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Public Debt, Macroeconomic Conditions, and Manufacturing Performance in Nigeria: Implications for Industrial Infrastructure Financing, 2015–2024

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Abstract

Nigeria's persistent dependence on public borrowing has renewed debates on the relationship between sovereign debt, industrial development, and macroeconomic stability. Despite the rapid growth of Nigeria's public debt stock—from approximately ₦12.6 trillion in 2015 to ₦144.67 trillion in 2024—the manufacturing sector has continued to experience structural challenges, including inadequate infrastructure, exchange-rate instability, inflationary pressures, and weak productive capacity. This study examines the implications of sovereign debt accumulation for manufacturing performance in Nigeria. It evaluates the potential of Special Economic Zones (SEZs), industrial clusters, and sovereign Sukuk financing as alternative mechanisms for supporting industrial development. The study adopts an integrated descriptive macroeconomic and qualitative policy-review design, combining descriptive analysis of macroeconomic data with a synthesis of the policy literature. Secondary data were obtained from the Debt Management Office, the Central Bank of Nigeria, the National Bureau of Statistics, the Manufacturers Association of Nigeria, and peer-reviewed studies published between 2020 and 2026 to contextualise empirical debt and manufacturing data covering 2015–2024. The analysis employs descriptive trend analysis, comparative policy analysis, and thematic synthesis to assess trends in public debt, manufacturing output, exchange-rate movements, inflation, and infrastructure financing. The findings reveal a notable manufacturing paradox within Nigeria's macro-industrial ecosystem. Although sovereign borrowing expanded significantly over the study period, manufacturing performance remained relatively low. Manufacturing's contribution to gross domestic product fluctuated within a narrow range, while capacity utilisation remained vulnerable to

macroeconomic shocks. Furthermore, exchange-rate depreciation and inflation increased production costs and weakened industrial competitiveness, while rising debt-service obligations constrained government investment in productive infrastructure. The study argues that the developmental impact of sovereign debt depends less on the volume of borrowing than on the efficiency and composition of debt allocation. It concludes that asset-backed financing instruments, particularly sovereign Sukuk bonds, alongside well-coordinated SEZs and industrial clusters, provide viable pathways for linking public borrowing to productive investment and sustainable industrialization in Nigeria.

Keywords: Sovereign Debt, Manufacturing Performance, Industrialization, Special Economic Zones, Sukuk Financing, Infrastructure Development, Nigeria.

Introduction

Nigeria's macroeconomic landscape has become more complex due to an unprecedented expansion of public debt over recent years. Between 2015 and 2024, Nigeria's total debt stock increased from about ₦12.60 trillion to ₦144.67 trillion, a growth rate of approximately 1,048 percent (Mustapha, 2026). This unprecedented scale of accumulation has raised concerns about the sustainability of Nigeria's debt, as well as its implications for economic growth and, particularly, manufacturing development. A variety of literature has shown that large-scale borrowing can create a debt-overhang effect that depresses growth. However, public debt can also be an effective agent of structural change when capitalised for productive uses. Nigeria continues to face infrastructure, energy, and industrial (capacity) constraints, and sustainability will depend less on how much debt the country accrues than on its ability to use borrowed funds productively.

Traditional approaches to financing Nigeria's debt profile have focused on the negative impact of the growing debt-service burden. More recent research has raised concern over the rising cost of servicing public debt and its negative impact on revenue, constrains fiscal space for capital expenditure, and restricts the access of private industry to credit (Mustapha, 2026; Amu et al., 2025), thus inducing a slowdown in the flow of resources to critical infrastructure and constraining the productive capacity of local industries. Other alternative views, drawing from the Keynesian tradition, suggest that deficit financing in the form of public borrowing can induce growth under a replicative approach, prudent public debt levels, and institutional control. Value added would arise from deploying debt-financed investments in infrastructure, the energy sector, and industrial sectors, which several studies have shown can boost output without necessarily inducing long-term inflationary distortions (Yusuf & Mohd, 2021; Okodua et al., 2022).

The magnitude and structure of external and internal debt are equally relevant to their impact on development. Domestic borrowings are particularly important; they have become an underappreciated determinant of Nigeria's industrial development path. Empirical evidence shows that debt securities associated with domestic financial markets can induce financial deepening, to the extent that government spending is channeled to productive activities (Joshua-Gyang, 2024; Ola et al., 2026). In addition, empirical results from sectoral regressions suggest that the relationship between domestic debt and manufacturing growth need not be adverse; if constructed under the right fiscal arrangements, mobilizing domestic credit to

enhance local production bases and create the right investment opportunities can induce industrial growth. Therefore, the key policy problem facing Nigeria is no longer whether to borrow, but how to put in place the needed institutional arrangements to invest borrowed funds in projects with strong prospects of generating economic benefit.

Manufacturing is central to this argument because it can create jobs, drive product and process innovation, foster export diversification, and engender pro-poor growth. Nevertheless, the sector remains beset by multiple challenges, including inconsistent power supplies, poor road infrastructure, currency fluctuations, and limited access to finance. Emerging research underscores the importance of physical infrastructure in raising industrial productivity and enhancing manufacturing competitiveness in Nigeria (Asaleye et al., 2021; Onabote et al., 2021; Adoghe et al., 2023). This micro-evidence suggests that debt-driven investments may promote security only when they address the structural constraints that hamper industrial performance.

Public borrowing could support industrial development if Special Economic Zones (SEZs) and industrial clusters are expanded and used effectively. Industrial space has served as a second-generation industrial policy in most developing countries, boosting manufacturing growth, attracting foreign direct investment, and spilling over to domestic industries. Grouping firms in a specific space allows manufacturers to share common infrastructure, lower transaction costs, and gain easier access to domestic and international markets (Rodríguez-Pose et al., 2022; Robinson, 2022). In Africa, the study increased incentives for zones to industrialize and improve economic competitiveness (Zeng, 2022; Danja & Wang, 2024).

While such PAN countries experienced mixed results in the performance of SEZs, some studies in the literature have proffered reasons for such varying performance that include inadequate infrastructure, poor institutional coordination, and excessive use of fiscal incentives that formed weak linkages with the domestic economy (Rodríguez-Pose et al., 2022; Kalu & Aniche, 2025). Nigeria must go beyond traditional borrowing practices and design an all-encompassing framework to leverage the developmental benefits of debt-financed industrialization, focusing not only on strengthening governance and industrial policies but also on providing the investments and services needed in targeted industrial zones, such as infrastructure and public–private partnerships.

Against this backdrop, this paper assesses how new public debt could be used or misused to catalyze manufacturing-led growth and fortify national stability in Nigeria. It then investigates the potential for debt-financed investments in infrastructure, energy, and industrial clusters to bolster manufacturing and respond to modern structural imperatives for transforming the Nigerian economy. In this light, the paper analyses the proposed prescription of public debt management for spatial industrial development.

Research Objectives

The broad objective of this study is to examine the implications of sovereign debt expansion for manufacturing performance and industrial development in Nigeria.

The specific objectives are to:

i. Examine the effect of Nigeria's rising public debt and debt-servicing obligations on the performance of the manufacturing sector between 2015 and 2024.
ii. Analyze the influence of macroeconomic factors, particularly exchange-rate fluctuations, inflation, and infrastructure deficits, on manufacturing output and capacity utilization in Nigeria.

iii. Evaluate the effectiveness of Special Economic Zones (SEZs) and industrial clusters as policy instruments for promoting manufacturing development and mitigating structural constraints in Sub-Saharan Africa.
iv. Assess the potential of sovereign Sukuk bonds and other asset-backed financing mechanisms as sustainable alternatives for funding industrial infrastructure in Nigeria.
v. Propose policy measures for aligning sovereign borrowing with long-term industrialization and macroeconomic stability.

