E-ISSN: 2583-9667
Indexed Journal
Peer Reviewed Journal
https://multiresearchjournal.theviews.in

Received: 01-01-2024
Accepted: 07-03-2024

INTERNATIONAL JOURNAL OF ADVANCE RESEARCH IN MULTIDISCIPLINARY

Volume 2; Issue 2; 2024; Page No. 150-155

Impact of debt over-hoarding on economic development: Evidence from Nigeria

[1]Obamuyi TM, [2]Ayedun TA and [3]Igbasan ED

[1-3]Department of Project Management, School of Logistics and Innovation Technology Akure (FUTA), Akure, Ondo State, Nigeria

Corresponding Author: Igbasan ED

Abstract

The research investigated the effects of debt over-hoarding in Nigeria by analyzing time series debt values from 1981-2022 and using per capita income as a measure of economic development. Data were collected from the Statistical Bulletin of the Central Bank of Nigeria. A univariate regression analysis was conducted using Augmented Dickey Fuller Unit Root Tests. The results of the analysis indicate that retaining debt at high levels has a significant and beneficial impact on economic growth, with a probability value of 0.6822. The study concluded that well-managed debt can promote growth and contribute positively to economic development. It was recommended that the government allocate debts to productive investments and high-return projects such as road infrastructure and technological advancements to enhance productivity and economic development in Nigeria. Additionally, borrowing from domestic sources, even at a higher cost, was suggested to support the development of the financial market, with the expectation that this would lower the cost of domestic financing access in the medium to long term for the economy as a whole.

Keywords: Debt over-hoarding, economic development, per capital income

1. Introduction

There is currently a discussion in academic and policy circles about the increase in government debt levels and how it affects economic growth, particularly after the global financial crisis. In advanced economies, government debt has risen by around 50 percentage points since the crisis began. Countries in the Eurozone, especially those on the periphery, are facing challenges because of high debt levels, budget deficits, and slow growth.

1.1 Governments usually have four main goals in the economy: encouraging economic growth, generating employment, keeping prices stable, and achieving a balance in foreign trade. To achieve these objectives, governments use monetary and fiscal policies. Fiscal policy involves how the government spends and earns money. In some cases, especially in less developed countries, government spending surpasses revenue, causing fiscal deficits and unsustainable economic situations. This has led to Nigerian governments accumulating public debt by borrowing to cover budget shortfalls.

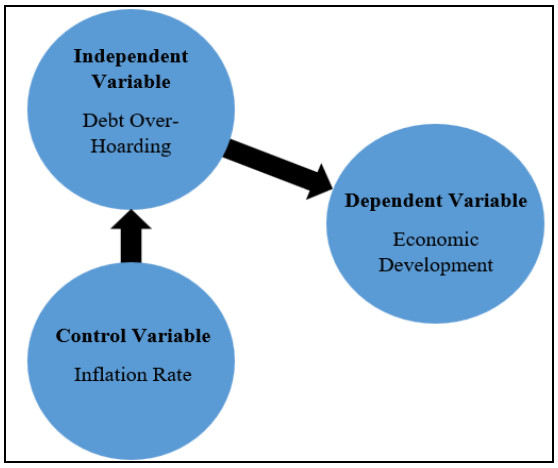
Accumulating public debt is often used to fund government spending on infrastructure and other capital projects to boost economic growth. However, in Nigeria, the outcomes have been unsatisfactory. Despite a large rise in public debt, the country's economic growth has fallen short of expectations. For instance, Nigeria's total debt is currently at N39.56 trillion (US$95.78 billion), with more than half owed to multilateral institutions (Eze, 2023) [5].

The Economic Recovery and Growth Plan (ERGP) was implemented from 2017 to 2020 to address the rising public debt and promote economic recovery. The ERGP had some success, with the economy experiencing growth of 2.3 percent in 2019 and 2.4 percent in 2021, according to Somkele (2022) [18]. However, this growth alone may not be enough to ensure long-term fiscal sustainability and economic recovery. Despite a significant decrease in debt between 2006 and 2020, Nigeria's GDP growth has been inconsistent, with negative growth in 2016. The economy continues to face challenges such as low investment, weak aggregate demand, high unemployment, and unstable growth, as noted by Abula & Ben (2016) [1]. In light of these conditions, it is crucial to examine the effects of increasing public debt on individual income levels between 1981 and 2022, and to evaluate how an overabundance of debt could impede economic growth.

