar, A. A. A., 2015 Ikue, N. J., Medee, P., Denwi, J. O., & Sodipo, J. A., 2021 Robertson, K., 2021). The objective of this study is however to distinctively embark on quantitative analysis of debt servicing to revenue ratio in the context of fiscal space, Barro-Ricardian equivalence and sustainability in Nigeria.

The study is organized as follows. Section 2 of this study is on literature reviews which comprises of conceptual review, theoretical review and empirical review of Barro-Ricardian equivalence, debt servicing, debt servicing to revenue ratio (DSR), debt sustainability, fiscal space and revenue. Section 3 dwelt on source of data collection and methodology. Section 4 considers some of the data on government debt-service ratio. Data presentation, analysis and discussion of findings. And Section 5 considered conclusion, recommendations and perspectives on how the government should use its ability to borrow.

2.0 Literature review

2.1 Conceptual Review

Barro-Ricardian equivalence: Barro-Ricardian equivalence is a concept that government's choice between debt and tax finance of government expenditure is irrelevant. The issuing of government debt to finance a tax cut represents not a reduction in tax burden but merely a postponement of it. Government debt might matters if it represent redistribution of resources across different generations of taxpayers. It is simply referred to the theory of debt neutrality. According to Ahmet, S. I. (2020) the extent of applicability of Barro-Ricardian equivalence could vary across nations. This theory has been widely interpreted as undermining the Keynesian notion that defict spending can boost economic performance, even in the short run.

Debt Servicing: Debt servicing is a major fiscal item on the recurrent expenditure. It is pertaining to debt service inform of interest payment and principal payment on domestic debt, foreign debt, sinking fund and interest on ways and means. Debt service refers to money or fund required to pay the principal and interest on an outstanding debt for a particular period of time. Debt-servicing problems have reached a point where many developing countries have to refinance existing debt. Sometimes this is done by issuing new debt obligations to obtain foreign exchange. Recent examples are the acute debt-serving problems of Peru and Zaire.

Fiscal Space: Heller (2005) defines the concept of fiscal space judging from whether there is scope for additional expenditure and it is linked to debt sustainability and how IMF can support appropriate efforts to create fiscal space and debt absorptive capacity. The required fiscal space indicates that the debt-stabilizing response of fiscal policy varies. A rising level of government debt can raises the issue of adequacy of the fiscal space and fiscal policy formulated by government (Butkus & Seputiene, 2018). The idea is that in creating fiscal space, additional resources can be made available for some form of meritorious government spending. The incentive for creating fiscal space is strengthened where the resulting fiscal outlays would boost medium-term growth and perhaps even pay for itself in terms of future fiscal revenue. Additional revenue can be raised through tax measures or by strengthening tax administration. Lower priority expenditure can be cut in order to make room for more desirable ones. Resources can be borrowed either from domestic or external sources. For Developing country like Nigeria, the issue of fiscal space arises in the immediate term. It is the availability of budgetary room that allows a government to provide resources for a desired purpose without any prejudice to the sustainability of a government's financial position. There is pressing need for expenditure today, and the challenge is how to find the resources for their financing.

Revenue: Federation account revenue sources are indirect taxes (company income tax, petroleum profit tax, capital gain tax, back duty assessment, personal income tax of the foreigners residing in Nigeria), Indirect taxes (custom and excise duties, forfeiture penalties, Value added tax) and Mining (Oil pipeline license fees, rents of mining rights, mining fees, royalties on minerals, NNPC earnings from direct oil sales, rent on oil well and penalties for gas flared). Consolidated revenue fund sources include shares from federation account, direct taxes(PAYE), licenses and internal revenue, mining(solid mineral fees, earnings and sales, rent of government property, interest and general repayment, sale of property of Armed forces, reimbursements and miscellaneous. While some of the revenue generating initiatives and agencies in the Nigerian budget are commendable, a key focus area may be to explore avenues to diversify export revenue sources away from crude oil which currently accounts for more than 85% of the total revenue and foreign exchange receipt. Most times, estimated revenues are not realizable due to unrealistic assumptions such as weak fundamentals and structural imbalances.

Debt sustainability: the recourse to considerations of fiscal sustainability recognizes that with growth, additional fiscal resources will become available to governments, reflecting the buoyancy of revenues, particularly if expenditures rise less rapidly. Assessing debt sustainability is critical is critical because unsustainable debts often end up in some costly combination of default, inflation, and a broken financial system. It is critical because sustainability is inextricably linked to debt servicing, that is the government's ability to honour all its financial current and obligation on debt. Government debt implies future taxes that would not necessary if the expenditure were financed with current taxation. A budget deficit today required higher taxation in the future but government tends to postpone the tax burden indefinitely. According to Williems and Wyplosz (2021), Debt sustainability does not easily translate into operational concepts and indicators. Servicing the debt is a strategic decision, the result of a cost-benefit analysis, and uncertainty around public debt development is large and difficult. While debt sustainability indicators capture the size of fiscal space that is eventually required for debt to remain on a stable path.