Research Questions

The study seeks to answer the following questions:

i. How have Nigeria's rising public debt profile and debt-servicing obligations affected manufacturing-sector performance between 2015 and 2024?
ii. To what extent have exchange-rate volatility, inflation, and infrastructure deficiencies constrained manufacturing output and capacity utilization in Nigeria?
iii. How effective are Special Economic Zones (SEZs) and industrial clusters in addressing the structural challenges facing manufacturers in Sub-Saharan Africa?
iv. What role can sovereign Sukuk bonds and other asset-backed financing instruments play in financing industrial infrastructure without exacerbating Nigeria's debt burden?
v. What policy strategies can enhance the contribution of sovereign borrowing to sustainable industrialization and macroeconomic stability in Nigeria?

LITERATURE REVIEW

The Macro-Industrial Ecosystem: Conceptualizing Manufacturing Performance, Structural Constraints, and Remedial Frameworks

The performance of the manufacturing industry in developing economies is embedded in a complex macro-industrial setting, mediated by fiscal institutions, infrastructure networks, and industrial policies. Especially in Nigeria, where industrialization remains a pillar of economic diversification and long-term stability, domestic effective demand, public debt, energy infrastructure endowments, and spatial development policies interact to shape the productive capacity of domestic manufacturing firms. Manufacturing can be seen as a strategic industry with great potential for income, employment, technology, export, and macroeconomic balances, if development benefits are built on sound institutional arrangements that foster industrial productivity and ease structural hurdles (Salaudeen & Adebayo, 2021).

Today, industrial performance is conceptualized to be driven by macroeconomic and institutional factors operating at aggregate levels, rather than at the firm level. Here, public debt regimes affect the space for industrial investment; infrastructure regimes affect production efficiency; and spatial industrial interventions (SEZs and industrial clusters) shape the environment in which firms operate. Nigeria's experience illustrates the interaction among these determinants, given its debt crisis, infrastructure deficits, and localized industrial performance.

Public Debt and Manufacturing Performance

One of the most contentious debates in the macroeconomic literature is the effect of public debt on industrialization. Several theories, particularly those emanating from the Keynesian school of thought, advocate expansionary fiscal policies which can be facilitated by deficit financing to boost growth. Deficit financing, according to Keynesian theorists, directs resources to both investors and consumers;

thus, it may be used to jump-start industries by investing public funds in infrastructure. Empirical studies suggest that public borrowing to develop transportation, energy, and industrial infrastructure can boost growth in Nigeria, where sound governance and sustainable debt management policies exist (Yusuf & Mohd, 2021; Adegbie et al., 2022).

In contrast, some strands of the literature highlight the danger of excessive debt accumulated by firms or states (apparent in non-financial corporations and nations, respectively). The debt-overhang hypothesis argues that excessive debt burdens curtail interaction by generating debt service requirements that crowd out needed private productive investments and restrain long-term economic growth (Mustapha, 2026). This can be equally applied to what was observed in the Nigerian public debt structure, which increased more than tenfold, from about N12.60 trillion in 2015 to N144.67 trillion (USD 94.23 billion) in 2024, raising questions of debt sustainability and economic growth and development priorities (Mustapha, 2026). Recent empirical studies have also shown that rising debt-service obligations increasingly crowd out revenue for financing capital and infrastructure formation and create bottlenecks to credit access for the private sector and the economy-wide (Amu et al, 2025; Hassan et al, 2025).

The developmental effects of public debt can thus derive not only from the affected (macro) leeway available to the indebted country, but also from how that leeway is used (i.e., the composition/pattern of borrowings in the country) and how the debt is financed (Onyenwife et al., 2023). For instance, certain debt instruments, namely direct monetary financing items such as the reach of the central bank to reserves, are often implicated in inflationary trends and constrained manufacturing efficiency. At the same time, their market-based counterparts' linkage with infrastructure production seems to be beneficial to financial deepening and industrial output (ibid). Similarly, directional performance/in sector-based papers also observe that domestic debt can generate positive spillovers when government spending is channeled into productive sectors, coupled with appropriate institutional arrangements (Joshua-Gyang, 2024; Ola et al., 2026).

Manufacturing plays a special role in this argument not just because of infrastructure investment, but because it can turn fiscal resources into concrete economic results. Manufacturing growth increases employment, backward linkages, and value added to an economy. Thus, the real question for Nigeria is not increasing debt, but whether systems are in place to direct borrowed capital to projects with industrially sustainable returns.

Infrastructure Deficits and the Energy Constraint

Apart from financial issues, infrastructure shortcomings are arguably the most important structural impediments to Nigerian industrialization. Of all the sectors, energy is one of the most cited factors determining manufacturing success. Production infrastructure underpins manufacturing and affects production costs, firm efficiency, investment, and firm competitiveness. Across SSA, electricity shortages are repeatedly cited as the biggest factor holding back domestic industries, especially energy-consuming ones.

Empirical research has found a significant positive correlation between manufacturing output and electricity supply. Research in Nigeria found that periods of high industry performance were more responsive to shocks to energy infrastructure/infrastructure failure than to internal sectoral shocks to sector output, reaffirming the importance of energy infrastructure to manufacturing growth (Asaleye et al., 2021; Bassey et al., 2022). A long-run correlation between electricity consumption and manufacturing output was also found (Nwosu et al., 2024; Gold et al., 2024).

Interruptions in production are not the only adverse effect of electricity rationing. Endemic power scarcity forces firms to bear large adjustment costs through self-generation and purchasing alternative energy sources. Empirical studies find that about 78 percent of manufacturing firms in Nigeria are persistently disconnected from the public power grid, and over 70 percent use private generators to meet much of their energy demand (Adoghe et al., 2023). This reliance on self-produced electricity greatly inflates input costs, reduces participating firms' profit margins, and erodes the global competitiveness of local manufacturing.

The burden of energy insecurity has the greatest implications for SMEs, which typically have weaker balance sheets and cannot easily absorb the adverse effects of higher input costs and lower productivity. The negative effects of electricity price increases on manufacturing OD have been quantified and estimated to exert upward pressure on manufacturing OD and, thus, lower output efficiency (Iwuagwu et al., 2026). In contrast, a recent study suggests that increased government expenditure on the power sector does not necessarily translate into more reliable energy. Structural/bureaucratic inefficiencies, project delays, and governance failures impede public expenditure and will not produce the increase in grid reliability needed (Adoghe et al., 2023).

Theoretical Framework:

Keynesian Theory of Deficit Financing and Productive Public Debt

Much of the theoretical argument for sovereign borrowing in developing countries remains rooted in Keynesian macroeconomics, which notes that government intervention can play a significant role in boosting economic activity amid low private investment and structural backwardness. Keynesian theory therefore advocates deficit finance, through public borrowing, as a valuable policy tool that can expand aggregate demand, reduce unemployment, and encourage long-term economic growth. In this context, public debt may not necessarily harm economic development, as it largely depends on the ability to use the borrowed funds effectively. As a result, public borrowing provides the capital needed to develop infrastructure, propel productive sectors, and hasten industrialization.

The importance of this theory in emerging countries cannot be overstated, as Nigeria has numerous infrastructural deficits that limit the manufacturing sector and economic diversification. As the manufacturing sector remains the most significant for employment, innovation and export growth, the importation of capital, technology and machinery, as well as transportation, are often key limiting factors when it comes to infrastructure; however, public investment through borrowings is often the only source of funding for strategic investments in such sectors that private effort cannot achieve alone (Yusuf & Mohd, 2021).

From a Keynesian perspective, deficit financing can support industrialization by enabling public-sector investment in infrastructure that supports and facilitates the growth of power systems, roads and transport networks, industrial parks, and support industry facilities, resulting in multiplier effects of increased income and employment through the rest of the economy. Data from Nigeria show that debt-financed public expenditure can be associated with economic growth and industrialization, provided borrowing goes into productive projects for capital formation and is accompanied by strong institutional arrangements (Adegbie et al., 2022; Hassan et al., 2025).