This study aims to analyze how holding an excessive amount of debt impact the development of an economy

using Nigeria. The hypothesis of the study is therefore:
H_{01}: Debt over-hoarding does not have a notable impact on the economic development.

2. Materials and Methods
2.1 Conceptual review



***Source*:** Author's Computation, adapted from Nwala and Ogboji (2020)

Fig 1: Conceptual Framework for Debt Over-Hoarding and Economic Development

2.1.1 Economic development
Economic development, as stated by Egbide (2014) [3], is a crucial element of overall development, but it is not the sole factor. Development encompasses various other aspects beyond just the economy, involving the restructuring and realignment of both economic and social systems. This indicates that development is not solely determined by economic factors, but also includes a psychological aspect. Development involves the establishment of institutions and infrastructures such as railways, schools, and hospitals, among others.

2.1.2 Debt over-hoarding
The international community is now paying attention to the rising public debt in numerous developing nations, which is caused by various factors like falling oil prices, fluctuating exchange rates, and increasing interest rates. This has negatively affected the economies of these countries, with Nigeria being particularly affected (Favour, *et al*., 2017) [6]. Debt or borrowing is considered an important aspect of fiscal policy that governments can utilize to fund the development of a country. This involves spending money that is expected to enhance productivity and boost economic growth in the future (Muhammad, *et al*., 2017) [10].

2.2 Theoretical review
2.2.1 Profligacy theory
This research is based on Bohn's Profligacy theory from 1998, which emphasizes the role of institutional bargaining in loan agreements. According to the theory within system stability theory, debt is linked to insufficient institutions and policies that promote inefficiency, corruption, and a lack of dedication to improving quality of life. These conditions can also cause distortions in prices, promote capital outflow, and result in citizens holding significant assets and investments abroad (Oke & Sulaiman, 2012) [14]. The theory of profligacy aligns with the research of Ozurmba and Kano (2014) [15], who believe that debt is the result of countries borrowing money to fill the gap between savings and investments. They argue that using resources effectively and efficiently does not deplete future resources. They also emphasize that in order to sustain debt repayment, countries should implement effective external management strategies, including carefully planned schedules for acquiring, using, and retiring external debt. This indicates that a country's progress will be supported by sound debt management practices.

2.3 Empirical review
Eze (2023) [5] investigated the reasons behind the Nigerian federal government's continued reliance on Keynesian fiscal policy, particularly deficit financing, to boost economic growth despite the lack of alignment with the country's economic performance. The study utilized multiple regression analysis and an Autoregressive Distributed Lag (ARDL) model to analyze how external and domestic debt impact economic growth in Nigeria. The results revealed that both types of debt, external and domestic, have a negative impact on Gross Domestic Product (GDP), with external debt showing a more significant effect than domestic debt. The research recommended that the government refrain from using external debt for budget deficits, enhance internal revenue generation, implement strategies for economic diversification, and reduce governance expenses in Nigeria.
Panagiotis (2020) [16] examined the relationship between public debt in Greece and various factors such as private and government spending, investment, trade openness, and population growth. Through the use of unit root tests and the auto-regressive distributed lag (ARDL) model, he identified a combination of zero and first-order integration among the variables. The results of the ARDL model indicated a consistent correlation between the variables, where private and government spending, investment, and trade openness had positive effects on economic growth, while government debt and population growth had negative impacts. The study also delved into the impact of a Chow break point on the relationship between government debt and economic growth, revealing that the effect of government debt on growth changed significantly following a structural break in the debt. Specifically, it was observed that as government debt increased post-2000, its influence on economic growth diminished rapidly and turned negative. One limitation of the research was the absence of analysis on short-term effects, which could have shed light on the speed of adjustments between short and long run periods.
A study by Nassir and Wani (2016) [11] examined the correlation between public debt and economic growth in Afghanistan from 2008 to 2018 through analysis of variance (ANOVA). The research focused on various factors including GDP, government stock, advances from commercial banks, and external debt. The results indicate that government stock, advances from commercial banks, and external debt do not have a significant impact on Afghanistan's GDP. The study suggests that the government should establish a monitoring system for contingent liabilities and create a policy for their management.