Debt Servicing to Revenue(DSR): The government budget constraint, we use the simple arithmetic of debt servicing to revenue ratio to derive a formal definition of debt sustainability as common operational condition satisfying the solvency constraint i. e., the stabilization of the debt servicing-to-revenue ratio. The World Bank prescribes debt service to revenue ratio of not more than 22.5 per cent. According to Mitra (2007), a high government debt could constrain monetary policy if the government spending rather than taxes is expected to adjust in future in line with debt service cost.

2.2 Theoretical Review

Ricardian Equivalence Theory

The modern Ricardian equivalence theorem focuses on the intertemporal equivalence between taxation and bond financing of government expenditures that David Ricardo considered practically irrelevant rather than their contemporaneous equivalence in terms of the opportunity cost of government spending. The term Ricardian equivalence was coined by the American economist Robert in the 1970s. The Ricardian equivalence theorem ascribes to David Ricardo (1772-1823) the English economist the view that taxation and public borrowing constitute equivalent forms of financing public expenditure. The rationale behind this view is that the government is expected at some future time to redeem its debt.

This theory was elaborated upon by Harvard professor Robert Barro for this reason Ricardian equivalence is also known as the Barro-Ricardo Equivalence Proposition. According to Barro (1974), another way to view the Ricardian argument is suggested by the title of his classic paper ‘’Are Government Bonds Net wealth?’’. Government debts to the taxpayers are liabilities. It makes taxpayers poorer. By and large, no wealth is created. The difficulty with this approach is that the interest burden on the debts (i.e. debt servicing cost) must be serviced by future taxes. Hence existence of government debts will not generate any net wealth effect.

In essence, the Ricardian argument combines two fundamental ideas: the government budget constraint and the permanent income hypothesis. The government budget constraint says that lower taxes (revenue generation) today implies higher taxes (revenue generation) in the future. The Permanent income hypothesis says a debt financed tax cut alters the path of the tax burden but not its present value, it does not alter permanent income. The main assumptions of Ricardian equivalence theory are income life-cycle hypothesis, rational expectations on behalf of consumers; capital markets and tax cuts for the present generation may imply tax rises for future generations.

Barro’s treatment of Ricardian comparability has received acceptance in the setting of national government. The underlying proposition behind Barro –Ricardian equivalence is that no matter how a government chooses to increase spending, whether by debt financing or tax financing, the outcome is the same (Hayo & Neumeier, 2017). According to Ahmet (2020), the study explored the long-run relationship between domestic borrowing and private savings in Turkey. The empirical results indicated that Barro-Ricardian equivalence is applicable in the Turkey.

2.3 Empirical review

Ikue, Medee, Denwi, and Sodipo (2021) examined the sustainability of public debt as well as the causal relationship between fiscal and trade deficits in Nigeria from 1960-2019. The unit root, cointegration and granger causality were employed for test of sustainability of budget and trade deficits. The study sourced data from Debt Management Office, Central Bank of Nigeria and world Development Indicators Bulletins. The results from the analysis shows that the Nigeria public debt policies are not sustainable. This implies that revenue have performed far below expectation leading to advance of the government to depend on internal and external debt to meet expenditure demand.

Jadoon and Sarwar (2015) aimed to answer research question "Does Debt Servicing hinder public investment in Pakistan. The study is designed to check impact of debt servicing on the public investment using autoregressive distributed lag (ARDL) approach on the data ranging from 1981-2014. The results suggested that debt servicing has negative but insignificant impact on the public investment in Pakistan.

Philip (2021) investigated the nexus between a budget deficit and selected macroeconomic variables in Kenya. The study used time series data for the period from 1976 to 2018 and employed the Vector autoregression model reinforced by the Keynesian Mundell-Fleming framework. It was concluded that external debt servicing and current account deficit shocks had a negative impact on the budget deficit.

Mugun (2021) explored the effect of total debt service on economic growth in Sub-Saharan Africa(SSA). The random effect model results indicated that total debt service had positive and statistically significant relationship with economic growth in SSA. The study recommended that SSA countries should exhibit restrain in contracting new external debt since total debt servicing was associated with decline in economic growth.

Asaolu, Akinadewo, and Oyedokun (2020). The study examined the impact of domestic debt management on government revenue in Nigeria. The study employed logit regression technique for data analysis. The empirical investigation shows that domestic debt management will have inverse relationship with inefficiency in government revenue utilization. The study recommends among others for a more proactive domestic debt management team for better utilization of government revenue.