Additionally, the theory postulates that public debt's contribution to structural transformation depends on closing the gap between existing domestic revenue sources and long-run development needs. As economies have limited capacity for industrialization and face infrastructure deficits, borrowing allows the government to finance projects whose benefits span fiscal periods. Investment in electricity infrastructure, road networks, ports, and industrial zones could enhance production efficiency and

reduce transaction costs, positively influencing the competitiveness of local manufacturers. Empirically, studies on Nigeria's industrial sector indicate that the success of debt-driven expenditure depends on the share of public resources channeled into sectors that can be sustainably productive (Okodua et al., 2022; Emily Joshua-Gyang, 2024).

However, Keynesian theory does not suggest that borrowing should be limitless. Instead, the theory holds that taxpayers and sovereign debt must be bounded at manageable levels, and that borrowed money must be invested in dynamic activities that produce future income. If borrowed money is mismanaged, the economy can collapse without the developmental benefits of deficit finance, which can negatively affect industrial performance. Hence, growth may not be genuine if it is not based on proper fiscal governance and resource allocation (Amu et al., 2025).

In this context, most of the normatively driven arguments in this work are based on Keynesian economics, which serves as the main rationale for investigating the links between sovereign debt and manufacturing development in Nigeria. It further argues that public debt, if used properly for infrastructure and industrial development, can enhance manufacturing and economic diversification.

Debt Overhang Theory and the Constraints on Industrial Development

Compared with Keynesian theory, which stresses the development inducements of deficit spending, Debt Overhang Theory highlights the potential hardship of over-borrowing on the economy. When a country borrows so much that future taxation and debt-servicing requirements become too high, both private and public investment are discouraged. As a result, economic agents expect to allocate an abnormal share of future national income to debt service rather than to essential production, which, in turn, slows economic growth. Thus, over-indebtedness could turn public borrowing into a development block rather than an enabler.

This Debt Overhang Theory appears more relevant in developing or underdeveloped economies, where scarce funds and weak institutional structures make productive sectors more susceptible to fluctuations in government budgets. In the case of Nigeria, which has experienced a dramatic increase in its public debt stock from around ₦12.60 trillion in 2015 to ₦144.67 trillion in 2024 (Mustapha, 2026), the obligation to service its debt has brought it increasing headlines and more social and political concerns about the long-term effects of such rising indebtedness on industrialization and macroeconomic stability.

The main contention of Debt Overhang Theory is that rising debt-servicing constraints limit the government's fiscal space to pursue productive investments. As a larger proportion of government revenue goes toward debt payments, the government spends less and less on capital formation in sectors such as transport, energy, and broader industrial infrastructure. Several recent authors have shown through economic analysis that a rising debt burden constrains the government's real expenditure, limits investment in infrastructure support for manufacturing Firms, and simultaneously restricts the availability of credit to Firms (Amu et al., 2025; Mustapha, 2026). The crowding-out effect of excessive debt in the economy critically constrains the manufacturing sector's productive base.

The theory also emphasizes that the negative consequences of debt accumulation depend not only on the size of public debt but also on its composition and the manner of borrowing. Borrowing measures (borrowing instruments) with different borrowing modalities would have different macro impacts. Monetized direct borrowing, such as direct monetary financing through central-bank advances and other facilities, was highly correlated with inflation, exchange-rate depreciation, and falling industrial productivity. In addition, these financial arrangements tend to increase liquidity without a commensurate increase in productive capacity, thereby reducing the competitiveness of domestic

industries. Conversely, market-sourced measures are associated with better macro-outcomes, deeper financial markets, and the effective allocation of financial resources to development projects (Onyenwife et al., 2023; Ola et al., 2026).

Beyond the implications of debt overhang for public finances, it also affects the investment climate in general. Excessive debt creates an atmosphere of economic and political instability that prevents the private sector from engaging in long-term investments in industrial projects. Manufacturing companies are affected by higher borrowing costs, limited access to credit, and macroeconomic effects, especially in a banking system where Nigerian companies suffer from a lack of infrastructure, power scarcity, and exchange rate instability.

Debt Overhang Theory is an important theoretical lens through which this paper evaluates the impact of debt-financed development. It also highlights the limitations of debt-financed development: a large debt burden may limit sovereign development and growth through the distortions it imposes and thus may not be advantageous to the development process. This paper asks the key question: Is Nigeria's pattern of debt accumulation a facilitator or an impediment to manufacturing development?

The Macro-Industrial Debt–Productivity Nexus

Based on Keynesian Theory of Deficit Financing and Debt Overhang Theory, the work develops a Macro-Industrial Debt–Productivity Nexus framework to elucidate the nexus between sovereign debt and manufacturing development in Nigeria. The framework views industrial performance as a function of the interactions among public debt, infrastructure investments, financing instruments, and spatial industrial policies. Rather than viewing public debt as inherently positive or negative, the framework sees its developmental impact as premised on the institutional arrangement through which borrowed resources are mobilized and used.

The framework assumes that sovereign debt influences manufacturing performance through two antagonistic transmission mechanisms. The first transmission mechanism, the productive-investment channel, is grounded in Keynesian theory. A sovereign debt-financed buildup of investments in the economy can create the fiscal space needed to fund infrastructure projects, strengthening industrial growth. Investments in electricity generation, transportation, logistics infrastructure, industrial parks and SEZs tend to lower production costs, boost productivity and mobilize private sector involvement in manufacturing: by tackling structural constraints responsible for bottlenecking industrial performance, debt-supported investments might increase productive capacity, generate more jobs and hasten trade and economic diversification (Yusuf & Mohd, 2021; Okodua et al., 2022).

The effects of spatial industrial policies also confirm this pathway. Special Economic Zones and industrial clusters generate agglomeration economies by concentrating firms in specific geographical locations and providing spillovers of knowledge, technology, and skills, as well as infrastructure that facilitates production. Previous research suggests that well-designed industrial clusters should boost manufacturing, export performance, and participation in global value chains (Rodríguez-Pose et al., 2022; Robinson, 2022; Danja & Wang, 2024). Therefore, debt-financed investments in SEZs and industrial infrastructure could transform local industrial activities into much greater national development.

The second transmission channel resonates with the debt-overhang viewpoint. Here, excess debt accumulation impairs industrial development by elevating debt service payments and hampering government expenditure on productive investments. Higher public debt levels may crowd out private capital, diminish investor confidence, and hamper government investment in infrastructure and industrial stimulus schemes (Amu et al., 2025; Mustapha, 2026). Hence, in distressed institutional and

fiscal contexts, irresponsible borrowing may make public debt a structural impediment to industrial development rather than a catalyst.

The framework also highlights, as cited in Smaoui et al. (2021), that whether a country's borrowing proves developmentally beneficial depends not only on the volume of debt accumulation but also on the financing instruments involved. At the institutional and operational level, official borrowing often entails institutional leakages, inefficient resource allocation, and weak accountability structures. Asset-backed financing instruments-particularly sovereign Sukuk bonds and infrastructure-linked securities-have emerged as alternative mechanisms of financing industrial infrastructure. Unlike conventional borrowing, Sukuk financing entails capital backed by specific installations or resource holdings, and investments are thus contracted to specific projects, ultimately improving transparency and resource efficiency (Smaoui et al., 2021; Baita & Bashir, 2024; Tote & Suleiman, 2026).

Thus, the Macro-Industrial Debt–Productivity Nexus predicts that national stability and the industrial transition require sovereign borrowing to be optimally linked to productive investments in energy highways, specific manufacturing sectors, industrial clusters, and special economic zones, within a cost-effective public financial framework. Such public debt will drive effective manufacturing-based development cycles and build economic resilience. Inconsistent or absent linkages between public debt and productive investment in manufacturing sectors will make the economy fiscally vulnerable and hinder industrialization. Public debt, as such, must be conceptualized as a means of fostering manufacturing-led development and building national resilience.