Furthermore, it recommends implementing strategies to encourage investment in treasury bonds by private and institutional investors such as pension funds and insurance companies.

Isaac and Rosa (2019) [8] conducted a study analyzing the connection between public debt, public investments, and economic growth in Mexico from 1993 to 2016. They used dynamic panel data models and the generalised method of moments to examine various macroeconomic factors. The results showed that public debt had a positive effect on public investment and economic growth in Mexico. However, additional research is required to fully understand this relationship and its importance in emerging economies such as Nigeria.

Nzeh's (2020) [13] research, conducted using annual data from 1981-2018 and the Autoregressive Distributed Lag (ARDL) bounds technique, revealed that public debt can have a positive impact on economic growth in both the short-term and long-term. However, excessive public debt can lead to decreased growth in both timeframes. The study pinpointed the optimal debt threshold at 40.2% for both short-term and long-term scenarios. Furthermore, the findings indicated that trade openness benefits GDP, while inflation and fiscal deficit have adverse effects. The study suggests that policymakers should consider various indicators of debt sustainability rather than relying solely on the debt-GDP ratio when making borrowing decisions. It also advocates for collaboration between monetary and fiscal authorities to address inflation and emphasizes the importance of economic diversification.

Waliu *et al*. (2018) [20] conducted an in-depth examination of the correlation between external debt, corruption, and economic growth in five Sub-Saharan African nations spanning from 1990 to 2015. Employing Panel unit root and panel co-integration tests, the study meticulously analyzed the data. The outcomes, encompassing fully modified ordinary least squares (OLS) and dynamic OLS techniques, in addition to a panel Granger causality test, unveiled a significant negative impact of external debt on gross domestic product, showcasing a reciprocal relationship between external debt and economic growth. Intriguingly, the study also unearthed a positive correlation between corruption levels and economic growth, suggesting a counterintuitive notion that heightened corruption might spur economic growth. As a remedy, the researchers advocated for economic diversification and the exploration of alternative sources of investment funding by the governments of the studied countries. Nonetheless, the absence of debt service as a variable in the analysis raises questions about its potential influence on the results and recommendations, thus emphasizing the necessity for further exploration in this domain.

Elom-Obed *et al*. (2017) [4] investigated the relationship between public debt and economic growth in Nigeria from 1980 to 2015, utilizing various statistical tests. Their analysis of variables including real GDP, domestic private savings, external debt, and domestic debt revealed a negative and significant impact of both external and domestic debt on Nigeria's economic growth. Additionally, fluctuations in real GDP were found to be influenced by both domestic and external debt, indicating a causal relationship.

2.4 Summary and gap in the literature

Various studies conducted studies on the link between budget implementation and the growth of an economy. Additionally, the review highlighted a deficiency in research in this particular area. The majority of previous studies focused on countries such as Greece, Afghanistan, Mexico, other OECD nations, and various Sub-Saharan African countries. However, studies conducted in Africa, specifically Nigeria, only utilized one proxy for budget implementation, as noted by Eze (2023) [5], Eze and Ukwueni (2023) [5], and Sani and Nwite (2018) [17]. This research proposes that considering additional indicators for measuring debt over-hoarding could lead to a more comprehensive understanding of its impact on economic growth. Previous studies, such as those by Isaac and Rosa (2019) [8], Sani and Nwite (2018) [17], and Elom-Obed *et al*. (2017) [4], primarily focused on measuring economic growth using Gross Domestic Product (GDP).

This research study tackled the research issues by including variables such as debt over-hoarding in the analysis. Additionally, per capita income was used to gauge economic development. In contrast to earlier research that had shorter observation periods, this study lasted for 40 years from 1981 to 2021. The Autoregressive Distributive Lags (ARDL) model was used to analyze impacts and identify immediate relationships among the variables within the model.

3. Materials and Methods

This research study used an ex-post-facto research design to investigate quantitative variables like per capita income, debt over-hoarding, and inflation rate. Data Information was collected on a yearly basis from reliable sources like the Central Bank of Nigeria Statistical Bulletin and World Bank Data Indicators. These sources were chosen for their relevance to the research, given the regulatory role of the Central Bank of Nigeria. The study examined 42 observations from 1981 to 2022, employing descriptive and inferential statistics, including Autoregressive Distributed Lag (ARDL) to assess the impact of debt over-hoarding on economic development in Nigeria.