3.0 Data and Methods

This study used descriptive statistic and quantitative analysis to investigate statistical data from 2012 to 2021. The quantitative analysis provides us with tools to examine and analyse past, current, and anticipate future events.

The study sourced data from Debt Management Office, Central Bank of Nigeria and world Development Indicators Bulletins.

4.0 Data Analysis

Table 4.1

YEAR	DEBT SERVICING(DS) ₦'TRILLION	REVENUE(R) ₦'TRILLION	DSR RATIO	% DSRR
2012	0.53	3.10	0.171	17
2013	0.80	3.40	0.235	24
2014	0.91	3.25	0.280	28
2015	1.00	3.15	0.317	32
2016	1.35	3.12	0.433	43
2017	1.60	3.60	0.444	44
2018	2.10	3.90	0.538	54
2019	2.40	4.60	0.522	52
2020	3.25	4.00	0.813	81
2021	4.20	4.35	0.966	97

Source: Author's Computation

The debt servicing to Revenue ratio (DSR) which is 17% in the fiscal year 2012 rose to 24% in 2013 and 24% in 2014 which is still within World Bank prescribed ratio of 25%. Meanwhile, debt service obligation continues to trend upward given continuous borrowings by the Federal Government to finance Nigeria's budget deficit 81% in 2020 and 97% in 2021.

Table 4.2

YEAR	DEBT SERVICING(DS) ₦'TRILLION	ABSOLUTE CHANGE ₦'TRILLION	PERCENTAGE CHANGE %
2012	0.53		
2013	0.80	0.27	51
2014	0.91	0.11	14
2015	1.00	0.09	10
2016	1.35	0.35	35
2017	1.60	0.25	19
2018	2.10	0.50	31
2019	2.40	0.30	14
2020	3.25	0.85	35
2021	4.20	0.95	29

Source: Author's Computation

Table 4.3

YEAR	REVENUE(R) ₦'TRILLION	ABSOLUTE CHANGE ₦'TRILLION	PERCENTAGE CHANGE %
2012	3.10		
2013	3.40	0.30	10
2014	3.25	-0.15	-4
2015	3.15	-0.10	-3
2016	3.12	-0.03	-1
2017	3.60	0.48	15
2018	3.90	0.30	8
2019	4.60	0.70	18
2020	4.00	-0.60	-13
2021	4.35	0.35	9

Source: Author's Computation

2020/2021: Nigeria's Federal Government incurred a sum of ₦4.20 trillion on debt servicing in 2021, increasing by 29% compared to ₦3.25 trillion spent in 2020. On the other hand, revenue for the period only increased by 9% to ₦4.35trillion. This means that Nigeria spent about 96% of its revenue on debt servicing obligations in 2021 compared to Nigeria's debt service-to-revenue ratio increased from 81% in 2020 to 97% in 2021.

2019/2020: Nigeria's Federal Government incurred a sum of ₦3.25 trillion on debt servicing in 2020, increasing by 35% compared to ₦2.40 trillion spent in 2019. On the other hand, revenue for the period only decreased by 13% to ₦4.00trillion. This means that Nigeria spent about 96% of its revenue on debt servicing obligations in 2020 compared to Nigeria's debt service-to-revenue ratio increased from 52% in 2019 to 81% in 2020.

2018/2019: Nigeria's Federal Government incurred a sum of ₦2.40 trillion on debt servicing in 2019, increasing by 14% compared to ₦2.10 trillion spent in 2018. On the other hand, revenue for the period only increased by 18% to ₦4.60trillion. This means that Nigeria spent about 96% of its revenue on debt servicing obligations in 2019 compared to Nigeria's debt service-to-revenue ratio increased from 54% in 2018 to 52% in 2019.

2017/2018: Nigeria's Federal Government incurred a sum of ₦2.10 trillion on debt servicing in 2018, increasing by 31% compared to ₦1.60 trillion spent in 2017. On the other hand, revenue for the period only increased by 8% to ₦3.90trillion. This means that Nigeria spent about 96% of its revenue on debt servicing obligations in 2018 compared to Nigeria's debt service-to-revenue ratio increased from 44% in 2017 to 54% in 2018.

2016/2017: Nigeria's Federal Government incurred a sum of ₦1.60 trillion on debt servicing in 2017, increasing by 19% compared to ₦1.35 trillion spent in 2016. On the other hand, revenue for the period only increased marginally by 15% to ₦3.60trillion. This means that Nigeria spent about 96% of its revenue on debt servicing obligations in 2017 compared to Nigeria's debt service-to-revenue ratio increased from 43% in 2016 to 44% in 2017.