Empirical Review

The accumulated empirical literature on Nigeria's macro-industrial environment suggests that, within the manufacturing sector, there is a complex relationship between actors' interactions, public debt behavior, infrastructure development, and the implementation of spatial industrialization strategies. In Nigeria, evidence suggests that although fiscal resources from sovereign borrowing to promote industrialization are available, the amount to be borrowed still hinges on debt composition, infrastructure performance, and institutional capacity.

Recent empirical studies have shown negative and inconsistent linkages between public debt and Nigerian industrial productivity. Public debt stock increased from about 12.60 trillion naira in 2015 to 144.67 trillion naira in 2024, raising suspicions about debt sustainability and fiscal space (Mustapha, 2026). Adegbie et al. (2022) reported that high debt-service costs have become a burden on government expenditure, thereby constraining the availability of resources for productive investment such as manufacturing-support infrastructure. A similar study by Amu et al. (2025) confirms the thesis that high public debt constrains fiscal space and impairs economic performance.

Other studies also point out that debt composition has significant effects on the economy, as does the amount of debt. While Yusuf and Mohd (2022) examined the effect of public debt on economic growth, they found that its positive effect occurs only when it is used for productive activities; Okodua et al. (2022) investigated the positive impact of debt-financed expenditure on industrial performance, which hinges on appropriate fiscal management. Likewise, Onyenwife et al. (2023) stated that debt instruments within domestic jurisdiction owned by non-bank players induce financial processes and industrial output; Ola et al. (2026) confirmed that domestic borrowings positively affect the industrial sector within a stable policy environment. Direct monetary financing is inflationary and tends to divert private investment.

The literature concurs that electricity supply interruptions are among the most detrimental bottlenecks of Nigeria’s manufacturing sector. Asaleye et al. (2021) established a strong connection between energy

consumption and manufacturing performance, concluding that access to electricity is a key variable in this domain.

Empirical evidence shows how daunting the power problem is in Nigeria—Adoghe et al. (2023) found that almost 78% of manufacturing firms endure constant outages, resulting in around 71% of firms using self-generation to meet a large share of their energy needs. The economic costs are significant, with firms losing an estimated 16% of sales income because of outages. Bassey et al. (2022) and Gold et al. (2024) also found that electricity unreliability has detrimental effects on production costs and manufacturing competitiveness.

Recent evidence also suggests that increased government spending on power infrastructure does not necessarily translate into better industrial performance. Imogiemhe (2025), for instance, notes that infrastructure leakages, institutional coordination failures, and delays in project implementation often reduce the effectiveness of public infrastructure spending.

However, empirical evidence on SEZs and industrial clusters remains mixed. Agglomeration theory suggests that geographic concentrations of companies produce productivity spillovers, reduce transaction costs, and promote technology transfer. For example, Rodríguez-Pose et al. (2022) found that SEZs might improve industrial performance where institutions are strong and infrastructure is sufficient. Likewise, Robinson (2022) highlighted their ability to boost export diversification and manufacturing in Africa.

However, some existing literature shows mixed evidence on the performance of these zones. Zeng (2022) found that most African SEZs remain heavily reliant on tax incentives and are supported by fragile institutions. Danja & Wang (2024) showed that many zones are less developmental because of inadequate electricity supply, regulatory constraints, and low integration with domestic supply chains. Newer studies show promising results with asset-backed finance (including sovereign Sukuk instruments), bridging role gaps in these zones by tying borrowed liquidity to infrastructure projects (Baita & Bashir, 2024; Tote & Suleiman, 2026).

Table 1: Summary of Empirical Review

Theme	Major Findings	Key Studies
Public debt and manufacturing	In countries with increasing debt, fiscal space shrinks; however, if the debt is used for productive borrowing, it may stimulate industrial development.	Yusuf & Mohd (2021). Adegbie et al. (2022); Amu et al. (2025); Mustapha (2026)
Debt composition	Sources used in the home and linked to project finance are more than monetary finance.	Onyenwife et al. (2023); Ola et al. (2026); Okodua et al. (2022)
Financial cost of outages.	Firms' reliance on self-generation results in per-fee revenue leakages and reduced competitiveness.	Bassey et al. (2022); Gold et al. (2024); Imogiemhe (2025)
Special Economic Zones	SEZs could, however, boost industrialization if complemented with the 'necessary physical infrastructure and good institutions'.	Rodríguez-Pose et al. (2022); Robinson (2022); Zeng (2022).
Sukuk and infrastructure finance	Asset-backed financing minimizes leakages and supports the buildup and maintenance of industrial infrastructure.	Baita & Bashir (2024); Tote & Suleiman (2026)

The evidence indicates that Nigeria's manufacturing performance is influenced not only by the level of public borrowing but also by the quality of infrastructure investment, the implementation of appropriate debt management programs, and the institutional effectiveness of spatial industrial policies.

METHODOLOGY

This research uses an integrated descriptive macroeconomic and qualitative policy-review design, combining descriptive analysis of macro-fiscal data with a synthesis of the policy literature to examine the nexus between sovereign debt stock accumulation and manufacturing deepening in Nigeria over 2015–2024. This design is suited to the study because it probes both the behavioral dimensions of fiscal expansion as captured in the macro-fiscal data and the underlying institutional systems through which debt-induced investments can trigger industrial transformations in Nigeria, and how SEZs and sovereign Sukuk bonds serve as possible channels of financing the country's industrial deepening aspirations (Farole, 2011; Wilson, 2008).

This work is based on secondary data from established national agencies and academic resources. Macroeconomic data on sovereign debt, debt servicing, foreign exchange rate, inflation, and industry output are from the Debt Management Office (DMO), the Central Bank of Nigeria (CBN), the National Bureau of Statistics (NBS), and the Manufacturers Association of Nigeria (MAN) (DMO, 2024; CBN, 2024; NBS, 2024; MAN, 2024). Similarly, journal articles, policy reports, and empirical research from 2020 to 2026 underpin the conceptual and analytical framework for analyzing the wider policy implications of debt-financed industrialization (IMF, 2024; World Bank, 2024; UNCTAD, 2023).

Instead of using intricate econometric estimations, the study uses simple descriptive trend analysis to examine trends in major macroeconomic variables over the period of interest (Saunders, Lewis, & Thornhill, 2019). The study will examine the trends in public debt stock accumulation, debt-servicing burdens, manufacturing output, capacity utilization, exchange-rate movements, inflationary trends, and credit growth to manufacturing to determine the degree to which current levels of fiscal expansion have facilitated or inhibited industrial productivity in Nigeria.

In addition to quantitative analysis, the study applies a comparative policy analysis framework. This allows for a structured comparison between traditional debt finance and various alternative finance sources, namely sovereign Sukuk bonds, as well as the practical experiences of SEZs in Sub-Saharan Africa (Cairney, 2016; Farole, 2011). Comparing different policy models will enable the researcher to evaluate their effectiveness and efficiency in tackling infrastructure shortfalls, attracting investments, and driving manufacturing-led development. Furthermore, thematic synthesis will group common themes and policy debates within the literature (Thomas & Harden, 2008; Braun & Clarke, 2006). Themes that emerged from this analysis include debt overhang, infrastructure bottlenecks, energy shortages, manufacturing competitiveness, and the contribution of spatial industrial policies to manufacturing development. This thematic analysis complements the quantitative findings within the context of broader institutional and developmental concerns.