3.1 Operationalization of the Variables

This study adapts and modifies the model of Eze and Ukwueni (2023) [5] to express the econometric model.

3.1.1 Model for debt over-hoarding and economic development: This model is specified in Log format.

Log Model 1: $\log_q\sum PCIN_{it} = \alpha_0 + + \beta_1\log_{q1}\sum DOVD_{it} + \beta_2\log_{q2}\sum INF_{it} + \varepsilon_{it}$

Where:
PCIN = per capita income (Dependent variable)
DOVD = Debt Over-Hoarding
INF = Inflation Rate
log = Logarithm form
$\sum$ = Summation Value
q = Lag Length
α_0 = Constant or Intercept
β_1–β_2 = Coefficient of the explanatory variables;
β_3 = Coefficient of control variable
ε_{it} = Stochastic error term
The apriori expectation of this study is that: $\beta_1 < 0$.

4. Results and Discussion

4.1 Descriptive statistics analysis: It can been seen that both the median and average values were positive in all cases, indicating an upward trend in the variables LOGDOVD, INF, and PCIN from 1981 to 2022. Among these variables, PCIN exhibited the highest standard deviation, suggesting it is the most volatile and unpredictable. Conversely, LOGDOVD had the lowest standard deviation, indicating lower volatility. The skewness values for LOGDOVD, INF, and PCIN were positively skewed, indicating large values were more frequent over the specified time period.

The kurtosis values for the variables LOGDOVD and INF exceeded 3, indicating they have leptokurtic characteristics. This implies a distribution with thin tails, potentially due to outliers or large values in future data. In contrast, the PCIN variable had platykurtic characteristics, suggesting a distribution with fat tails and no outliers or large values in future data. Additionally, the probability values for Jarque Bera statistics for INF were below 5%, indicating non-normal distribution. Conversely, the probability values for LOGDOVD and PCIN were above 5%, indicating normal distribution for these variables.

Table 1: Descriptive Statistics

Statistics	Mean	Median	Max.	Min.	Std. Dev.	Skew	Kurtosis	Jarque-Bera	Prob
LOGDOVD	0.0785	0.06130	0.2521	-0.0559	0.0613	0.62746	3.38281	3.01244	0.22174
INF	18.946	12.9417	72.835	5.3880	16.455	1.87782	5.43706	35.057	0.00000
PCIN	1088.9	855.828	2512.0	180.63	702.53	0.33399	1.67091	3.87219	0.14426

***Source*:** Author's Computation, 2024

Note: LOGDOVD indicates debt over hoarding, INF indicates inflation rate, and PCIN represents per capital income

4.2 Correlation analysis

The correlation matrix results show a positive connection between inflation rate and the build-up of excessive debt. The highest correlation coefficient found in all models is 0.0785, suggesting a weak correlation between the variables. This suggests that there is no evidence of multicollinearity or perfect collinearity among the variables, as each pair is not perfectly correlated. Thus, there is no multicollinearity problem in the model being studied.

Table 2: Correlation analysis

Variables	LOGPCIN	LOGDOVD	INF
LOGPCIN	1		
LOGDOVD	0.1988	1	
INF	0.08454	0.1773	1

***Source*:** Correlation Result, 2024.

4.3 Stationarity test: Table 3 presents the critical values for various variables. The 5 percent critical value in absolute terms is around 2.95. The ADF-statistics for debt over hoarding and inflation rate at levels are approximately 5.08 and 3.05, respectively. This indicates that these variables have statistics higher than the 5 percent critical value, suggesting that they are not unit root at levels and are considered I(0) variables. On the other hand, per capita income shows unit root. The test was initially conducted on the study, which showed ADF statistics of 8.02 and 3.67 for per capita income. The values exceeded the critical value at a 5 percent significance level, suggesting that per capita income may be either stationary after the first difference or integrated at I(1). As a result, the variables under examination include a mix of I(0) and I(1) variables, indicating mixed integrations.