2015/2016: Nigeria's Federal Government incurred a sum of ₦1.35 trillion on debt servicing in 2016, increasing by 35% compared to ₦1.00 trillion spent in 2015. On the other hand, revenue for the period only decreased marginally by 1% to ₦3.12trillion. This means that Nigeria spent about 96% of its revenue on debt servicing obligations in 2016 compared to Nigeria's debt service-to-revenue ratio increased from 32% in 2015 to 43% in 2016.

2014/2015: Nigeria's Federal Government incurred a sum of ₦1.00 trillion on debt servicing in 2015, increasing by 10% compared to ₦0.91 trillion spent in 2014. On the other hand, revenue for the period only decreased marginally by 3% to ₦3.15trillion. This means that Nigeria spent about 96% of its revenue on debt servicing obligations in 2015 compared to Nigeria's debt service-to-revenue ratio increased from 24% in 2014 to 32% in 2015.

2013/2014: Nigeria's Federal Government incurred a sum of ₦0.91 trillion on debt servicing in 2014, increasing by 14% compared to ₦0.80 trillion spent in 2013. On the other hand, revenue for the period only decreased marginally by 4% to ₦3.25trillion. This means that Nigeria spent about 96% of its revenue on debt servicing obligations in 2014 compared to Nigeria's debt service-to-revenue ratio increased from 17% in 2013 to 24% in 2014.

2012/2013: Nigeria's Federal Government incurred a sum of ₦0.80 trillion on debt servicing in 2013, increasing by 51% compared to ₦0.53 trillion spent in 2012. On the other hand, revenue for the period only increased by 10% to ₦3.40trillion. This means that Nigeria spent about 96% of its revenue on debt servicing obligations in 2013 compared to Nigeria's debt service-to-revenue ratio is 17% in 2013.

5.0 Conclusion and Recommendation

Nigeria's debt service/ratio (97% as at December, 2021) which is abysmally high as against The World Bank prescribed debt service to revenue ratio of not more than 22.5 per cent. Which means in Nigeria, for every N100 earned or generated, it spend N97 in debt servicing. In a space of 10 years (2012-2021), Nigeria debt serving to revenue ratio has gone ballistic from 17% to 97%. The debt-servicing ratio to revenue generation including both internal and external debts grows rapidly. Between 2012 and 2021, Nigeria debt profile are more than doubled to $95.78billion (N45.2trillion). The total fiscal operations is expected to result in a deficit of N6.26trillion in 2022. Debt service is expected to gulp N3.61trillion and sinking fund of N292.71 to retire maturing bonds. This is an abysmal case of revenue challenge that may lead to debt sustainability problem if not properly managed. Increase in public debt in turn lead to higher interest rates in the country Monetary Policy Rate now 14% as at July 2022.

The unrelenting increase in the amounts borrowed by the Federal Government means that as revenue challenges persist, the country is spending almost all of its revenue on servicing debts, exposing the nation's financial stability to the threat of tight fiscal space. It will become increasingly more expensive for the government to fund its budget. Hence, the government will need to either prune down it expenditure plans or become more aggressive in revenue generation drive.

Raising revenue (increasing the revenue share in gross domestic products); reprioritization of expenditure (i.e. reducing unproductive expenditure); borrowing represents another options for the financing of additional expenditure. Both domestic and external borrowing imply the need to repay, thus raising the question of whether the return on expenditure justifies the cost of borrowing. For developing country like Nigeria, the possibilities of higher grants is increasingly plausible given the strengthening consensus on initiatives to reach the Millennium Development Goals (MDGs). Grants can clearly provide some fiscal space, in contrast to borrowing, where debt sustainability considerations are relevant. Nigeria governments can do private partnerships to create more fiscal space to finance infrastructure investment that normal budgetary ceilings would limit.

Accordingly, government fiscal deficit has increased significantly recently as these measures were undertaken amidst sharp decline in oil prices and revenue. Nevertheless, government will implement revenue and expenditure reform measures in the medium-term, aimed at strengthening government finances and reducing fiscal deficits overtime. As revenue collections improve, the need for deficit budgeting will decline. The lower budget deficit will reduce the rate of debt accumulation, increase in debt service payments, and contain deficit monetization and the attendant macroeconomic dislocations. Government will also explore more flexible borrowing options to finance the federal government deficit to moderate the impact of monetary financing. Total public debt will be kept within our self-imposed debt sustainability threshold of 40% of GDP to ensure debt sustainability. Government will consider setting other prudential limits like Debt Service/Revenue Ratio to ensure continuing sustainability of FGN's debts. Government will also negotiate a break on debt service with the Central Bank of Nigeria and foreign creditors.

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