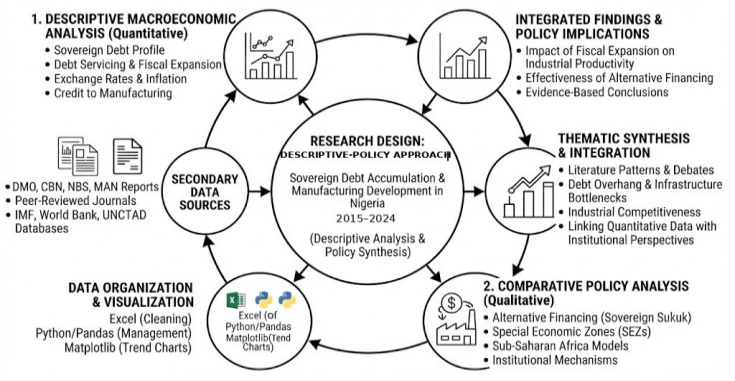


Figure 1: Conceptual Framework of the Research Design

RESULTS AND DISCUSSION

Trends in Nigeria's Sovereign Debt Profile (2015–2024)

Table 2: Trends in Nigeria's Public Debt Stock, Debt Composition, and Debt-Service Burden (2015–2024)

Period	Total Public Debt (₦ Trillion)	External Debt Share (%)	Domestic Debt Share (%)	Debt Service-to-Revenue Ratio (%)
Dec. 2015	12.60	16.8	83.2	N/A
Dec. 2017	21.73	26.6	73.4	N/A
Dec. 2021	38.00	N/A	N/A	76.2
2022	N/A	N/A	N/A	80.6
Q3 2023	87.91	36.38	63.62	N/A
Q4 2023	97.34	39.26	60.74	N/A
Q1 2024	121.67	46.05	53.95	168.0
Dec. 2024	144.67	48.59	51.41	N/A
Q1 2025	149.39	47.28	52.72	N/A

Source: Compiled from the Debt Management Office (DMO), Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), and BusinessDay reports (2015–2024).

The data indicates significant growth in Nigeria's sovereign debt over the period in question. In nominal terms, public debt increased from ₦12.60 trillion in 2015 to ₦144.67 trillion by 2024, an increase of approximately 1,048% over the decade. This intensified debt build-up can be explained by the government's reliance on borrowing to fund fiscal deficits, infrastructure projects, exchange-rate stabilization measures, and post-pandemic economic reconstruction.

The structure of the debt stock also changed profoundly. Domestic debt in 2015 was 83.2 percent of total public debt, while external debt accounted for 16.8 percent. Nevertheless, by December 2024 external debt had risen to 48.59 percent, bringing the share of external debt nearly on par with domestic debt. This signifies greater access to international capital markets and multilateral financing institutions. While prudently borrowing from abroad may afford a slightly lower cost of capital, it also entails exchange-rate risk. With such a sharp depreciation of the naira during the period under review, the mounting external debt stock resulted in higher payment obligations when expressed in domestic currency and consequently heightened fiscal imbalances.

The most notable indication of deterioration is the debt service-to-revenue ratio. It dropped to 76.2% in 2021, rose to 80.6% in 2022, and became alarmingly high at 168% in January 2024, indicating that debt-servicing costs sometimes exceed total revenue. This spike is better understood as a timing distortion than as a permanent structural collapse in fiscal capacity: federal revenue disbursements from oil receipts, VAT, and company income tax are typically recognized and released with a lag, whereas external and domestic debt-service obligations are front-loaded and fall due on fixed contractual dates regardless of whether matching revenue has yet been received. A month in which a large tranche of debt service coincides with a comparatively thin revenue-collection window will therefore generate a ratio that substantially overstates the underlying annual debt-service burden; the appropriate comparison is the full-year average rather than any single month in isolation. This condition nonetheless squeezes fiscal space and hampers the government's capacity to expend on the productive sectors such as manufacturing, energy infrastructure, transportation, and industry.

Taken in the context of the Debt Overhang Theory, the results imply that another negative consequence of a borrowing binge may be the crowding out of investment in productive infrastructure, as higher public debt reduces the state's capacity to lend to heavy industry. Keynesians would argue that the

development effect of borrowing hinges not on the amount of debt, but on how large the share is that is pulled into high-return projects, whose economic worth must be realized in the future.
So the challenge is not simply whether Nigeria can incur much more debt, but whether public borrowing can be effectively linked to investments that directly lead to outputs that can be quickly converted into goods and services and help sustain long-run macroeconomic stabilization.



Figure 2: Trend of Nigeria's Total Public Debt Stock, 2015–2024 (₦ Trillion)
Source: *Authors' computation and visualization based on data from the Debt Management Office (DMO), Central Bank of Nigeria (CBN), and National Bureau of Statistics (NBS).*

The figure illustrates the rapid growth of Nigeria's public debt between 2015 and 2024. Public debt increased significantly over the study period, reflecting the government's growing reliance on borrowing to finance fiscal obligations and infrastructure development.

Manufacturing Performance under Fiscal Expansion (2015–2024)
Specifically, from 2015 to 2024, Nigeria adopted a consistently more expansionary fiscal stance, marked by a significant uptick in sovereign borrowing. Total public debt rose sharply from an estimated ₦12.60 trillion in 2015 to an estimated ₦144.67 trillion in 2024. Empirical evidence shows, however, that despite this historic hike in public borrowing, the manufacturing sector has been relatively weak and has achieved only modest and inconsistent progress.
As observed in Table 2, the manufacturing sector's contribution to real Gross Domestic Product (GDP) remained almost unchanged over the study period. Manufacturing contributed about 9.0% to real GDP in 2015, rose marginally to 9.2% in 2018, reached a high of 10.1% in 2020, and declined to 9.8% in 2023. Therefore, the manufacturing sector's contribution to real GDP has remained within a narrow range of 9–10%, implying that the increase in public debt has not resulted in any extensive structural change in Nigeria's industrial base.
The evolution of the manufacturing sector also exemplifies its fragility to macroeconomic shocks. Whereas the manufacturing sector's output increased by only 0.2 percent in 2015, it contracted sharply by 18.2 percent in 2016, mainly due to shocks in oil prices and foreign-exchange availability, as well as the general recession. Manufacturing activities recovered afterward, increasing by 6.1 percent in 2017 and 5.8 percent in 2018. However, growth slowed to 3.3 percent in 2019 and then declined considerably amid the COVID-19 crisis, when manufacturing output contracted by 8.8 percent in 2020, the worst year since the 2016 recession.

While growth in the manufacturing sector resumed a positive trend over the next two years, recovery was lackluster, averaging 3.4 percent (in 2021) and 2.5 percent (in 2022), suggesting that increased government spending and borrowing were not enough to sustain industrial growth. Exchange-rate turbulence, rising input prices, and infrastructure deficits still held the sector back.

Utilization in Manufacturing follows an almost similar trend. While it fell from an average of 59.9 percent in 2015 to 49.0 percent in 2016, it remained on a positive trend, recording averages of 55.0 and 56.8 percent in 2018 and 2019, respectively. COVID-19 led to another drastic plunge in the industry's capacity utilization to an average of 45.2 percent in 2020. Though the Industry appears more resilient in the post-pandemic years, capacity utilization averaged 60.7 and 61.9 percent in the third and fourth quarters of 2024, respectively.

In sum, these results reveal a mismatch between increased spending and depressed industrial growth. Despite a more than elevenfold expansion of its sovereign debt stock, the sector's output, growth, and productivity efficiencies barely increased. This result supports the core assumption of Debt Overhang Theory: that the accumulation of excess debt and debt-servicing burdens undermines the fiscal capacity of borrowing governments and crowds out investment in productive activities. At the same time, results undermine the Keynesian contention that public borrowing can lead to Industrial Growth if it is channeled to productive sectors of the economy.

The evidence thus raises a bigger question for Nigeria: not public debt burdens per se, but a more nuanced question of how public borrowed funds are being utilized. Without strategic investment choices during the fiscal expansion, which include more thrust on energy infrastructure, transport networks, industrial hubs, and SEZs, the amount of the public debt is unlikely to catalyze the manufacturing transformation needed to ensure a sustainable industrial economy.