Table 3: Unit Root Test

Variable	ADF-Stat	5 percent CV	Prob	Int. Order
D(LDOVD)	-8.022531	-2.941145	0.0000	I(1)
LDOVD	-5.075203	-2.935001	0.0001	I(0)
INF	-3.050466	-2.935001	0.0385	I(0)
PCIN	-1.500266	-2.936942	0.5232	I(0)
D(PCIN)	-3.671502	-2.936942	0.0084	I(1)

***Source*:** Unit Root Test Result, 2024.

4.4.1 Test of hypothesis one

$H_0$1: Debt over hoarding has no significant effect on economic development in Nigeria: A study discovered a small, yet not statistically significant, connection between debt over hoarding and short-term economic development (Coefficient = 142.1489, t= 0.414286, P-value = 0.6822). Thus, the notion that debt over hoarding does not greatly influence economic development in Nigeria remains valid.

4.4.2 Relationship between Debt Over-Hoarding Economic Development in Nigeria

ARDL Error Correction Regression
Dependent Variable: D(PCIN)
Selected Model: ARDL(1, 2, 2, 2, 2)
Case 4: Unrestricted Constant and Restricted Trend
Date: 01/10/24 Time: 14:08
Sample: 1981 2022
Included observations: 40
ECM Regression

Case 4: Unrestricted Constant and Restricted Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4030.833	749.8098	-5.375808	0.0000
D(Logdovd)	142.1489	343.1179	0.414286	0.6822
D(Logdovd (-1))	-403.2389	344.8091	-1.169456	0.2532
D(INF)	-0.861665	1.568377	-0.549399	0.5876
D(INF(-1))	-3.163456	1.652160	-1.914740	0.0670
CointEq(-1)*	-0.260441	0.048218	-5.401273	0.0000
R-squared	0.679859	Mean dependent var		-4.881620
Adjusted R-squared	0.583816	S.D. dependent var		196.0685
S.E. of regression	126.4883	Akaike info criterion		12.73049
Sum squared resid	479978.5	Schwarz criterion		13.15271
Log likelihood	-244.6099	Hannan-Quinn criter.		12.88316
F-statistic	7.078738	Durbin-Watson stat		1.712724
Prob(F-statistic)	0.000020			
* p-value incompatible with t-Bounds distribution.				
F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	4.051910	10%	2.68	3.53
k	4	5%	3.05	3.97
		2.5%	3.4	4.36
		1%	3.81	4.92

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
Null hypothesis: Homoskedasticity			
F-statistic	0.661714	Prob. F(14,25)	0.7880
Obs*R-squared	10.81485	Prob. Chi-Square(14)	0.7005
Scaled explained SS	5.511211	Prob. Chi-Square(14)	0.9774

***Source*:** Conventional Augmented Dickey Fuller Regression, 2024

5. Findings and Conclusions

Research has shown that having a significant amount of debt could potentially contribute slightly to short-term economic growth, as evidenced by studies conducted by Nzeh (2020) [13], Sani and Nwite (2018) [17], and Isaac and Rosa (2019) [8]. This is due to the fact that debt can be used to fund projects that yield high returns, such as toll-gates, road infrastructure, emerging technology, research, and innovation, all of which have the potential to drive economic growth if managed efficiently. However, these results differ from the conclusions reached by Eze (2023) [5], Connolly and Li (2016) [2], and Waliu OS *et al*. (2020) [20], as they a negative effect of increase accumulation of debt on economic growth.

The study's empirical findings suggest that funds should be allocated to high-impact projects to boost economic development and address issues of inefficiency and mismanagement. Additionally, a well-managed debt can promote growth and benefit economic development. The trend analysis indicates a consistent increase in debt accumulation from 1981 to 2022, leading to higher debt servicing costs as recurrent expenditure rises. This may be due to a large portion of funds being used to pay off debt.

5.1 Recommendations

1. Government should ensure that debts are allocated to productive investment and high return project such as road infrastructure, technological advancement among others. This will enhance productivity and economic development in Nigeria.
2. The government should prioritize borrowing from domestic sources, even if it means paying higher interest rates, in order to promote the growth of the financial market. This is expected to eventually decrease the overall cost of accessing domestic financing for government activities.
3. If the government needs to borrow money, it should ensure that it does not exceed the caps set as a percentage of previous years' revenue.
4. The government should only borrow funds temporarily and in exceptional circumstances. The borrowed money should be subject to market rates, and repayment should be made within the same fiscal year.

5.2 Suggestion for further studies

External and internal factors like the exchange rate and population growth rate, among others, should be taken into account as variables that need to be managed. Therefore, researchers interested in this area of study are encouraged to consider this specific aspect.

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