Table 2: Public Debt and Manufacturing Performance Indicators in Nigeria (2015–2024)

Year	Public Debt (₦ Trillion)	Manufacturing Share of GDP (%)	Manufacturing Growth Rate (%)	Capacity Utilization (%)
2015	12.60	9.0	0.2	59.9
2016	N/A	N/A	-18.2	49.0
2017	21.73	N/A	6.1	52.0
2018	N/A	9.2	5.8	55.0
2019	N/A	N/A	3.3	56.8
2020	N/A	10.1	-8.8	45.2
2021	38.00	N/A	3.4	N/A
2022	N/A	9.0	2.5	N/A
2023	97.34	9.8	N/A	N/A
2024	144.67	N/A	N/A	60.7

Source: *Compiled by the authors from the Debt Management Office (DMO), National Bureau of Statistics (NBS), Central Bank of Nigeria (CBN), and Manufacturers Association of Nigeria (MAN).*
N/A indicates that the specific annual value was not directly available in the DMO, CBN, or NBS releases consulted for this study.

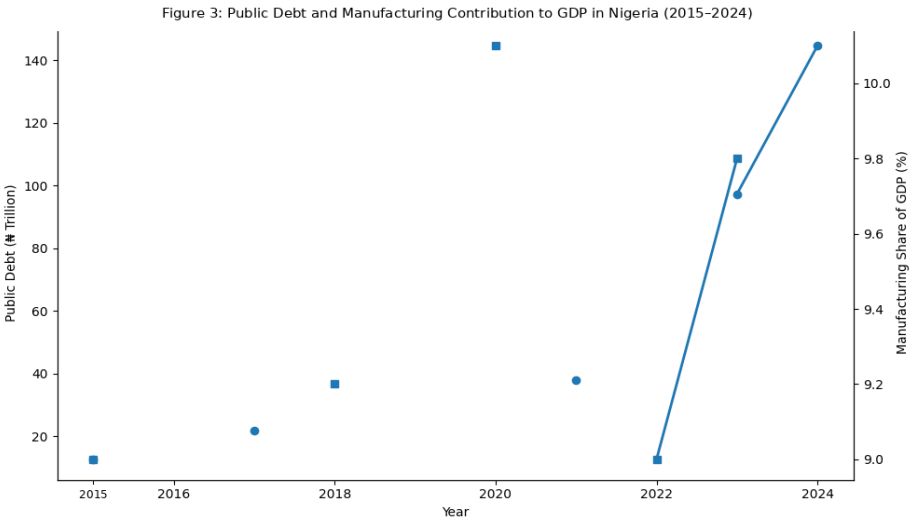


Figure 3: Public Debt and Manufacturing Contribution to GDP in Nigeria (2015–2024)
Source: *Authors' computation and visualization based on DMO, NBS, CBN, and MAN data.*

The figure compares public debt trends with key manufacturing indicators, including manufacturing's contribution to GDP, growth rates, and capacity utilization. Despite substantial debt expansion, manufacturing performance remained relatively unstable, suggesting that increased borrowing did not translate into proportional industrial growth.

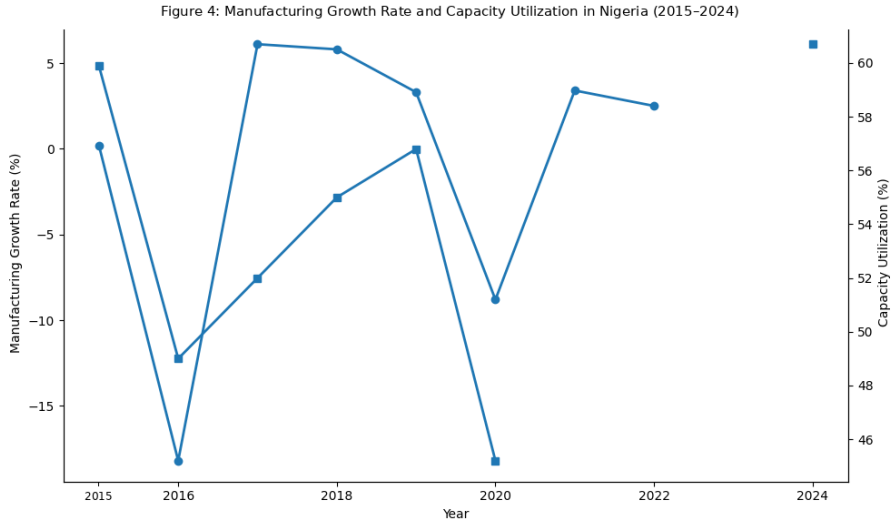


Figure 4: Manufacturing Growth Rate and Capacity Utilization in Nigeria (2015–2024)
Source: *Authors' computation and visualization based on NBS and MAN data.*

The figure shows the movement of exchange rates and inflation rates over the study period. The sharp depreciation of the naira and rising inflation increased production costs for manufacturers by raising the prices of imported machinery, raw materials, and other industrial inputs.

Exchange-Rate Depreciation and Inflationary Pressures.

However, macroeconomic instability, notably exchange-rate depreciation and sustained inflation, was one of the most important constraints on manufacturing performance for much of our period of study. Despite considerable escalation in public borrowing activities in Nigeria, from 2015 to 2024, the beneficial effects of fiscal expansion were reduced by the consequences of the sharp depreciation of the naira, as well as the persistent escalation in both producer and consumer prices, in terms of increasing the costs of production and thereby debilitating industrial competitiveness. As shown in Table 3, the average exchange rate depreciated from around ₦192.40/US$ to ₦460.40/US$ during the first half of 2023 before losing momentum and depreciating further to ~₦899.40/US$ since the introduction of the CBN's exchange-rate liberalization measures in December 2023. By the end of 2024, the exchange rate had depreciated to ~₦1,535 and was produced by the Nigerian Manufacturing and Performance Team. Exchange-rate volatility also significantly affects the manufacturing sector. Nigeria's manufacturing industries have remained highly reliant on imported capital equipment, machinery and spare parts, and intermediate inputs. As a result, the continued depreciation of the naira sharply raised production costs and created considerable uncertainty about investment planning among firms. The rising foreign exchange costs also dampened manufacturers' access to imported raw materials and thus deterred production. The exchange-rate dilemma was also exacerbated by inflationary momentum. The annual inflation rate climbed from 9.0% in 2015 to 15.7% in 2016 and hovered above double digits throughout most of the study period. The inflation rate averaged 18.85% in 2022 and jumped to 24.66% in 2023; in 2024, inflation rose again to an annual average of about 33.2% after the removal of fuel subsidies and the interaction between exchange-rate depreciation and inflation was very damaging for manufacturing. On the supply side, inflation raised the costs of imported raw materials, energy, logistics, and borrowing. On the demand side, inflation eroded households' purchasing power, reducing domestic consumption of manufactured goods. Both factors strained industrial competitiveness and weakened its capacity to benefit from debt-driven expansion. The results of this research are consistent with recent empirical evidence revealing exchange rate instability (or volatility) as a key factor explaining manufacturing performance in Nigeria. For a start, Imoagwu et al. (2024) establish that exchange rate instability holds back recovery in the industrial sector, as the additional costs involved in the export process and the risks associated with temporary excess demand led to a fall in profitability during this period; both effects delayed the recovery. Aliyu et al. (2025) also find that currency uncertainty induces persistent exchange-rate instability that worsens Nigerian manufacturers' short- and long-run planning and negatively affects their productive capacity. Overall, the evidence suggests that fiscal expansion without macroeconomic stability may not be sufficient to enable industrialization. Sovereign borrowing might enable the government to finance infrastructure and industrialization, but sustained exchange-rate depreciation and inflationary shocks could erode the victory by raising costs and discouraging the competitiveness of local manufacturers.

Table 3: Exchange-Rate Movements and Inflation Trends in Nigeria (2015–2024)

Year	Average Exchange Rate (₦/US$)	Annual Inflation Rate (%)
2015	192.4	9.0
2016	253.5	15.7
2017	305.5	16.5
2018	306.9	12.1
2019	306.9	11.4
2020	358.8	13.2

2021	401.0	17.0
2022	425.9	18.85
2023	460.4 (H1) → 899.4 (Dec.)	24.66
2024	1,478 (avg.) → 1,535 (Dec.)	33.2

Source: Compiled by the authors from the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), Macrotrends, KPMG, and *Nigeria Manufacturing Sector Performance vs. Fiscal Expansion: 2015–2024*.

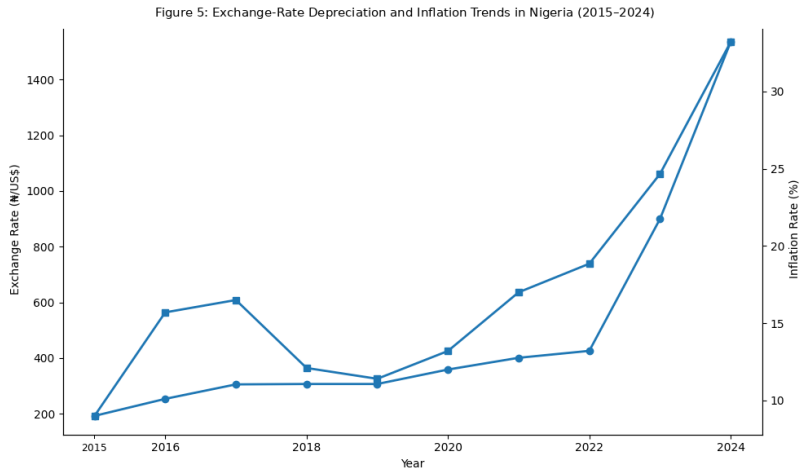


Figure 5: Exchange-Rate Depreciation and Inflation Trends in Nigeria (2015–202)
Source: *Authors' computation and visualization based on CBN and NBS data*.

The figure highlights the divergence between rising public debt and manufacturing-sector performance. While sovereign debt expanded rapidly, manufacturing output indicators recorded only marginal improvements, demonstrating the weak transmission of fiscal expansion into industrial productivity.

Debt Expansion and the Manufacturing Paradox

The result exposes a clear dilemma facing Nigeria's macro-industrial ecosystem. Between 2015 and 2024, public debt rose substantially from ₦12.6 trillion to ₦144.67 trillion. Conventional Keynesian theories imply that Nigeria's spiraling debt-to-GDP ratio should trigger catch-up industrial growth from the original base through massive infrastructure investment and associated infrastructural housekeeping functions, thereby increasing overall manufacturing sub-sector intensity. However, manufacturing performance is rather weak.

During the study period, the share of manufacturing in GDP oscillated from 9.0 to 10.1 percent, and the growth rate was also unstable, with sharp falls in 2016 and 2020. Though capacity utilization recovered to 60.7 percent in 2024, industrial growth could not keep pace with the rise in public borrowings.

This inconsistency indicates that the developmental effects of debt depend not only on the quantum of debt incurred but also on the optimal utilization of debt contracted. For instance, the literature indicates that debt can be a useful instrument of industrialization if it is used for productive purposes, while high debt service payments can erode fiscal space and crowd out growth-enhancing infrastructure spillovers (Yusuf & Mohd, 2021; Adegbie et al., 2022; Mustapha, 2026).

Adding to the difficulties were a sharp depreciation of the exchange rate, elevated inflation, and a chronic shortage of electricity and accommodation, all of which heightened production costs and eroded

the competitiveness of domestic producers (Asaleye et al., 2021; Adoghe et al., 2023). The findings therefore suggest that debt accumulation, per se, cannot deliver manufacturing-led growth. It is how the borrowed funds are channeled in the right direction towards infrastructure and industrial projects that can ensure sustainable returns to growth.

Table 4: The Debt–Manufacturing Paradox in Nigeria (2015–2024)

Indicator	2015	2024	Change
Public Debt (₦ Trillion)	12.60	144.67	+1,048%
Manufacturing Share of GDP (%)	9.0	—	Relatively stagnant
Manufacturing Growth Rate (%)	0.2	—	Volatile
Capacity Utilization (%)	59.9	60.7	Marginal improvement
Exchange Rate (₦/US$)	192.4	1,535.0	+698%
Inflation Rate (%)	9.0	33.2	+269%

Source: Authors' compilation based on DMO, CBN, NBS, MAN, and the datasets used in this study.

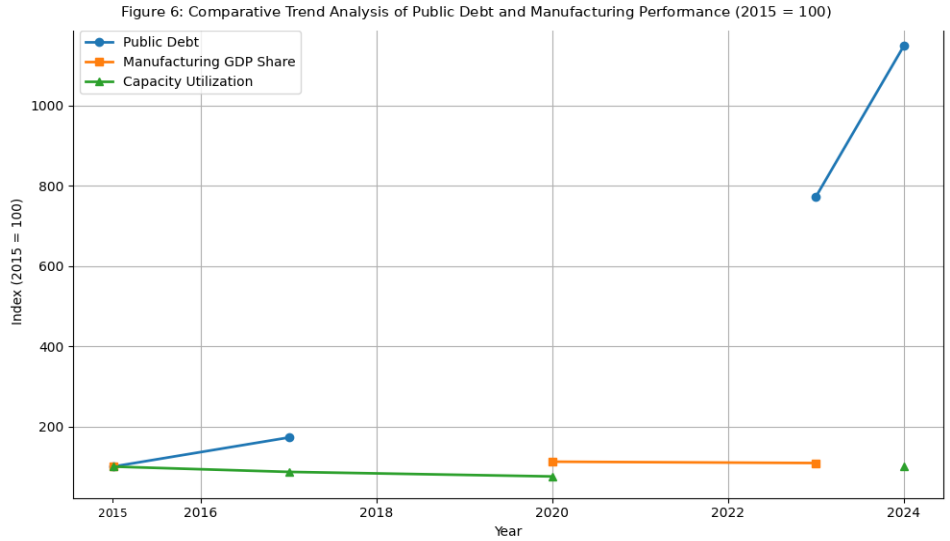


Figure 6: Comparative Trend Analysis of Public Debt and Manufacturing Performance in Nigeria (2015 = 100)

Source: *Authors' computation based on DMO, NBS, CBN, and MAN data.*

Analysis technique: Comparative trend analysis.

Purpose: To compare the growth trajectory of sovereign debt against manufacturing performance indicators and identify whether fiscal expansion translated into industrial development.

The figure presents the study's proposed framework linking sovereign borrowing, infrastructure financing, Special Economic Zones (SEZs), and manufacturing development. It emphasizes that debt-financed industrialization can promote sustainable growth only when borrowed resources are directed toward productive and asset-backed investments.

IMPLICATIONS FOR INDUSTRIAL POLICY

The paper's conclusions are relevant to Nigeria's industrial policy. While the country's scale of sovereign borrowing has increased significantly in recent years, the results suggest that such borrowing has failed

to spur manufacturing-based growth. The return on public debt depends largely on the success of public sector investments in using these resources for sustained economic progress.

First, shift future borrowing toward asset items and productivity-enhancing investments. Special Economic Zones (SEZ) and industrial clusters are appropriate institutional arrangements to make public finance a part of manufacturing development. Locating firm clusters in certain areas through spatial policies can reduce production costs, enable technology diffusion, enhance infrastructure (human and physical), and expand connections to regional and international value chains (Rodríguez-Pose et al., 2022; Danja & Wang, 2024). However, reliable electricity, logistics, and governance systems are essential.

Moreover, the evidence underscores a growing need for sovereign Sukuk bonds as an alternative mode of finance. Compared with traditional debt instruments, Sukuk financing is directly linked to tangible assets and infrastructure projects, enhancing accountability and minimizing the potential for fiscal leakages (Smaoui et al., 2021; Baita & Bashir, 2024). Other literature also points to the crucial role of Sukuk in fostering infrastructure development and sustainable economic growth in Nigeria (Adeagbo, 2021; Tote & Suleiman, 2026).

In sum, the findings suggest that Nigeria's problem is not the level of borrowing per se but its management (and the use of the borrowed funds). To sustain industrialization in Nigeria, the government must position sovereign borrowing alongside investments in energy infrastructure, industrial agglomerations and manufacturing-support infrastructures that can translate into productivity advantage and macroeconomic stability.

RESEARCH LIMITATIONS

A few factors also limit the research. For example, the work is mainly based on secondary data provided by the DMO, CBN, NBS, the Manufacturing Association of Nigeria, and other published reports; the benefit of the work depends on the accuracy, reliability, and availability of information from these agencies.

Second, the lack of advanced econometric modeling stems from the more descriptive, qualitative policy-synthesis approach used. While this approach enables the author to take a holistic look at the macro-industrial ecosystem, causal links between sovereign debt and manufacturing performance would be hard to justify.

Third, due to data limitations, it was not possible to compile a completely balanced dataset for some indicators (specifically manufacturing capacity utilization, sector-wise credit allocation, and SEZ performance across the entire time series studied). Differences in reporting standards across institutions further complicated the analysis.

In addition, although the article compares Nigeria's experiences with some Sub-Saharan African countries, it mainly focuses on Nigeria itself. Therefore, the results may not apply universally to countries with distinctive institutional, political, and industrial settings.

Lastly, this research focuses on the last decade, 2015-2024, and most recently provides evidence for the literature (2020-2026). As a result, emerging policy changes and future macroeconomic shocks could alter some of this paper's findings.

CONTRIBUTIONS TO KNOWLEDGE

This study contributes to the existing literature on public finance and industrial development by advancing an integrated macro-industrial perspective on the relationship between sovereign debt and manufacturing performance in Nigeria (Panizza & Presbitero, 2014; Debt Management Office [DMO],

2024). Unlike previous studies that examine public debt, infrastructure, or industrialization as separate phenomena, this research brings these dimensions together within a unified analytical framework (World Bank, 2024; UNCTAD, 2019).

First, the study extends the debt-growth literature by shifting attention from aggregate economic growth to manufacturing-sector performance, thereby providing a more sector-specific understanding of the developmental implications of sovereign borrowing (Reinhart & Rogoff, 2010; Rodrik, 2016). This matters because manufacturing remains a key channel through which public investment influences productivity, job creation, and structural transformation in developing economies (UNIDO, 2022; Akinlo & Lawal, 2015).

Second, the research develops the Macro-Industrial Debt–Productivity Nexus framework, which explains how sovereign debt affects manufacturing outcomes through infrastructure investment, exchange-rate dynamics, inflationary pressures, and spatial industrial policies (Central Bank of Nigeria [CBN], 2024; International Monetary Fund [IMF], 2024). This framework offers a broader conceptual lens for understanding the channels through which public borrowing influences industrial development and aligns with evidence that the developmental impact of debt depends largely on the composition and efficiency of public expenditure (Panizza & Presbitero, 2014; World Bank, 2024).

Third, the study contributes to policy debates by evaluating the role of Special Economic Zones (SEZs) and industrial clusters as institutional mechanisms for improving industrial productivity and mitigating structural constraints within the manufacturing sector (Farole, 2011; Zeng, 2015; UNCTAD, 2019). By situating these instruments within Nigeria's macroeconomic context, the study shows how spatial industrial policies can complement fiscal and monetary interventions in promoting competitiveness, economies of scale, and industrial upgrading (UNIDO, 2022).

Finally, the study expands the emerging literature on alternative infrastructure financing by highlighting the potential of sovereign Sukuk bonds and other asset-backed instruments to finance productive infrastructure while reducing fiscal leakages and enhancing accountability (Hassan & Aliyu, 2018; DMO, 2024). In doing so, the research provides practical policy recommendations for aligning sovereign borrowing with sustainable industrialization and long-term macroeconomic stability in Nigeria (IMF, 2024; World Bank, 2024).

CONCLUSION

The paper explores the impacts of the recent uptrend in Nigeria's public debt on manufacturing in the broader context of industrial policy, infrastructure, logistics, and macroeconomic stability. Using descriptive trend analysis and a policy review, the paper assesses the impact of the all-time-high public debt on industrial transformation or current stagnation in the structural setting. It reports that while public debt has soared from about N 12.60 trillion in 2015 to N 144.67 trillion in 2024, manufacturing performance has grown only marginally.

The findings align with debates in the literature. Keynesian theory suggests deficit financing can increase fiscal room and enable productive investment in sectors like transportation, energy, and industrial infrastructure (Yusuf & Mohd, 2021; Adegbie et al., 2022). Despite significant expansion of fiscal space, manufacturing remained relatively flat, with its contribution to GDP varying narrowly between 9 and 10. This suggests that the developmental impacts of public debt depend more on the quality and efficiency of cash utilization than on the quantum of borrowing.

The results also support the Debt Overhang Theory: too much debt servicing has reduced available space for investment and crowded out the economy's productive investment (Mustapha, 2026; Amu et

al., 2025). Increased debt burden, alongside a depreciating exchange rate and associated inflationary pressures, hampered investment in essential infrastructure and destroyed industrial output.

Aligned with previous research (Asaleye et al., 2021; Adoghe et al., 2023; Nwosu et al., 2024), our results confirm that ongoing power outages, rising energy prices, and reliance on on-site generation continued to erode manufacturing productivity. Globally, except in South Africa, export growth was subdued across sub-Saharan Africa, reflecting weak global demand, where exchange rate volatility and high inflation raised the landed cost of imported machinery and intermediate inputs, constraining the benefits of debt-financed spending (Imoagwu et al., 2024; Aliyu et al., 2025).

The paper also suggests that Special Economic Zones, industrial clusters, and sovereign Sukuk bonds are other instruments for financing infrastructure and promoting industrialization efforts (Rodríguez-Pose et al., 2022; Smaoui et al., 2021). To move beyond this general observation, three concrete steps are proposed to ring-fence sovereign Sukuk proceeds for industrial-cluster energy needs. First, future Sukuk issuances should be structured as project-specific instruments tied by prospectus to a named list of industrial-cluster energy assets, such as dedicated feeder lines, gas-fired captive power plants for SEZ tenants, or transmission upgrades serving a specific manufacturing corridor, rather than being pooled into general road and rail infrastructure as under the existing Sukuk program. Second, proceeds should be domiciled in a dedicated escrow or sinking-fund account jointly supervised by the Debt Management Office and the Ministry of Industry, Trade and Investment, with quarterly disbursement reports published against physical project milestones so diversion to non-industrial spending can be independently verified. Third, the return to Sukuk holders should be linked, at least in part, to a lease or usufruct arrangement over the completed energy asset itself, for example a fixed lease payment from the SEZ operator or industrial cluster management authority back into the Sukuk trust, which would give investors a direct stake in the asset's productive use and give industrial tenants a strong incentive to keep it operating at capacity. Taken together, these steps would convert Sukuk financing from a general-purpose borrowing instrument into a targeted mechanism for closing the energy-infrastructure gap identified throughout this paper as a binding constraint on manufacturing capacity utilization. In conclusion, the results imply that Nigeria's problem is not borrowing but ensuring the appropriate use of debt for productive infrastructure, energy systems, and manufacturing-support institutions.

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